Japan International Cooperation Agency (JICA) Department of Transportation & Communications (DOTC)

Final Report

The Study on the Master Plan for the Strategic Development of The National Port System in the Republic of the Philippines

Summary

January 2004 🛖

The Overseas Coastal Area Development Institute of Japan (OCDI)

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PREFACE

In response to a request from the Government of the Republic of the Philippines (hereinafter referred to as "GOP"), the Government of Japan decided to conduct a Study on the Master Plan for the Strategic Development of the National Port System in the Republic of the Philippines and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA selected and dispatched a study team to the Philippines three times between October 2002 and January 2004, which was headed by Mr. Hisao Ouchi of the Oversea Coastal Area Development Institute of Japan (OCDI) and was comprised of OCDI.

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

I hope that this report will contribute to the strategic development of ports in the Philippines and to the enhancement of friendly relationship between our two countries.

Finally, I wish to express my sincere appreciation to the officials concerned of GOP for their close cooperation extended to the team.

January 2004

Kazuhisa Matsuoka

Vice President

Japan International Cooperation Agency

LETTER OF TRANSMITTAL

January 2004

Mr. Kazuhisa Matsuoka Vice President Japan International Cooperation Agency

Dear Mr. Matsuoka:

It is my great pleasure to submit herewith the Final Report of "Study on the Master Plan for the Strategic Development of the National Port System in the Republic of the Philippines".

The study team composed of the Overseas Coastal Area Development Institute of Japan (OCDI) conducted surveys in the Republic of Philippines over the period between October 2002 and January 2004 according to the contract with the Japan International Cooperation Agency (JICA).

The Study Team compiled this report, which proposes PPOSS (Philippine Port System Strategy) including the master plan for the strategic development of the national port system with the target year 2024 and the initial five-year port development strategy for the identified priority ports with the target year of 2009, through close consultation with officials of the Department of Transportation and Communications of the Philippine Government and other authorities concerned.

On behalf of the Study Team, I would like to express our sincere appreciation to the Department of Transportation and Communications and other authorities concerned for their cooperation, assistance and heartfelt hospitality extended to the Study Team.

I am also very grateful to the Japan International Cooperation Agency, the Ministry of Foreign Affairs, the Ministry of Land, Infrastructure and Transport, and the Embassy of Japan in the Republic of the Philippines for giving us valuable suggestions and assistance during the course of the Study.

Yours faithfully,

Atudi

Team Leader The Study on the Master Plan for the Strategic Development of the National Port System in the Republic of the Philippines



Location of Major Ports in the Philippines



Location of Ports which are indicated with photos

Photos of Philippine Ports

1. Major Container Ports



Manila International Container Terminal (MICT, PPA)



Manila South Harbor (Pier 5, PPA)



Manila North Harbor (Pier 4, PPA)



Batangas (PPA)



Cebu (CPA)



Subic (SBMA)

2. Major Government Ports





Irene (CEZA)

San Fernando (BCDA)





lloilo (PPA)

Dumaguete (PPA)



Davao (PPA)



Mindanao Container Terminal (MCT, PIA) * under construction

3. RO/RO Ports



Matnog (Southern Luzon, PPA)





Liloan (Southern Leyte, PPA)



Lipata (Caraga, PPA)



4. Major Private Ports (Private-Commercial)

Harbor Center Manila (Manila)



Lo-oc (Allen (Northern Samar), BALWHATECO(Private))



TEFASCO (Davao)

5. LGU ports

BREDCO (Bacolod)



Atimonan (Southern Tagalog, Municipality)



Pinamalayan (Mindoro Island, Municipality)



Mansalay (Mindoro Island, Municipality)



Pilar (Bicol, Municipality)



Mandaon (Masbate Island, Municipality)



Buenavista (Gimaras Island, Municipality)



Sibulan (Negros Oriental, Municipality)



Guinsiliban (Camiguin Island, Municipality)



Nabilid (Northern Mindanao, Municipality)



San Jose (Dinagat Island, Caraga, City) *Remote Island

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LIST OF ABBREVIATIONS

А	ADB	Asian Development Bank
	AFMA	Agriculture and Fisheries Modernization Act
	AFRA	Average Freight Rate Agreement
	AIP	Air-mans Information Publication
	APEC	Asia-Pacific Economic Corporation Conference
	APL	American President Lines
	APM	A.P. MOLLOR (Maersk Sealand)
	ARG	Autonomous Region Government
	ARMM	Autonomous Region in Muslim Mindanao
	ASEAN	Association of South East Asian Nations
	ATI	Asian Terminal Incorporated
	ATO	Air Transportation Office (DOTC)
В	В	Bulk Cargo
	B/B	Break Bulk Cargo
	B/C	Cost Benefit Ratio
	BCDA	Bases Conversion and Development Authority
	BFAR	Bureau of Fisheries and Aquatic Resources
	BIMP-EAGA	Brunei Darussalam - Indonesia - Malaysia - Philippines - East Asian
		Growth Area
	BLT	Build, Lease and Transfer
	BOD	Biochemical Oxygen Demand
	BOI	Board of Investments
	BOO	Build, Operate and Own
	BOT	Build, Operate and Transfer
	BT	Build and Transfer
	BTO	Build, Transfer and Operate
	BOC	Bureau of Customs
	BUCUS	Bureau of Customs
С	CAB	Civil Aeronautics Board
	CAO	Contract, Add and Operate
	CAR	Cordillera Administrative Region
	CALABARZON	Cavite - Laguna - Batangas - Rizal - Quezon
	CARP	Comprehensive Agrarian Reform Program
	CBD	Commercial Business District
	CCTV	Closed Circuit Television
	CCWP	Cebu City Waterfront Development Project
	CDC	Construction Development Corporation of the Philippines

CDC	Clark Development Authority (BCDA)
CDO	Cagayan De Oro
CDS	City Development Strategy
CENRO	Community Environmental and Natural Resources Office
CEZA	Cagayan Economic Zone Authority
CF	Cost and Freight
CFS	Container Freight Station
CHC	Container Handling Charge
CIADMPS	Cebu Integrated Area Development Master Plan
CIAC	Clark International Airport Corporation
CIF	Cost, Insurance and Freight
CIP	Cebu International Port
CIS	Commonwealth of Independent State
CLUP	Comprehensive Land Use Plan
COD	Chemical Oxygen Demand
CPA	Cebu Port Authority
CSEZ	Clark Special Economic Zone
CVMTPD	Cebu Visayas Medium-Term Development
D	Depth
DA	Department of Agriculture
DAO	DENR Administrative Order
DAR	Department of Agrarian Reform
DBM	Department of Budget and Management
DBP	Development Bank of Philippines
DENR	Department of Environment and National Resources
DILG	Department of Interior and Local Government
D/O	Delivery Order
DO	Dissolved Oxygen
DOE	Department of Energy
DOLE	Department of Labor and Employment
DOT	Department of Tourism
DOT	Develop, Operate and Transfer
DOTC	Department of Transportation and Communication
D/R	Dock Receipt
DTI	Department of Trade and Industry
DPWH	Department of Public Works and Highways
DR	Delivery Record
DW	Department Weight
DW	Dead Weight (Tonnage)
DWT	Deadweight Tonnage

D

Е	EDI	Electrical Data Interchange
	ECA	Environmental Critical Area
	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 Statement
	EMaP	Environmental Management Plan
	EMoP	Environmental Monitoring Plan
	EMB	Environmental Management Bureau
	EMPAS	Environmental Management and Protected Areas Sector
	EMS	Environmental Management System
	EO	Executive Order
	EPZ	Export Processing Zone
	E/S	Engineering Service
	ETA	Estimated Time of Arrival
	ETD	Estimated Time of Departure
	EXCOM	Executive Committee
F	FEFC	Far East Fright Conference
	FCL	Full Container Load
	IRR	Financial Internal Rate of Return
	FEU	Forty-foot Equivalent Unit
	FOB	Free On Board
	FSC	Free Service Corporation
	FSDC	Farm System Development Corporation
G	GCR	Greater Capital Region
	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
	GVA	gross value added
Н	HDI	Human Development Index

	hpa	hectopascal
Ι	I/A	Implementing Arrangement
	IALA	International Association Lighthouse Authority
	IBRD	International Bank for Reconstruction and Development
	ICAO	International Civil Aviation Organization
	ICC	Investment Coordination Committee
	ICD	Inland Container Depot
	ICT	Information and Communications Technology
	ICT	International Container Terminal
	ICTSI	International Container Terminal Services, Inc.
	IEE	Initial Environmental Examination
	IFM	Inward Foreign Manifest
	IMF	International Monetary Fund
	IMO	International Maritime Organization
	IPP	independent power producer
	IPP	Investment Priorities Plan
	IT	Information Technology
J	JBIC	Japan Bank for International Cooperation
	JICA	Japan International Cooperation Agency
	JPDC	John Hay Poro Point Development Authority
	JV	Joint Venture
K	KCT	Kelang Container Terminal
	KfW	Kredittanstalt fuer Widerauflau (Germany)
L	LCL	Less Than Container Load
	LDC	Local Development Council
	LDP	Local Development Plan
	LGU	Local Government Unit
	LINDGC	Legaspi - Iriga - Naga - Daet Growth Corridor
	LOA	Length of Overall
	LO/LO	Lift On / Lift Off
	LRTA	Light Railway Transit Authority
	LTO	Land Transportation Office
	LTFRB	Land Transportation Franchising and Regulatory Board
	LUWA	Local Unit Water Authority
М	MC	Mobile Crane
	M/M	Minutes of Meeting

MARINA	Maritime Industry Authority
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
MCT	Mindanao International Container Terminal
MEZ	Mactan Economic Zone
MHCPT	Manila Harbor Center Port Terminal
MIAA	Manila International Airport Authority
MICT	Manila International Container Terminal
MIMAROPA	Mindoro - Maritnduquie - Romblon - Palawan
MMDA	Metropolitan Manila Development Authority
MM	Metro Manila
MOA	Memorandum of Agreement
MRT	Metro Rail Transit
MT	Metric Ton
MTPDP	Medium-Term Philippine Development Plan
NAMRIA	National Mapping Resource Information Authority
NAPOCOR	National Power Corporation
NCR	National Capital Region
NDCC	National Disaster Coordinating Council
NEDA	National Economic and Development Authority
NEPC	National Environmental Protection Council
NFPP	National Framework for Physical Planning
NHA	National Housing Authority
NIA	National Irrigation Administration
NIES	Newly Industrializing Economies
NGO	Non-Governmental Organization
NOPEMCO	The Negros Oriental Provincial Employees Multi-Purpose Cooperative
Nox	Nitrogen Oxides
NPC	National Power Corporation
NPFP	National Physical Framework Plan
NPPD	National Plan for Port Development
NOL	Neptune Orient Lines LTD
NSCB	National Statistical Coordination Board
NSO	National Statistics Office
NVOCC	Non Vessel Operate Common Carrier
NWPC	National Wages and Productivity Commission
NYK	Nippon Yusen Kaisha LTD.

