Chapter 11 Initial 5-Year Development Plan with the Target Year of 2009 (Short-Term Development Plan)

11.1 Selection of Priority Projects

The priority projects for the short-term development plan will also be selected on the basis of the planning options which have been discussed in section 10.4. The cargo forecasts on individual ports are used to examine the necessity of facility development.

11.2 Required Port Facilities in 2009 and Strategic Development Port

(1) Ports for International Transport

Eight ports will handle international container cargo in 2009, and it is necessary to install container handling dedicated quayside cranes such as gantry crane at six ports until 2009 (see Table 11.2.1 and Figure 11.2.1). The six ports, i.e. Subic, Manila (MICT, South Harbor), Batangas, Cebu, Cagayan de Oro (CDO/MCT) and Davao, will function as international gateway ports, and must be developed in line with the growing demand. International containers will also be handled at General Santos and Zamboanga. Thus, these two ports also require the installation of container quayside cranes.

There will be fourteen (14) ports handling international bulk and break bulk in 2009. Of the eight ports which are not international gateway ports, four ports (Iloilo, General Santos, Zamboanga and San Fernando) are developed as Principal international trade ports while the other four ports are developed as Major ports.

Strategic Development Ports, which will be developed from 2004 to 2009, and their required facilities are also shown by each planning option in Table 11.2.1. Eight berths for international container and three berths for international bulk and break bulk are required to be developed (including "multi-purpose usage" with other cargo). The outline of the major strategic development of individual port will be explained here (see also Appendix 10.4.9 and 10.4.10).

Table 11.2.1 Plans for International Container, Bulk and Break Bulk in 2009

Name of port	International container							International bulk, break bulk					Int'l gateway port (Int'l cargo > 1.5m ton)	Principal int'l trade port (Total:1.5 m and Int'l cargo:0.15m ton or more)	Major port (Total 0.75m ton or others)	Remarks
	No. of berths (@250-300)	Berths length (m)	Berths length to be developed (m)	Depth of berth (m)	Qauy side cranes	Cranes to be installed	Strategic Dev't Ports for int'l container	No. of berths (@200)	Berths length (m)	Berths length to be developed (m)	Depth of berth (m)	Strategic Dev't Ports for int'l bulk and break bulk				
Subic	2	560	560	13	4 GC	4 GC	○	1	200		10.5		○			
Manila (MICT)	5	1,300		12-14	10 GC								○			
Manila (South Harbor)	4	950		10.5-12	6 GC			7	1,400		10.5					
Batangas	2	700	700	13	4 GC	4 GC	○	1	200		10.5		○			
Cebu	1	300	300	13	2 GC	2 GC	○	1	200		10.5		○			
CDO / MCT	1	300		13	2 GC			1	200		10.5		○			
Davao	2	500	250	12	2 QC	2 QC	○	1	200