N

0	ODA	Official Development Assistance
	OCDI	Overseas Coastal Area Development Institute of Japan
	OECD	Organization for Economic Cooperation and Development
	OECF	Overseas Economic Cooperation Fund (Currently JBIC)
	O-D	Origin and Destination
	OFM	Outward Foreign Manifest
	OOCL	Orient Overseas Container Lines
	OTC	Office of Transportation Cooperative (DOTC)
Р	P/C	Passenger Cargo
	PACD	Presidential Arm on Community Development
	PADC	Philippine Aerospace Development Corporation
	PAGASA	Philippine Atmospheric, Geophysical and Astronomical Services Administration
	PAIC	Provincial Agro-industrial Center
	PCG	Philippine Coast Guard
	PCO	Pollution Control Officer
	PCU	Passenger Car Unit
	PD	Presidential Decrees
	PDO	Port District Office
	PENRO	Provincial Environment and Natural Resources Offices
	PEPP	Philippine Environmental Partnership Program
	PEZA	Philippine Economic Zone Authority
	PFI	Private Finance Initiative
	PHILPHOS	Philippine Phosphate Fertilizer Corporation
	PHILVOLCS	Philippine Institute of Volcanology and Seismology
	PHIVIDEC	Philippine Veterans Development Corporation
	Php	Philippine pesos
	PIA	PHIVIDEC Industrial Authority
	PIC	Provincial urban/Industrial Center
	PIE	People's Industrial Estate
	PIE-MO	PHIVIDEC Industrial Estate-Misamis Oriental
	PMMM	Philippine Merchant Marine Academy
	PMO	Port Management Office (PPA)
	PMO-Ports Office	Project Management Office (DOTC)
	PNDP	Philippine National Development Plan: Directions for the 21st Century
		(Plan 21)
	POLCOM	Policy Committee
	POPCEN	Population Census
	PPA	Philippine Ports Authority

	PPAA	Philippine Port Administration Agency
	PPDBs	Public Port Development Bodies
	PPFP	Provincial Physical Framework Plan
	PPMC	Poro Point Management Corporation
	PPOSS	Philippine Port System Strategy
	PPP	Private Public Partnership
	PSA	Port of Singapore Authority
	PPSEFZ	Poro Point Special Economic and Freeport Zone
	PSP	Private Sector Participation
	PSY	Philippine Statistical Yearbook
	PZD	Port Zone Delineation
Q	QC	Quay Crane
	QGC	Quay Gantry Crane
	QMS	Quality Management System
R	RA	Republic Act
	RAIC	Regional Agro-industrial Centers
	R.C.	Reinforced Concrete
	RCL	Regional Container Lines (PTE) LTD
	RDC	Regional Development Council
	RDP	Regional Development Plan
	RIC	Regional Industrial Center
	RIZLAQUE	Rizal - Laguna - Quezon
	ROO	Rehabilitate, Operate and Own
	RO/RO	Roll On / Roll Off
	ROT	Rehabilitate, Operate and Transfer
	RPA	Regional Port Authority
	RPFP	Regional Physical Framework Plan
	RPMA	Regional Port Management Authority
	RRTS	Road Ro-Ro Terminal System
	RTG	Rubber Tier Mounted Gantry Crane
	RTWPBs	Regional Tripartite Wages and Productivity Boards
S	SAFDZ	Strategic Agricultural and Fisheries Development Zone
	SBF	Subic Bay Freeport
	SBMA	Subic Bay Metropolitan Authority
	SBSEZ	Subic Bay Special Economic Zone
	SCAD	Subic-Clark Alliance for Development
	SCDZ	South Cotabato - Davao - Zamboanga
	SEI(s)	Significant Environmental Impact(s)

	SEZ	Special Economic Zone
	SLDP	Sustainable Logistic Development Project
	SOKSARGEN	South Cotabato - Sultan Kudarat - Sarangani - General Santos
	SOLAS	International Conventions for the Safety Life at Sea
	SPM	Suspended Particulate Matter
	SRNH	Strongly Republic Nautical Highway
	SPSP	Steel Pipe Sheet Pile
	SPT	Standard Penetration Test
	SRRFPDP	Social Reform Related Feeder Ports Development Project
	SS	Suspended Solid
	STU	Special Takeover Unit
	SWIP	Small Water Impounding Project
	SZOPAD	Special Zone of Peace and Development
Т	TCT	Transfer Certificate of Title
	TEU	Twenty-foot Equipment Unit
	THC	Terminal Handling Charge
	TMO	Terminal Management Office
	TMP	Tourism Master Plan
	TPC	Toledo Power Company
	TSMC	Tolong Sugar Mill Company
	TOR	Terms of Reference
U	UDHA	Urban Development and Housing Act
	URSUMCO	Universal Robina Sugar Milling Corporation
	USTDA	United States Trade and Development Agency
V	VAT	Value Added Tax
	VECO	Visayas Electric Cooperation
	VTMS	Vessel Traffic Management System
W	WCC	Water Cluster Committee
	WCIP	West Cebu Industrial Park
	WCM	Water Cluster Meeting
	WEFA	West Europe Freight Conference
	WTPD	Water Transport Planning Division (of DOTC)

Definition of Terms

Term	Definition
Alternative international airport	Airport which compliments the function of international airport as well as forms the domestic air trunk lines
Anchorage fee	Dockage at Anchorage
Arrastre:	Port activities shown as follows;
	1) Receive and load cargoes from/to ship's tackle with the use of dock (arrastre) gang and cargo
	handling equipment;
	2) Check cargo by marks and quantity, acknowledge and sign tally sheet;
	3) Sort and pile cargo in shed / open storage, if not taken on directly to truck;
	4) Deliver / transfer cargo to, and received from tail-end of consignee's transportation or ship's
	tackie,
	 S) Secure cargo from principage of losses while under its custody; (a) Provide machenical equipment for receiving (delivery (transfer (shifting of concer))
	 b) Provide mechanical equipment for receiving / stowing / delivery / transfer / siniting of cargo, c) Provide checking convices only when corgo is unleaded or leaded to/from shinside, and
	to/from barge alongside vessels
$P_{\text{ASS}} P_{\text{OST}} (CPA)$	Dort facilities located in Cabu City which include the four (4) management offices
Dase Folt (CFA)	Port acting social in Cebu City which include the four (4) indiagement offices are located
Base Port (PPMA)	Ports under PPMA (APMM) in which port management offices are located
Breek bulk eerge	Corgo which is posled in has or unitized into late (a g iron h steel coment fruit h vegetable
bleak bulk cargo	transport equipment etc.)
Bulk cargo	Cargo which is not unitized nor nacked and handled often by dedicated cargo handling
Durk eurgo	equipment (e.g. crude petroleum minaral fuel metalliferous coconut oil etc.)
Cargo handling efficiency	Cargo handling volume per unit of time (e.g. the number of hoxes per unit of time, cargo weight
curgo nunding enterency	(metric ton) per unit of time)
Cargo Handling Tariff	Tariff against cargo handling services such as arrastre and stevedoring at norts
Dedicated quay side cranes	Quay side cranes which are exclusively utilized for one purpose such as container handling
Dockage at berth / anchorage	The amount assessed against a vessel engaged in international or foreign trade for mooring or
Doenage at berait / anonorage	berthing at pier / drop anchor at a port
Feeder airport	Airport which is mainly devoted to regional air transport
Geared vessels	Vessels on which cranes are installed
Government port:	Government-owned or controlled corporation tasked by its charter to implement a program for
L.	the economic development of specific territory and its operation of a port facility is directly or
	indirectly necessary, incidental or conducive to the attainment of its corporate goals and
	objectives.
Intermodal corridors	Major trunk routes which consist of land and maritime transportation modes
Intermodal network	Transportation network which consists of land and maritime transportation modes
International airport	Airport which is mainly devoted to international air transport
International gateway port	Ports which function as windows to international trade
International hub ports	Ports which have a role to collect/distribute container cargo from/to the neighboring
	countries/areas and to transport the consolidated cargo to/from North America and/or Europe
	using Panamax or Over-Panamax vessels
Isolated areas	Areas in main islands in which there is no land access or land access condition is poor
Isolated islands	Islands which have no linkage to main islands by bridge/tunnel and no exsiting port/airport
	facility (Excluding main islands)
Labor-oriented cargo handling system	Cargo handlimg system which requires a lot of labor
Land corridors	Major trunk routes which consist of land transportation modes
LGU	Local Government Unit as defined in the Local Government Code of the Philippines
Long distance bus	Bus which transports passengers among islands through Pan-Philippine Highway
Long distance passenger	Passenger who stays on board more than twelve hours
Long distance RO/RO ferry vessels	Roll-on/Roll-off ferry vessels which have a voyage time exceeding 12 hours
Main islands	21 islands (Luzon, Mindoro, Marinduque, Romblon, Palawan, Catanduanes, Masbate, Panay,
	Guimaras, Negros, Cebu, Squijor, Bohol, Samar, Leyte, Biliran, Mindanao, Camiguin, Basilan,
	Jolo, Tawi-Tawi)
Major domestic container port	Ports which are important for domestic container transport (Among the Major ports, ports which
	have container handling dedicated quay side cranes and/or have at least one dedicated berth for
	long distance RO/RO ferry vessels)

Term	Definition
Major port	Important ports for domestic and/or international maritime transport (including RO/RO ports for
	major corridors)
Maritime corridors	Major trunk routes which consist of maritime transportation modes
Multi purpose berths	Berths which are utilized for two or more purposes (i.e. break bulk and bulk cargo are handled at
M	In the same berun
Municipal Port	Public port constructed, owned and maintained by the municipal government.
Nationwide KO/KO poits	Generic designation for the development plans of KO/KO ports for major contracts, KO/KO
development plan	ports for mobility enhancement, KO/KO ports for remote islands development and KO/KO ports connecting remote islands"
$O + D_{add} (ODA)$	Ports connecting remote islands
Out Port (CPA)	Ports or port facilities located within a Sub port in Cebu province
Port charge	Cost for utilizing port facilities which includes port farili and cargo handling farili
Port due	The amount assessed against a vessel engaged in foreign trade for entrance into / departure from
	a port of entry in the Philippines
Port Tariff	Port dues, dockage, usage, whartage and storage ree levied on vessels and cargo engaged in domestic and foreign trade
Ports for short and middle distance	Ports which can receive vessels that have a voyage time of 12 hours or less
Vessels	A 1's of ante much in the Dhiliming Dorts Authority expression jurisdiction and authority and
PPA Port System	A list of ports over which the Philippine Ports Authority exercises jurisdiction and authority and accepts reaponsibility for all functional areas of development to include planning and design
	financing/loan somilation and the solution of
	administration / management / operations regulation revenue collection and all other for cause
	in order to protect and promote public interest
Drivering linternational trade port	If older to protect and promote public interest
Principal international trade port	Highly important ports for both international and domestic maritime transport (The ports have at
Director Companying Deat	least one dedicated berth for international cargo)
Private Commercial Port	A port facility constructed and owned by a private person or entity which offers, as its principal
	business activity, port services to general port users. The operation of the port facility is not a
	mere component of the main business or activity of the owner or operator, but is the main
	business activity itself. Private commercial port shall have minimum facilities of at least one (1)
	concrete berth with a minimum length of 65 meters and a dratt of at least 5 meters
Private Non-Commercial Port	A port facility constructed and owned by a private person or entity as a component of or
	accessory to its own business or principal economic activity and which does not offer port
	services to the general public but exists generally for its own particular use and need
Private Port	A port duly registered with the PPA or other port authorities, and a port facility constructed and
	owned by a private person or entity as authorized by the government. These ports are regulated
	by PPA Administrative Order No.06-95 or other related regulations under each port authority.
Public ports	Ports which are managed by public entities
Public Port Development Bodies	Public bodies which control the ports under their jurisdiction (i.e. PIA, BCDA, SBMA, CEZA,
	RPMA)
Quay side crane	Crane which is installed on the quay (e.g. gantry crane, mobile crane)
Regional port	All ports not included in above types. Regional ports, which mainly support regional society as
	maritime transport bases, consist of RO/RO ports for short and middle distance transport
	(RO/RO ports for mobility enhancement, RO/RO ports for remote islands development), Social
	reform support ports, etc.
Remote islands	Islands which have no linkage to main islands by bridge/tunnel but have port facilities
	(Excluding main islands)
RO/RO facilities	Port facilities which consist of RO/RO ramps with RC pier, causeway, passenger terminal
	building and parking area
RO/RO ports	Ports which have RO/RO facilities for receiving RO/RO ferry vessels
RO/RO ports connecting remote	RO/RO ports which link remote islands with population centers of the main islands and other
islands	islands
RO/RO ports for major corridors	RO/RO ports which form the two north-south intermodal corridors, i.e. Pan-Philippine Highway
	and Strong Republic Nautical Highway
RO/RO ports for mobility	RO/RO ports which form the intermodal trunk routes and enhance the inter-regional and intra-
enhancement	regional mobility of people and goods (Excluding RO/RO ports for major corridors)
RO/RO ports for remote islands	RO/RO ports which form a safe and improved transportation system not only to secure a more
development	stable daily life in remote islands (that have a population of more than 5,000 in 2024 and
	existing port facilities) but also to contribute to economic development
4	81 · · · · · · · · · · · · · · · · · · ·

Term	Definition
RRTS	Road Ro-Ro Terminal System (RRTS) refers to the network of terminals all over the
	Philippines, regardless of the distance covered and linked by Ro-Ro vessels
Secondary airport	Airport which mainly forms the domestic air transport network
Short and middle distance passenger	Passenger who stays on board twelve hours or less
Short and middle distance RO/RO	Roll-on/Roll-off ferry which has a voyage time of 12 hours or less
ferry vessels	
Small and medium scale ports	Regional ports
Small and medium scale vessels	Vessels of which ship size is 2,000 GRT or less
Social reform support ports	Ports which form maritime routes linking the isolated area/island and population center, support
1	the establishment of population centers within isolated areas as well as upgrade existing
	shipping services
Stevedoring:	All work performed on board vessel that is the process or act of loading and unloading cargo,
	stowing inside hatches, compartments and on dock or open cargo spaces on board vessels. And
	related services such as rigging ship's gear, opening and closing hatches, securing cargo stored
l	on board vessel by lashing, shoring and trimming, are also considered as stevedoring
Strategic Development Port	Port which will be developed from 2004 to 2024 in the scheme of PPOSS
Sub Port (CPA)	Refers to management offices in Cebu province which are located outside of the baseport Cebu
Sub Port (RPMA)	All government ports under RPMA (ARMM)
Terminal Port (PPA)	All ports under PPA Port System
Trunk-link airport	Airport which mainly forms the domestic air trunk lines
Usage	port
Wharfage	A charge on all cargoes whether conainerized or not coming in / going out or transshipped
	through a port

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Outline of the Study

Outline of the Study

1. Background and Objectives of this Study

The Philippines is made up more than 7,100 large and small islands. Maritime transportation, thus, plays a very important role in transporting cargo and passengers from place to place within the country. However, port development in the Philippines has not dealt with the growing seaborne cargo and passenger demand properly.

In order to improve the port development system in the Philippines, DOTC, as the entity responsible for formulating national port policy, must formulate a national port development plan, priority port development projects and an effective port investment plan of all relevant ports in the country. In fact, the Government of the Philippines is also preparing the Medium-Term National Development and Investment Plan for the period from 2004 to 2009. Accordingly, the port sector must formulate a National Port Development Plan that will harmonize with other transport modes.

In view of the foregoing, the Government of the Philippines (GOP) has officially requested the Government of Japan (GOJ) to implement "The Study on the Master Plan for the Strategic Development of the National Port System in the Republic of the Philippines".

The objectives of the study are:

- (1) To formulate the master plan for the strategic development of the national port system in the Philippines with the target year of 2024;
- (2) To formulate the initial five-year port development strategy for the identified priority ports with the target year of 2009; and
- (3) To pursue technology transfer to the DOTC counterpart personnel in the course of the Study

2. Premise of the Study

The long-term strategy for port development is usually formulated based on the national economic plan and the national development plan. The target year of the Study is 2024. Although the Medium-Term Philippine Development Plan (MTPDP) has been prepared with the target year 2004, there is no long-term development plan for the next 20 years, indicating the national development framework (i.e., development of heavy chemical industries in some specific areas).

Therefore, the JICA Study Team has to set up its own framework on the assumption that present trends will continue in the coming 20 years. This framework does not assume any drastic changes in socio-economic development.

PPOSS

(Philippine Port System Strategy)

[Executive Summary of the Study]
Philippine Port System Strategy "PPOSS"

1. Principles for PPOSS

1.1 Goals of the PPOSS

The Philippines is an archipelagic country composed of more than 7,100 islands with 17,500 kilometers of coastline and vast aquatic resources. Maritime transportation is, therefore, playing a very important role in transporting cargo and passengers from place to place within the country. However, port development in the Philippines has been lagging behind the growing seaborne cargo and passenger demand. Ports are now becoming a bottleneck of economic development in the Philippines as a whole while also being in part responsible for the socio-economic disparity between urban and rural areas.

At present one of the most crucial challenges in the Philippines is poverty alleviation. The Medium-Term Philippine Development Plan 2001-2004 (MTPDP), which formulates future plan of this country, has proposed various "tools" such as competitiveness enhancement of industry and services, acceleration of infrastructure development, and so on, to overcome this problem.

A port is a node connecting land and maritime transportation. An efficient transport network cannot be achieved without the development of ports, especially in an archipelagic country. An efficient transport network can provide various business opportunities which boost the national economy.

On the other hand, a port also supports the daily life in regions, and enhances the exchange of people and goods within a region as well as among regions. That is to say, it can support regional socio-economies.

Thus, the goals of the PPOSS are as follows.

- (1) Establishment of fast, economical, reliable and safe maritime transport network accelerating the development of national economy
- (2) Formation of maritime transport bases to support regional society

1.2 Challenges for the Port Sector

The port sector must face many challenges in order to achieve the above-mentioned goals. The major issues are listed from three points of view, i.e. planning, management and operation, and investment and financing.

- (1) Planning
- 1) Insufficient Nationwide Coordination on Port Planning

While several public port development bodies have been organized to manage a port(s) individually, there is a lack of coordination among the port development plans of these organizations. Moreover, the planning lacks a national focus. This might result in an inefficient national port network and / or redundant investment.

2) Lack of Development Strategies for Small-scale Ports

Generally speaking, the revenue generated by the operation of a small-scale port is small. Thus, port authorities / public port development bodies, which are required to be financially autonomous, have little incentive to develop such ports. The government also cannot develop small-scale ports due to budget constraints. As a result, the strategic development of small-scale ports has not been carried out.

3) Insufficient RO/RO Route Development

RO/RO routes, which can enhance the intermodal transport network, are not fully developed. Small vessels such as motorized bancas / boats are unable to carry vehicles safely and are not a viable alternative to RO/RO routes.

- (2) Management and Operation
- 1) Lack of Institution for Coordination at Planning Stage

One of the causes of insufficient nationwide coordination in port planning is the lack of institution to coordinate port development plans in terms of the establishment of an efficient nationwide maritime transport network at planning stage. Such kind of institution is required to be established.

2) Inefficient Port Operation

Inefficient port operation can be seen in some ports partly due to the lack of proper equipment as well as unsuitable use of port facilities.

3) Improper Setting of Port Charge

Domestic port charges are set at a low level. This fetters not only sound finance of port authorities / public port development bodies but also the mechanization of cargo handling which can improve the cargo handling efficiency.

- (3) Investment and Financing
- 1) Lack of Investment Strategy for Future Nationwide Port Development

Under the budget constraints of the national and local governments, investment strategy, which takes into account possible source of funds including private funds, for future nationwide development has not been established yet.

2) Disparity of Investment Capacity among Public Port Development Bodies

Some public port development bodies find it difficult to finance future development projects due to insufficient revenues.

3) Insufficient Incentives to Attract Private Investment

Although the private investment in port development is greatly desired, the private sector is reluctant to invest because insufficient incentives have not been offered.

1.3 Strategies to be Adopted

Responding to the above challenging properly, the following strategies shall be adopted.

(1)	Planning:	Establishment of comprehensive nationwide port development
		plan coordinated with the plans of various port development
		bodies
(2)	Management and Operation:	Modification of port administration as well as improvement of
		port management / operation
(3)	Investment and Financing:	Establishment of investment strategies for various kinds of port
		development projects

2. Target Year of the Plans and Types of Ports to be Considered in the Plans

The target year of the long-term plan is 2024 while that of the short-term plan is 2009.

The government establishes plans for the public ports, and at the same time the government will monitor, coordinate and, if necessary, regulate the private ports to grasp the total demands of maritime transportation.

3. Strategies for Planning

3.1 Planning Premises

Globalization of the economy has led to a deeper interrelation of the economic and social activities of individual countries, and the Philippine economy has already been built into the horizontal division of labor. Thus, the manufacturing industries, which require comparatively higher quality but lower wage labor forces, are expected to grow in the future, in particular, at economic zones. On the other hand, heavy chemical industries have not developed very well, and there is no long-term regional and / or industrial development plan to promote this kind of industry.

It is assumed, therefore, that manufacturing industries at economic zones and / or service industries in densely populated areas will lead the Philippine economy in the next 20 years. In other words, the JICA Study Team has set up its own framework on the assumption that present trends will continue in the coming 20 years. This framework can be called moderate in that it does not assume any drastic changes in socio-economic development.

One of the most important factors in framing the future society of the Philippines is GDP. For the base case, 4.5% annual growth rate is adopted taking into account the past 30 years historical data with 20 years moving averages. With regard to population, 1.5% annual growth is adopted from 2000 to 2024. Under these circumstances nationwide port cargo will increase 5.04% annually from 2001 to 2024.

3.2 Port Classification

The overall evaluation on the importance of an individual port (although a port usually has various functions with varying degrees of importance) is indispensable when coordinating with future plans of other sectors, in particular the road sector. According to the extent to which the port contributes to international / domestic maritime transportation, the idea of port classification is introduced here. In the classification, ports are classified into four types (see Table P3.2.1).

	Type of port	Functions of ports (The extent to which the port contributes to international / domestic maritime transport)			
International gateway port (Gateway port)		Ports as major "windows" of the country to the world			
Principal international trade port (Principal port)		ighly important ports for <u>both</u> international <u>and</u> domestic maritime transport The ports have at least one dedicated berth for international cargo)			
Major port (including RO/RO ports for major corridors)		Important ports for domestic and / or international maritime transport			
	Major domestic container port	Ports which are important for domestic container transport (Among the Major ports, ports which have container handling dedicated quay side cranes and / or have at least one dedicated berth for long distance RO/RO ferry vessels)			
Regional port		All ports not included in above types. Regional ports, which mainly support regional society as maritime transport bases, consist of RO/RO port for short and middle distance transport (RO/RO port for mobility enhancement, RO/RO port for remote islands development), Social reform support port, etc.			

Table P3.2.1 Port Classification

3.3 Planning Principles

The objective of the long-term strategic port development plan is to simultaneously realize the following goals.

- Establishment of fast, economical, reliable and safe maritime transport network accelerating the development of national economy, and
- Formation of maritime transport bases to support regional society.

The planning principles for each objective are proposed as follows.

(1) Establishment of Nationwide Maritime Transport Network

In order to formulate nationwide efficient maritime trunk routes (see Figure P3.3.1), the rationale / importance of individual port development should be examined in terms of the following principles. The ports developed as International gateway port, Principal international trade port, Major domestic container port, and Major port until 2024 are shown in Figure P3.3.2 (1) and (2).

1) Concentrated Development of Specific International Container Gateway Bases

Major ports for international container trade can be classified into international hub ports and international gateway ports. To focus exclusively on international hub function might be difficult since the major market for international container cargo in Asia is not located near the Philippines. Instead, it is necessary to intensively develop the international maritime gateway functions at container ports, which both accept foreign cargo and export products. This will promote the economic development of the Philippines under the international lateral division of labor in the economy.

PPOSS (Philippine Port System Strategy)









(2024)

One of the urgent tasks in this country is the development of international container gateway ports at Greater Capital Region (GCR) in order to handle the container cargo currently concentrated in Manila across a wider area. Consequently, Manila (MICT, South Harbor), Subic Bay, and Batangas are expected to share the load.

Moreover, in order to promote regional development at the middle and south part of the Philippines, the strategic development of international gateways at Visayas area, North Mindanao area and South Mindanao area is required.

2) Improvement of Domestic Container Transport Efficiency

It is estimated that about 60% of domestic container cargo are carried by long distance RO/RO ferry vessels with passengers, while other container cargo is carried by geared vessels. The transportation cost of the latter is cheaper than that of the former. The vessel speed of the latter, however, is slower than that of the former, and extra time is required for cargo handling. Thus, it is necessary to introduce high speed container vessels and install quayside cranes to enable more efficient container handling at berths. Healthy competition between these two transport modes is expected in future.

3) Development of Facilities for Break Bulk and Bulk Cargo

While the volume of break bulk cargo will increase steadily in the coming 20 years, bulk cargo will increase rapidly. However, the majority of bulk cargo has been handled at private terminals. On the other hand, almost all break bulk cargo and some bulk cargo has been handled at the same berth in public ports due to limited port facilities. It is expected that this mixed cargo-handling system will continue in many public ports, since these cargo volumes are not expected to greatly increase in future.

Thus, it is proposed that the public sector develop "multi-purpose berths" to handle these kinds of cargo in accordance with the demand for ports. Since the great contribution of the private sector is expected, in particular in the field of the improvement of bulk cargo handling operation, public and private partnerships which coordinate / enhance private investment in cargo handling equipments / warehouses should be pursued.

4) Port Planning at the Greater Capital Region

In order to meet the cargo demand with minimum negative economic externalities related to land traffic congestion, it is proposed that the expansion of existing ports in Manila be avoided as much as possible for the moment. Thus, the non-consumer goods such as industrial materials might be handled outside NCR. It is proposed that Subic Bay port and Batangas port be developed intensively for this purpose.

5) Formation of Major Corridors

There are two major north-south intermodal corridors in the Philippines, i.e. Pan-Philippine Highway and Strong Republic Nautical Highway at present. It is proposed that the RO/RO ports along the major corridors be strategically developed.

(2) Formation of Maritime Transport Bases to Support Regional Society

Small and medium scale port development to formulate maritime transport bases to support regional society is another goal of the planning. Major principles for these ports are described as follows. Ports which are not applicable to the principles should also be developed steadily in accordance with their demand.

1) Enhancing the Mobility of People and Goods in the Region

While socio-economic development often requires the concentration of resources in a specific area, it is desirable to pursue the development of the nation as a whole. In order to resolve these two contradictory issues, it is necessary to promote "National Dispersion through Regional Concentration" through the formation of an effective intermodal network and elicitation of regional growth potential. Thus, it is proposed that RO/RO ports which enhance the inter-regional and intra-regional mobility of people and goods should be strategically selected and developed (see Figure P3.3.3 (1)).

2) Securing Transportation Bases to Support Daily Life in Remote Islands

An improved transportation system can not only secure a more stable daily life in remote islands but also contribute to economic development. Thus, for remote islands that have a population of more than 5,000 in 2024 and existing port facilities, RO/RO ports should be strategically selected and developed considering the growth potential of remote islands as well as the accessibility to population centers in the main islands and other islands (see Figure P3.3.3 (2)).

3) Supporting Social Reforms

Improving accessibility and supporting the production activities such as fishery in remote islands without port facilities and other isolated areas can reduce regional gaps and contribute to poverty alleviation. Thus, it is proposed that social reform support ports should be strategically developed to form maritime routes linking the isolated area / island and population center, to support the establishment of population centers within isolated area as well as to upgrade existing shipping services.



Figure P3.3.3 (1) RO/RO Port for Mobility Enhancement $\ \ Q024$)



Figure P3.3.3 (2) RO/RO Port for Remote Islands Development (2024)

3.4 Strategic Development Port

Ports to be developed strategically during the long-term as well as the short-term are shown in Table P3.4.1.

(Unit: million peso						
	L					
Planning options	Long term (until 2024)	Short term (until 2009)			
	Facilities	Cost	Facilities	Cost		
Int'l container	23berths	68,650	8berths	14,120		
Int'l bulk, break bulk	10berths	13,800	3berths	3,300		
Domestic container	21berths	23,200	9berths	11,905		
Domestic bulk, break bulk	50berths	25,370	9berths	4,600		
RO/RO port for majro corridors	8ports	3,400	5ports	850		
RO/RO port for mobility enhancement	54ports	9,620	28ports	4,520		
RO/RO port for remote island dev't, Social reform port	114ports	5,681	38ports	1,866		
Total		149,721		41,161		

 Table P3.4.1
 Required Facilities to be developed in the Short and Long-Terms

The economic analyses were conducted on representative projects of the short-term plan. The EIRR of each planning option is more than 15%. This means that the projects are viable from the national economic point of view.

Moreover, the environmental condition survey was conducted at the ports to be strategically developed for short-term. According to the survey, some ports were found to be required further examinations on the impacts by earthquakes, respecting the protection of the aquatic resources, such as mangrove, the affects of siltation, contaminating the seabed soil by heavy metals, etc. It is necessary to implement the detailed examinations for those ports identified probable environmental impacts at the more concrete planning stage or implementing stage. Illegal occupants exist in and around areas located in major and medium urban ports. It is important to facilitate smooth implementation on the resettlement of the affected residents at the ports where illegal occupants are found in the course of the port development.

4. Strategies for Management and Operation

4.1 Institutional Reform on Port Administration

(1) Establishment of National Plan for Port Development Council (NPPD Council)

In order to avoid inefficient development of the port network and / or duplication of investment, it is necessary to prepare the National Plan for Port Development (NPPD), which is coordinated with the plans of various port authorities / public port development bodies. This PPOSS is the prototype of this plan.

NPPD council will be set up as soon as possible as a permanent advisory organization to DOTC for the purpose of the revision of NPPD, the examination on the major policies of port development, etc. The members of the NPPD Council, headed by Secretary / Undersecretary of DOTC, are the government officials of relevant organizations including NEDA and DPWH, the representatives from port authorities / public port development bodies, the representative from the private sector including shipping companies, academe, and so on. The permanent Secretariat of the Council will be established within DOTC for supporting the NPPD Council.

(2) The Role of PPA

According to the Medium-Term Philippine Development Plan 2001-2004 (MTPDP), PPA has a dual role as regulator and operator^(*). The Plan recommends that the regulatory function be transferred to an independent regulator.

On the one hand, it can be said that only PPA has sufficient knowledge and experience in regulating various kinds of ports currently. Therefore, it is impossible to separate regulatory functions from PPA and transfer them to other independent organizations. On the other hand, as to the operation function, PPA does not operate ports directly; operations are contracted out to private terminal operators under a fixed term contract. Under this contract, PPA collects 10% of all revenues of the terminal operator (also called "Arrastre"), while the cargo handling tariff is also set by PPA. Because of this relationship between PPA and terminal operators, it is said that PPA has an operational role.

It is proposed, therefore, that PPA should stop collecting 10% of the cargo handling tariff from the terminal operator and instead lease the port facilities to the terminal operator. In other words PPA should retain its regulatory function and divest itself of the operational function. This would generate competition among terminal operators and lead to the improvement of port service. In addition, not only PPA but also other port authorities / public port development bodies should take these actions.

^(*) Generally speaking, a port authority has roles as a planner, a landowner and a regulator but not an operator.

(3) Establishment of Regional Port Authority and Philippine Port Administration Agency

According to MTPDP, commercial decision-making, planning, and management of port operations shall be progressively decentralized. This direction should be pursued.

For the improvement of efficiency, the introduction of competition among ports is needed. Currently some independent port authorities / public port development bodies have been established in line with the trend of de-centralization. As each organization will pursue their own development, healthy competition can be expected. In the future, therefore, when financial independence of each public port development body can be achieved, the establishment of independent Regional Port Authorities (RPAs) is expected not only for the promotion of the de-centralization but also for the introduction of competition among the authorities. The existing public port development bodies are expected to change their status in a similar fashion.

When all RPAs are established and begin to develop their own ports in view of both the growth of their own ports and the development of the hinterlands related to their ports, it is indispensable to establish an organization to coordinate / regulate nationwide issues such as formulation of basic policies for port development, coordination of main projects of all RPAs, regulation of port security problems, etc. Thus, it is necessary that Philippine Ports Administration Agency (PPAA) as an attached agency to DOTC be established concurrently with the establishment of RPAs.

4.2 Strategies for the Improvement of Port Management and Operation

In order to improve the efficiency of sea transportation in the Philippines and to support regional socio-economic development, it is important not only to develop adequate port facilities but also to utilize port facilities efficiently. Effective port utilization can be achieved through improvement of the cargo handling efficiency; therefore, it is necessary to solve various problems confronting cargo handling brought not only by port users but also by terminal operators and port authorities / public port development bodies. Other issues that need to be urgently addressed are; waning competitive power among ports, insufficient understanding of each port's condition, port security and insufficient port promotion of activities. Thus, the following port operational or managerial matters will be addressed.

(1) Strategies for Improvement of Cargo Handling

Except for major ports with large volumes of cargo, cargo handling efficiency is not satisfactory. Poor cargo handling efficiency is mainly related to the cargo handling contract system, which does not give enough incentive to increase productivity. Terminal operators at domestic trade ports do not have sufficient financial capability to invest in equipment due to limited revenue. Thus, following policies should be implemented.

1) Longer Cargo Handling Contract Period for Operator

In order to assure sufficient time to recover investment in cargo handling equipment, the contract period should be extended to at least more than 15 years taking into account the life period of facilities. The port authorities / public port development bodies should make it compulsory for terminal operators to obtain license / certificate. The scope of the contract should be opened to new entries to promote competition between the operators when the long-term contract is expired.

2) Assistance in Procuring Cargo Handling Equipment (Fund, Lease, etc)

Generally speaking, terminal operators in the Philippines do not have adequate financial sources to procure new / extra large-scale equipment. To expedite mechanization, establishment of fund for cargo handling equipment by slightly raising the cargo handling charge need to be examined. And for operators, some form of financial assistance for purchasing equipment or provision of equipment by the port authorities / public port development bodies should be examined.

3) Strict Monitoring of Terminal Operator's Productivity

At present, terminal operators report their efficiency to port authorities / public port development bodies, however, the contents of the reports are sometimes inadequate. Stricter monitoring of terminal operators is proposed. Concretely, the criteria of evaluation should be actually achievable and satisfactory. The monitoring should be done twice a year. The port authorities / public port development bodies should suspend, cancel or terminate the contract of a terminal operator who is unable to meet the required level of efficiency.

(2) Strategies for Setting the Port Charge

To improve berth utilization and cargo handling efficiency, and promote ports and economic activities in the hinterland, following tariff settings should be introduced.

1) Shortening Unit of the Port Tariff (from Daily Basis to Hourly Basis)

Unit of port tariffs, especially dockage at berth / anchorage and usage fee, should be changed from a daily basis to hourly basis, and escalation fee for longer berthing vessels should be introduced as well. Ships will leave the berth as soon as possible, and berth utilization rate will be increased, thus costly berth extension may be postponed.

2) Introducing Lease Contract with Terminal Operator

If a port has plural facilities and sufficient cargo volume, "lease agreement" for specific berth should be introduced. The agreement includes the setting of "fixed fee" against the existing cargo handling volume for leasing facilities, and "variable fee" against the incremental cargo handling volume. The increment of variable fee might decrease with an increase in the total cargo handling volume. This kind of scheme will give the cargo operator an incentive to increase the efficiency by arranging new equipment, hiring skilled workers and so on. Even if a port has only one multi-purpose berth, lease agreement which prohibits operators to handle only one specific type of cargo or to work for specific users should be also introduced.

3) Necessity of Appropriate Port Charges

Present tariff levels for both domestic ships berthing and domestic cargo handling are set extremely lower than that required for financially viable operation. A port which handles only domestic cargo will find it difficult to maintain port facilities using only its own port revenue. Therefore, most ports operated by local government units are not financially independent, and cannot attract any private investors.

Appropriate port tariff setting (increasing domestic port tariffs) and liberalization of cargo handling tariff should be implemented so that those ports can be financially independent, at least to the extent that they could maintain their facilities and possibly attract private operators. It is better to increase the port tariffs gradually in order to avoid impacts of the drastic change.

- (3) Other Relevant Policies
- 1) Simplification of Port Procedures

Simplification of port procedures is not only an essential element of efficiency improvement but also one of the most important factors for raising competitiveness as an international container hub port or gateway port. Documents related to port procedures are not integrated. A system to integrate documents on port procedures needs to be introduced and DOTC should take the initiative in establishing this system.

2) Promotion of Security Measures for Port Facilities

The following issues shall be tackled.

- a) Securing the port security standard based on the provisions of the SOLAS convention
- b) Coping with the United States' CSI and 24-Hour Rule
- c) Introducing risk management system in port security

3) Port Statistics

Port inventory is produced by the government taskforce composed of DOTC, DPWH and other relevant government organizations. DOTC, which is the responsible authority for port administration, should make contribution in making detailed guidelines / check lists for the direct site surveys conducted by DPWH, and should enhance cooperation with DPWH personnel. For effective national port system planning, cargo volumes from all ports (including port authorities / public port development bodies) need to be compiled and properly classified.

4) Implementing Navigation Safety Measures

There were 1,300 maritime accidents during the eight years from 1995 to 2002. About 1,700 people died or went missing. Twenty-five (25) percent of the accidents were caused by the lack of vessel traffic management and aids to navigation such as sea lanes, lighthouses and beacons, while the high rate of traffic-related accidents were; collision (11.3%), ramming (10%), and allision (6.2%). Implementation of navigation safety measures including development of navigation aids, enforcement of rules and regulations should be strengthened.

5. Strategies for Investment and Financing

5.1 Financial Policies for Public Port Development

Under the very tight financial situation of the national and local governments in the Philippines, financial strategies for public port development should be urgently taken to accelerate necessary port investment as effectively as possible. Port investment must be appropriately shared between the public and private sector, and all available financial resources ranging from foreign loan to private own funds, should be consolidated to the most prioritized projects in the Philippines. The following financial strategies should be taken in order to make the maximum utilization of funds for ports.

(1) Efficient Utilization of Existing Facilities

First of all, it should be stressed that it is essential to use the existing port facilities and equipment as efficiently as possible.

(2) Appropriation of Internal Funds or Cross Subsidy

In order to cope with the financial disparity within one port authority (or one public port development body), it will be necessary to continue the practice of transferring internal funds from

profitable ports to financially non-viable ports for the moment.

(3) Port Charge Normalization

Port revenues are insufficient to cover investment needs. Port charge, in particular domestic port charge, should be normalized to enable port authorities / public port development bodies to carry out necessary investment.

(4) Appropriation of Low Interest Domestic Loan

Loan appropriation is an effective way to achieve required port development properly. Public port development projects should take more advantage of available domestic loans since such loans are free of foreign exchange fluctuations.

(5) Further Acceleration of Private Sector Participation

In order to accelerate private sector participation, together with concession / BOT scheme, the national and local government should introduce further deregulation and investment incentives to private investors such as local tax exemption, tariff lowering, and financial assistance for public / private joint-venture projects.

(6) Bond Issuing for Port Investment in the Long Run (Long-Term Policy)

Financially viable port development projects should make the best use of foreign / domestic financial resources by issuing bonds.

(7) Appropriation of Low Interest Foreign Loan

Foreign loan is one of the typical options to finance port development. When considering foreign loans, it is necessary to carefully analyze the own borrowing capacity, loan terms and stability of foreign exchange rates.

(8) Expansion of the National Government's Infrastructure Investment (Long-Term Policy)

For the development of financially non-viable small scale ports in rural areas, the financial assistance of the national government is required. In order to accelerate socially required but financially non-viable port development, the expansion of the national government's investment should be taken in accordance with the government's financial recovery.

5.2 Strategies for the Promotion of the Private Sector Participation in Port Development

As for international container ports, private sector participation including concession has been actively utilized because container operation is highly profitable and attractive for private companies. International break bulk (B/B) ports, domestic container ports, domestic B/B ports etc. have been developed using the surplus gained from the operation of international container ports. This situation should be improved by changing the port charge structure. In addition, some of the B/B cargo handled at public ports should be converted to bulk cargo and handled at private ports. This would lighten the burden of public ports.

On the other hand, small regional ports should be basically developed using government tax revenue. However, all government organizations have been requested to reduce expenditures due to the shortage of revenue. Therefore, not only the reduction of port construction cost but also the following innovative ideas to attract greater private sector participation in port development shall be examined.

- Tax Incentives,
- Lowering of port fee paid by a terminal operator to a port authority / public port development body,
- New Fund for Port Development,
- Appropriate Port Tariff Structure,
- Joint-ventures

In this case, both the national government (and / or the local government and / or the port authority / public port development body) and the private company bear fixed portions of the cost of developing port facilities. After completion of port facilities and start of operation, the private company pays the corresponding depreciation cost, interest of the national government portion, and the service charge to the national government.

Current natio	onal challenges: Poverty alleviation
Tools:	- Enhancing competitiveness of industry and services
	- Accelerating infrastructure development etc.
	PPOSS: Philippine Port System Strategy
Mission . Establishme: development . Formation o	it of fast, economical, reliable and safe maritime transport network accelerating the of national economy f maritime transport bases to support regional society
trategies) Planning: Establis manage Port classification a	nment of nationwide port development plan coordinated with the plans of various port nent public corporations nd planning principles:
Port classification	International gateway port (Gateway port), Principal international trade port (Principal port) Major port (including RO/RO port for major corridors), Regional port
Principles for the p	 lanning : Establishment of nationwide maritime transport (Concentrated development of specific international gateway bases, Improvement of domestic container transport efficiency, Port Planning at the Greater Capital Region etc.) Formation of maritime transport bases to support regional society (Enhancing the mobility, Supporting the remote islands development, Supporting the social reform)
Strategic developme	nt port : Investment in long term development plan (2004-2024); About 150 billion pesos Investment in short term development plan (2004-2009); About 41 billion pesos
) Management and	operation: Modification of port administration as well as improvement of port management/operation
Establishment of Na Objectives of Counc	tional Plan for Port Development (NPPD) Council: il : To formulate , to revise NPPD and important/fundamental policies on port development
Increasing cargo han Longer cargo handli equipment (Establish	Idling efficiency: ng contract period for operator (more than 15 years), Assistance in procuring cargo handling Iment of corporate fund), Strict monitoring of cargo handling operator's productivity
Appropriate port tar From daily basis to charge	ff setting: hourly basis, Introducing lease contract with cargo handling operator, Reexamining port
) Investment and fi	nancing: Investment scheme and proper financial resource allocation for feasible port development
Proposed financial p Effective utilization financial assistance f Introduction of port fund procured by na	olicies for public port development: of existing port facilities, Acceleration of private sector participation, Deregulation and o private sector, Cross subsidy within port authorities, Utilization of foreign loan, tariff based on clear-cut beneficiary-payment principle, Utilization of national fund/foreign ional government for lower profitable projects
Acceleration of priv Promoting the devel- of private sector part bulk cargo, Tax ince development, New	ate sector participation to port projects: opment of international container terminal based on concession agreement etc., Acceleration icipation to cargo handling business through converting B/B cargo handled at public ports to ntives, Lowering of port tariff, Joint-ventures (Public sector and private sector) for port and for port development, Appropriate port tariff structure

The Outline of the PPOSS

Summary

Chapter 1 Introduction

1.1 Background of the Study

The Philippines is made up of more than 7,100 large and small islands. Maritime transportation, thus, plays a very important role in transporting cargo and passengers from place to place within the country. However, port development in the Philippines has been lagging behind the growing seaborne cargo and passenger demand. Ports are now becoming a bottleneck of economic development in the Philippines as a whole while also being in part responsible for the socio-economic disparity between urban and rural areas.

The Philippine Ports Authority (PPA) had been playing a fundamental role in developing, managing and administrating all Philippine ports in a uniform manner since 1974, but this port management system underwent drastic changes in 1990. Since 1990, the Cebu Ports Authority (CPA), the Subic Bay Metropolitan Authority (SBMA), the PHIVIDEC Industrial Authority (PIA), the Cagayan Economic Zone Authority (CEZA), the Bases Conversion and Development Authority (BCDA), the Regional Port Management Authority (RPMA)-ARMM and local governments have been taking charge of port development and management in their own regions. PPA and CPA are under the umbrella of DOTC, but other relevant organizations are not. This kind of port administration system often leads to imbalanced and inefficient port development and management as a whole.

In addition, the network of large ferry vessel service has improved and was reinforced, based on the "Nationwide Roll-on/Roll-off Transport System Development Study", finalized by JICA in 1992. However, further improvements are still necessary to provide better transport service for the growing inter-island passenger and vehicle demand in the Philippines.

In order to improve the port development system in the Philippines, DOTC, as the entity responsible for formulating national port policy, must formulate a national port development plan, priority port development projects and an effective port investment plan of all relevant ports in the country. In fact, the Government of the Philippines (GOP) is also preparing the Medium-term National Development and Investment Plan for the period from 2004 to 2009. Accordingly, the port sector must formulate a National Port Development Plan in harmony with other transport modes.

In view of the above reasons, GOP has officially requested the Government of Japan (GOJ) to implement the national port development strategy study in the Philippines with the target year 2024.

1.2 Objectives of the Study and Study Area

1.2.1 Objective of the Study

The objectives of the study are:

- (1) To formulate the master plan for the strategic development of the national port system in the Philippines with the target year of 2024;
- (2) To formulate the initial five-year port development strategy for the identified priority ports with the target year of 2009; and
- (3) To pursue technology transfer to the DOTC counterpart personnel in the course of the Study.

1.2.2 Study Area

The Study area covers the whole area of the Philippines.

1.3 Implementing Organization of the Study

(1) Steering Committee and Technical Working Committee

The Steering Committee and the Technical Working Committee have been set up for the duration of the Study. The members of both committees are shown in Table 1.3.1 and Table 1.3.2.

In addition, counterparts have been nominated as technical/administrative/financial support staff for the Study (see Table 1.3.3).

Chai	rman	
	AGUSTIN R. BENGZON	Undersecretary for Maritime/Water Transport & Special Concerns, DOTC
	(JOSE L. CORTES. JR)*	Undersecretary for Maritime/Water Transport, DOTC
Vice	Chairman	
	MARGARITA R. SONGCO	Assistant Director General, NEDA
	(GILBERTO M. LLANTO)	Deputy Director General, NEDA
Mem	lbers	
	MANUEL T. BONOAN	Undersecretary, DPWH
	ALFONSO G. CUSI	General Manager, PPA
	MARIANO C. J. MARTINEZ	General Manager, CPA
	OSCAR M. SEVILLA	Administrator, Maritime Industry Authority (MARINA)
	ARTHUR GOSINGAN	Commandant, Philippine Coast Guard (PCG)
	(REUBEN S. LISTA)	Commandant, Philippine Coast Guard (PCG)
	MURSHID B. TUTTUH	General Manager, Regional Port Authority (RPA)-ARMM
	JOSE V. HIPOLITO	Administrator, CEZA
	FORTUNATO U. ABAT	President, Poro Point Management Corp. (PPMC)
	BENJAMIN B. CECILIO	Assistant GM for Operation, PPA
	GABRIEL B. EVANGELISTA	Administrator, PHIVIDEC Industrial Authority (PIA)
	VICTOR L. MAMON	Sr. Deputy Administrator for Operations, SBMA
	ROBERT R. CASTANARES	Assistant Secretary for Planning, DOTC
	(GEORGE D. ESGUERRA)	Assistant Secretary for Planning, DOTC
	ROGER MERCADO	Assistant Secretary for Legal and Administrative Affairs, DOTC
	(ALAN ADENA TAN)	Assistant Secretary for Legal and Administrative Affairs, DOTC
	RENE L. MAGLANQUE	Assistant Secretary for Finance and Comptrollership, DOTC

Table 1.3.1 Steering Committee Members

* Formerly included in the Study

Table 1.3.2 Technical Working Committee

Chairman	
ILDEFONSO T. PATDU	Director, Transport Planning Service, DOTC
(SAMUEL C. CUSTODIO)*	Officer-in-charge, Transport Planning Service, DOTC
Members	
REUBEN B. REINOSO	Assistant Director General, Infrastructure Staff, NEDA
ELMER E. SONEJA	Director, Project Management Service, DOTC
LINDA M. TEMPLO	Director, Planning Service, DPWH
ROMELO T. MASCARINA	Manager, Project Development Department, PPA
DOMINGO BASSIG	Manager, Port Operations and Services Department, PPA
DENNIS R. VILLAMOR	Deputy General Manager, CPA
MYRNA E. CALAG	Chief, Planning Office, MARINA
OIC DIR. LILIAN T. JAVIER	Chief, Domestic Shipping Office, MARINA
CAPT. NOEL O. MONTE	Director, PCG-PMO
CELEDONIA B. ACLAO	Project Director, PMO Ports
JOSEPHINE R. BONDOC	Chief, Water Transport Planning Division, DOTC

* Formerly included in the Study

MA. LOURDES M. MANATAD	Port Engineer/Team Leader, PMO-Ports
ARSENIO F. LINGAD II	Shipping Specialist, MARINA
REBECCA T. GARSUTA	Transport Planner, DPWH
CARLITO M. CASTILLO	Port Planner, PPA -PDD
MARIE Y. CLEMENTE	Port Management Specialist, PPA
LORNA T. JORDAN	Port Management Specialist, CPA
PABLITO M. ABELLERA	Sr. Transport Planner, NEDA-Infra
RAUL NARVAEZ	Navigational Safety Specialist, PCG
ELENITA D. ASUNCION	Shipping Trend Analyst, DOTC
ENRICO C. FERRE	Port Engineer, DOTC
BELINDA C. SALVOSA	Economist, DOTC
MANUEL O. LARDIZABAL	Transport Planner, DOTC
MA. LOURDES T. PAGTALUNAN	Port Planner, DOTC
ALICIA A. LASTA	Engineer IV, PMO-Ports
GLENDA F. DAVID	Transport Economist, PMO-Ports
HECTOR E. SANCHEZ	Engineering Assistant, PMO-Ports
ERIC ENCARNACION	Economist, PMO-Ports
ELIZABETH V. ESPINA	Administrative Officer, PMO-Ports
ELVIN B. TINSAY	Budget Officer, PMO-Ports

Table 1.3.3 Counterparts (Technical/Administrative/Financial Support Staff)

(2) JIC A Study Team

The JICA Study Team is composed of the following specialists with the corresponding responsibilities, as listed below;

Name	Responsibility
Mr. Hisao OUCHI	Team Leader / Port Policy
Mr. Hiromi KADO	Port Planning (1) / Navigation Safety
(Mr. Kohei TAJIMA)*	Port Planning (1)/Navigation Safety
Mr. Takeshi MURAOKA	Port Planning (2) / Technical Standards
Mr. Satoshi KAWAMURA	Regional Development
Mr. Hiromichi NAGANO	Demand Forecast
Mr. Hiroyuki SHINGYOCHI	National Port Administration
Mr. Takao HIROTA	Management & Operation (System)
(Mr. Hiroshi MAEDA)	Management & Operation (System)
Mr. Kei KUROSE	Management & Operation (Management)
Mr. Shinichi TEZUKA	Shipping Trend Analysis
Mr. Koichiro HAYASHI	National Port Finance & Policy/Economic Analysis
Mr. Tadao YAMADA	Environmental Consideration
Mr. Shane REID	Coordination

1.4 Premise and Direction of the Study

1.4.1 Premise of the Study

The long-term strategy for port development is usually formulated based on the national economic plan and the national development plan. The target year of the Study is about next twenty years, i.e. 2024. Although the Medium-Term Philippine Development Plan (MTPDP) has prepared with the target year 2004, there is no long term development plan for next 20 years formulating national development framework such as intense development of heavy chemical industries in some specific areas.

Therefore, the JICA Study Team has to set up its own framework on the assumption that present trends will continue in the coming 20 years. This framework can be called moderate since it does not assume any drastic changes in socio-economic development.

As to the Gross Domestic Product (GDP), which is one of the most important factors in setting up the framework of the Study, three values have been adopted, namely; the base case, low case and high case. For the base case (the medium case), 4.5% is adopted considering the 20 year moving average of the annual GDP growth rate for the past 30 years. The low case with a value of 3.5% is obtained by substituting 1% from the base case. For the high case, the tentative value 5.73% calculated by NEDA is adopted.

The Study area covers the whole country of the Philippines. However, conduct of actual site inspections in Mindanao was limited due to safety concerns. The JICA Study Team made short visits to only limited areas in Mindanao. Therefore, formulation of plans for most ports in Mindanao were based on interviews and documents which are available to obtain in Manila.

1.4.2 Direction of the Study

At present one of the most crucial challenges in the Philippines is poverty alleviation. MTPDP has proposed various "tools" such as competitiveness enhancement of industry and services, acceleration of infrastructure development, and so on, to overcome this problem.

A port is a node connecting land and maritime transportation and can be achieved by development of ports for an efficient transport network, especially in an archipelagic country. An efficient transport network can provide various business opportunities that boost the national economy. It can also support the daily life in the regions, which enhances the exchange of people and goods within a region as well as among regions, or it improves the socio-economic activities in the regions.

Thus, the objectives of the Study are as follows;

- (1) Establishment of fast, economical, reliable and safe maritime transport network accelerating the development of national economy
- (2) Formation of maritime transport bases to support regional society

However, the port sector has many problems, many of which were identified by the JICA Study Team. These problems are listed from three points of view; (1) planning, (2) management and operation, and (3) investment and financing.

With regard to the planning aspect, the most crucial issues are, first, is an insufficient nationwide evaluation system on port planning. While several independent public corporations have been organized to manage a port/ports individually, there is lack of coordination among the port organizations on port development plans. This might lead inefficient port network nation-widely and/or redundant investment. Secondly, RO/RO routes that can enhance the intermodal transport network, are not fully developed. Small vessels such as motorized bancas/boats are unable to carry vehicles safely and are not a viable alternative to RO/RO routes.

As for the management and operation aspect, the major issues are, firstly, inefficient port operation (i.e. cargo handling). This might be partly due to the lack of proper equipment as well as unsuitable use of port facilities. Secondly, problems related to the low level of the port charges were identified. Thirdly, there are the unsuitable institutional settings of the various port organizations. The previously mentioned insufficient coordination among various public corporations is mainly due to the unsuitable institutional settings. Institutional reforms will be necessary.

With respect to investment and financing, the issues are, firstly, the delay and non-concentration of investment. This is the reason for the large number of old-fashioned port facilities and the deteriorated state of many facilities. Secondly, public private partnerships seem not to be fully utilized in port development and management.

The above-mentioned identified problems will be examined in the Study. The concrete strategies to be adopted are as follows,

(1)	Planning:	Establishment of comprehensive nationwide port development
		plan coordinated with the plans of various port development
		bodies
(2)	Management and operation:	Modification of port administration as well as improvement of
		port management/operation
(3)	Investment and financing:	Establishment of investment strategies for various kinds of port
		development projects

It is stressed here that the master plan is not merely a list of specific projects. Identifying problems, establishing objectives and offering policy options are all integrated in the master plan. This package is summarized in the form of "Philippine Port System Strategy (PPOSS)" (see Executive Summary). Through the implementation of PPOSS, an efficient port system which will facilitate the movement of people, goods and services and contribute to nationwide development is expected to be realized.

Chapter 2 Social Economic Conditions

2.1 Population

The population of the Philippines in 2000 is about 76.5 million. The annual population growth rate was over 2.3% in the 1990s. According to the forecast by the NSO (1999), the population growth rate will decrease although the population will exceed 100 million in 2020 under the medium case (see Figure 2.1.1).

Since the medium case of population (76,320,126) projected in 1996 was close to the actual census population (76,503,333) in 2000, the projected population in the medium case is adopted for the Study. The population in the target year 2009 (90,270 thousand) and 2024 (110,252 thousand) can be estimated through interpolation (see Figure 2.1.1).



Source: NSO, 1995 Census-based national regional and provincial population projections Figure 2.1.1 Population Projection

Figure 2.1.2 illustrates the increase of the population and its concentration; it is especially notable in the surrounding provinces of Manila, Iloilo, Negros Occidental,Cebu, Northern and Southern Mindanao. Population of four cities is over one million while 21 cities have populations of 300 thousand and over. Eight of these cities do not belong to NCR. The number of cities around the above mentioned areas with a population over 300,000 will increase from eight in 2000 to twenty-one in 2020.



Figure 2.1.2 Population Projection by Province

2.2 Economic Activities

2.2.1 GDP

(1) Past Trend

GDP grew moderately over the last 20 years, although there have been some stagnant periods (1984-85/1991-92/1998). Compared with the other Asian countries, the Philippines achieved the lowest level of GDP growth. This is largely due to insufficient industrialization and infrastructure caused by the remaining debts incurred by the Marcos administration, and to the pressure of a growing population.

(2) Growth Rates used for Projection

The simple arithmetic and 20 years moving averages of the annual GDP growth rate for the past 30 years can be obtained as 4.3% and 4.1%. The extreme low growth rate in 1984 and 1985 which were registered during the period of the Marcos administration were omitted from that calculation. On the basis of these figures, 4.5% is adopted in the Study as the medium case. The growth rate of +5.73% as the high case^(*) is determined through discussion with NEDA National Planning and Policy Staff (NPPS). The low case of +3.5% with an allowance of -1.0% is also taken into account (Figure 2.2.1). It should be noted that a growth rate of at least 4.5% is required to catch up with the other Asian countries such as Thailand or Malaysia.





^{*} Averaged growth rate becomes 5.73% (2003-2024) under a series of growth rate forecast; 4.5% (2003), 5.2% (2004), 5.5% (2005), 6.0% (2006), 5.8% (2007), 6.3% (2008) and 6.5% (after 2009).

(3) GDP Projection

Based on a medium growth rate of 4.5%, breakdown of GDP and GRDP in 2009 and 2024 is calculated in Table 2.2.1. The economy will expand close to three times its present size. However, since the population will also continue to grow, GDP per capita will only be doubled.

In addition, consistent with other trend during the past 20 years, GDP will be concentrate in NCR, Region 4 (Southern Tagalog) and 7 (Central Visayas), while the shares of Region 5 (Bicol), 8 (Eastern Visayas), 9 (Western Mindanao) and 12 (Central Mindanao) decline.

		Gross Regional Domestic Product (million pesos at 1985 constant prices)								
	Region	1980	Share	2001	Share	2009 Projection	Share	2024 Projection	Share	
Philippines		609,768	100.0%	989,259	100.0%	1,406,826	100.0%	2,722,605	100.0%	
NCR	National Capital Region	183,444	30.1%	305,204	30.9%	435,177	30.9%	850,514	31.2%	
CAR	Cordillera Administrative			24,229	2.4%	39,348	2.8%	87,042	3.2%	
1	Ilocos Region	24,403	4.0%	29,963	3.0%	43,686	3.1%	86,122	3.2%	
2	Cagayan Valley	17,356	2.8%	22,615	2.3%	31,827	2.3%	64,039	2.4%	
3	Central Luzon	52,831	8.7%	89,525	9.0%	125,500	8.9%	234,492	8.6%	
4	Southern Tagalog	86,998	14.3%	150,585	15.2%	221,150	15.7%	431,915	15.9%	
5	Bicol Region	18,240	3.0%	27,629	2.8%	35,824	2.5%	62,395	2.3%	
6	Western Visayas	45,615	7.5%	69,557	7.0%	95,468	6.8%	177,898	6.5%	
7	Central Visayas	37,562	6.2%	70,347	7.1%	100,542	7.1%	201,295	7.4%	
8	Eastern Visayas	15,155	2.5%	22,633	2.3%	29,063	2.1%	50,336	1.8%	
9	Western Mindanao	19,407	3.2%	26,651	2.7%	35,158	2.5%	61,821	2.3%	
10	Northern Mindanao	37,059	6.1%	38,829	3.9%	56,270	4.0%	112,227	4.1%	
11	Southern Mindanao	48,559	8.0%	62,102	6.3%	89,588	6.4%	175,630	6.5%	
12	Central Mindanao	23,139	3.8%	25,906	2.6%	34,702	2.5%	62,319	2.3%	
ARMM	Autonomous Region in Muslim Mindanao			9,294	0.9%	13,106	0.9%	24,524	0.9%	
13	Caraga			14,190	1.4%	20,418	1.5%	40,038	1.5%	
	Luzon (NCR,CAR,1-5)	383,272	62.9%	649,750	65.7%	932,511	66.3%	1,816,518	66.7%	
	Visayas (6-9)	98,332	16.1%	162,537	16.4%	225,073	16.0%	429,529	15.8%	
	Mindanao (9-13, ARMM)	128,164	21.0%	176,972	17.9%	249,241	17.7%	476,558	17.5%	
	Population (thousand)									
	Philippine National	48,0)98	77,9	026	90,270		110,252		
	Luzon (NCR,CAR,1-5)	26,0	081	43,3	393	50,14	43	61,218		
	Visayas (6-9)	11,1	12	15,9	016	18,24	40	21,850		
	Mindanao (9-13, ARMM)		005	18,6	517	21,90)4	27.184		
GDP Per Capita (pesos)										
	Philippine National	12.6	578	12.6	595	15,58	35	24,6	94	
	Luzon (NCR,CAR,1-5)	14.6	595	14.9	074	18.59	97	29.6	73	
	Visavas (6-9)	8.8	49	10.2	212	12.34	40	19.6	58	
	Mindanao (9-13, ARMM)	11 753		9 506		11 379		17 531		

Table 2.2.1GRDP Projection (Medium Case)

Data Source: JICA Study Team on the basis of the data from NSCB, Philippine Statistical Year Book 2002

2.2.2 Industry

(1) Outlook of Industrial Structure

The service sector has been the largest contributor to GDP following the significant fall of the industry sector in 1984 and 1985. The share of the service sector continues to expand while that of

the industry (40%: 1985) has shrunk to 34 % (2001). Although the manufacturing group can achieve high growth owing to the relatively low cost and skilled labor, industry as the whole is not likely to grow significantly. This is mostly because of dragged heavy and chemical industries that have not been sufficiently developed due to financial difficulty. The agricultural sector has been reducing its share although the nation requires self-sufficiency in foods.

(2) Growing Industry Groups

Based on the productivity analysis, the five industry groups, (a) agriculture, (b) manufacturing, (c) transport & communication, (d) trade, and private and (e) government services can be considered as the growing industry groups. Population dependent groups, such as labor-intensive manufacturing and service sectors, are deemed to grow. A certain growth of the agricultural sector can be expected under consideration of recent rice productivity improvement, encouragement policy for production of cash crop such as coffee or fruits, and for agro-industrial centers.

(3) GDP Projection by Industrial Sector

The sectoral projection is obtained with the adjusted growth rates of agriculture (3%), industry (4.5%), and service (5%) those are determined based on the past trends from 1980-2001. The total of the projected GDP (medium case) agrees with one given in the previous section.

The sector with the highest share is manufacturing (share of 24.1%: 2024), followed by trade (18.0%), private service (8.3%), and transportation and communication (8.0%). (see Table 2.2.2).

(4) Outlook of Industrial Development Areas

Crop production area is shown in Figure 2.2.2. Agroindustrial centers, growth networks, and tourism development areas promoted by the government are illustrated in Figure 2.2.3. Figure 2.2.4 presents the Special Economic Zones where many electronics industries locate and assemble labor-intensive products. Considering the above locations, the Study Team has identified eight potential growth areas which would become core centers of economic development and posses high growth possibility. Those areas may mostly coincide with densely populated areas since population dependent growth is expected.

Industry		1980		2001		2009 Projection		2024 Projection	
	Industry	GDP	Share	GDP	Share	GDP	Share	GDP	Share
1.	AGRI., FISHERY & FORESTRY	143,295	23.5%	197,737	20.0%	250,487	17.9%	390,251	14.4%
2.	INDUSTRY SECTOR	247,059	40.5%	336,697	34.0%	478,817	34.2%	926,646	34.1%
	a. Mining & Quarrying	9,128	1.5%	10,002	1.0%	15,254	1.1%	25,597	0.9%
	b. Manufacturing	168,292	27.6%	244,082	24.7%	337,738	24.1%	653,939	24.1%
	c. Construction	57,250	9.4%	49,836	5.0%	82,528	5.9%	158,534	5.8%
	d. Electricity, Gas & Water	12,389	2.0%	32,777	3.3%	43,297	3.1%	88,577	3.3%
3.	SERVICE SECTOR	219,414	36.0%	454,824	46.0%	671,982	48.0%	1,397,003	51.5%
	a. Transportation, Communication& Storage	29,175	4.8%	74,181	7.5%	101,223	7.2%	216,016	8.0%
	b. Trade	79,335	13.0%	161,487	16.3%	235,698	16.8%	487,985	18.0%
	c. Finance	24,003	3.9%	47,293	4.8%	73,127	5.2%	158,034	5.8%
	d. Ownership of Dwellings & Real Estate	31,655	5.2%	48,119	4.9%	76,411	5.5%	150,564	5.5%
	e. Private Services	29,896	4.9%	73,973	7.5%	108,608	7.8%	226,076	8.3%
	f. Government Services	25,350	4.2%	49,771	5.0%	76,915	5.5%	158,327	5.8%
	Gross Domestic Product (mil pesos)	609,768	100.0%	989,258	100.0%	1,401,287	100.0%	2,713,900	100.0%

Table 2.2.2GDP Projection by Industrial Sector (Medium Case)
(GDP in million pesos at 1985 constant prices)

Data Source: JICA Study Team on the basis of the data from NSCB, Philippine Statistical Year Book 2002

Note: The total GDP does not exactly meet the projected GDP in the previous section due to the adjusted growth rates.



Source: Ayabe and Ishii, Motto Shiritai Philippine (To know more about the Philippines) Figure 2.2.2 Major Area of Agricultural Crop Production



Data Source NLUC/NEDA, National Framework for Physical Planning 2001-2030 Figure 2.2.3 Industrial Areas



Data Source: PEZA, NLUC/NEDA, National Framework for Physical Planning 2001-2030 Figure 2.2.4 Location of Special Economic Zones


Data Source: JICA Study Team

Figure 2.2.5 Potential Growth Areas

2.3 National Development Plans

2.3.1 Planning Scheme

In 1998, the Philippine government formulated PNDP (the Philippine National Development Plan for the 21st Century) in response to the order of President Ramos for close collaboration among government agencies, private/non-government sectors. Although PNDP is prepared by a past President, the principal concept of the Plan has been adopted by subsequent administrations. Among hierarchic plans, PNDP only describes the long-term vision.

MTPDP (the Medium-Term Philippine Development Plan) for 2001 - 2004 was set up by the newly born Arroyo administration after the Estrada administration, and was updated the overall development framework reflecting the opinion of the current administration with the function of short-medium range development.



National and regional development planning scheme is shown in Figure 2.3.1.

Data Source: NEDA

Figure 2.3.1 National and Regional Development Planning Scheme

2.3.2 The Philippine National Development Plan (PNDP)

The plan identified five strategies for the regional development: (a) national dispersion through

regional concentration; (b) strengthening urban-rural linkages; (c) resource- and area-based development; (d) effective regional development administration; and (e) delivery of minimum desirable level of welfare. The plan especially emphasized the improvement of transportation and telecommunications linkage; importance of agricultural sector; potential human and natural resources; and stable employment and sufficient incomes. The plan described the Regional Development Groupings as illustrated in Figure 2.3.2.

In relation to the eight potential growth areas identified by the Study Team in the previous section (see Figure 2.2.5), seven potential groups nominated in PNDP are extracted in the Main Report.







2.3.3 The Medium-Term Philippine Development Plan (MTPDP)

MTPDP embodies the overall development framework, which consists of four major policies: that is, 'macroeconomic stability with equitable growth based on free enterprise', 'agriculture and fisheries modernization with social equity', 'comprehensive human development and protecting the vulnerable' and 'good governance and the rule of law'.

2.3.4 The Regional Development Plan (RDP)

Along the above scheme, the Regional Development Councils (RDCs), which are organized by the relevant Governmental Departments and LGUs under coordination of NEDA, have formulated the Regional Development Plans 2001-2004 (RDPs) as accompanying documents of MTPDP.

Chapter 3 Natural Conditions

3.1 Physical Conditions

3.1.1 Geographic Location

The Philippines is located on the opposite side of the South China Sea from Taiwan, China, Viet Nam and Malay Peninsula. This location offers easy access to those countries as giving the linear distance from Manila to Kaohsiung (900 km), to Hong Kong (1,100 km), and to Hanoi (1,800 km).

On the other hand, the Philippine is an archipelago nation comprised of 7,107 islands spanning 1,840 kilometers from north to south. This inevitably requires national linkage between islands and north south regions. The distance between Manila and Davao via Pan–Philippine Highway is approximately 1,400 km, while that between Manila and Iligan via Strong Republic Nautical Highway is about 1,100 km.

3.1.2 Land Area

The total land area of the Philippines is 299,404 sq km or approximately 30 million hectares. Eleven large islands (*) take up about 95 percent of the total land area, with small islands and islets comprising the remaining five percent. The country is divided into three major island groups. Luzon is the largest island with an area of 141,000 sq km followed by Mindanao with 102,000 sq km and Visayas, 57,000 sq km.

3.1.3 Topography

Luzon, the largest island group, is the most mountainous with extensive valleys and plains running through its interiors. The southern portion of the island has a dominantly volcanic topography with ridges and valleys of gentle slopes and generally accordant drainage.

The group of Visayas Islands has a severe dissection of topography due to its exposure to typhoons from the Pacific and torrential rains. This group of islands is characterized by mountains and hills where peaks reach 900 meters, river basins, flood plains, plateaus and valleys.

Mindanao island group has five major mountain ranges: the Eastern or Pacific Cordillera which is made up of two mountain systems with a series of ranges in each system; the Bukidnon-Davao Range, which is a complex series of ranges that extends for some 400 km from Diwata Point in the north to the southern tip of the Saranggani Peninsula. In the northern part of Mindanao is the

^{* 11} islands: Luzon, Mindoro, Masbate, Panay, Samar, Leyte, Negros, Cebu, Palawan, Bohol and Mindanao.

Bukidnon-Lanao Plateau.

3.1.4 Water Resources

There are more than 300 independent principal river basins spread over the archipelago, each of which has at least 40 sq km of basin area. Of these, $16^{(*1)}$ are considered as major river basins, with at least 990 sq km of basin area each. The principal river basins cover a total land area of 199,637 sq km which is equivalent to 66.5 percent of the total land area of the Philippines. The 20 major river basins^(*2) cover a total of 111,269 sq km equivalent to 37.1 percent of the total land area of the Philippines.

The total annual run-off in the river basins is estimated at about 455 million cubic meters (MCM). The groundwater storage is estimated at 1,222,896 MCM and the recharge of 31,694 MCM per year.

3.2 Climatic

The climate of the Philippines is tropical and maritime. It is characterized by relatively high temperature, high humidity and abundant rainfall. It is similar in many respects to the climate of the countries of Central America. Temperature, humidity, and rainfall, which are discussed hereunder, are the most important elements of the country's weather and climate.

3.2.1 Tempe rature

Based on the average of all weather stations in the Philippines, excluding Baguio, the mean annual temperature is 26.6° C. The coolest months fall in January with a mean temperature of 25.5° C while the warmest month occurs in May with a mean temperature of 28.3° C. Latitude is an insignificant factor in the variation of temperature while altitude shows greater contrast in temperature. Thus, the mean annual temperature of Baguio with an elevation of 1,500 meters is 18.3° C.

3.2.2 Humidity

The average monthly relative humidity varies between 71 percent in March and 85 percent in September.

3.2.3 Rainfall

^(*1) 16 major river basins: Refer to the main text.

^{(*2) 20} major river basins: In addition to the above mentioned 16 basins, Laoag, Amnay-Patrick, Tagoloan and Agus.

The mean annual rainfall of the Philippines varies from 965 to 4,064 millimeters annually. Baguio City, eastern Samar, and eastern Surigao receive the greatest amount of rainfall while the southern portion of Cotabato receives the least amount of rain. At General Santos City in Cotabato, the average annual rainfall is only 978 millimeters.

3.2.4 Seasons

Using temperature and rainfall as bases, the climate of the country can be divided into two major seasons: (1) the rainy season, from June to November; and (2) the dry season, from December to May. The dry season may be subdivided further into (a) the cool dry season, from December to February; and (b) the hot dry season, from March to May.

3.2.5 Climate Type

Based on the distribution of rainfall, four climate types are recognized. The agricultural crops are produced according to these climatic characteristics.

- Type 1 Two pronounced wet and dry seasons: Wet during the months of June to November and dry from December to May. This type of climate is found in the western parts of Luzon, Mindoro, Palawan, Panay and Negros.
- (2) Type 2 No dry season with a very pronounced maximum rain period in December, January and February. Catanduanes, Sorsogon, the eastern part of Albay, Camarines Norte, Camarines Sur, eastern Quezon, Samar, Leyte and eastern Mindanao are in this type. These are coconut tree zones.
- (3) Type 3 This is an intermediate type with no pronounced maximum rain period and short dry season, lasting from one to three months only. Areas under this type are the western parts of the Cagayan Valley, the eastern part of the Mountain Region, southern Quezon, Masbate, Romblon, northeastern Panay, eastern Negros, central and southern Cebu, eastern Palawan and northern Mindanao. Palay is produced in these areas
- (4) Type 4 Uniformly distributed rainfall. The regions affected by this type are the Batanes, northeastern Luzon, southwestern part of Camarines Norte, the western parts of Camarines Sur and Albay, the Bondoc Peninsula, eastern Mindoro, Marinduque, western Leyte, northern Cebu, Bohol and most of central, eastern, and southern Mindanao. These are corn production zones.

3.3 Hydrographic Conditions

The main current around the Philippines flows towards the north along the Pacific Ocean with a speed of 2-4 knots, and towards the south along the South China Sea with a speed of 1-2 knots. The southwest wave direction in summer, and northeast in winter predominates at the adjacent sea. The average wave height is ranging from 1 to 2 m. The tidal range at the major ports is about 1–2m.

3.4 Natural Disasters

The Philippines is the most disaster prone country in the world, and was hit by an average of 10 disasters a year since 1991 compared to 8 disasters a year from 1900 to 1991. The country's National Disaster Coordinating Council monitored over 100 disasters during the last ten years causing some 180 billion pesos in damages. The Philippine National Red Cross records 2,000 deaths annually and more than 3.6 million people displaced within the last decade.

3.4.1 Tropical Cyclone

Tropical cyclone or typhoons generally originate in the region of the Marianas and Caroline Islands of the Pacific Ocean. The annual average numbers of typhoon forming at the Philippine Area of Responsibility (PAR) is 20, and 9 of those directly attack the Philippines in which Luzon and Visayas are much affected. Their movements follow a northwesterly direction from the origin which have the same latitudinal location as Mindanao, sparing Mindanao from being directly hit by majority of the typhoons that cross the country. This makes the southern Philippines especially Mindanao very desirable for agriculture and industrial development.

3.4.2 Volcanic Eruption and Earthquake

Present active volcanoes locating all over the nation are as follows:

- a) Pinatubo Volcano : Boundaries of Zambales, Pampanga and Tarlac in west Luzon
- b) Hibok Hibok Volcano : Camiguin Province Region X
- c) Kanlaon Volcano : Negros Oriental Province Region VII
- d) Bulusan Volcano : Sorsogon Province Region V
- e) Taal Volcano : Batangas Province Region IV
- f) Mayon Volcano : Albay Province Region V

The anticipated acceleration on ground surface for the return period of 100 year is over 300 gals in the northern Luzon, Samar, and the eastern Mindanao, and is up to 200 gals in other area.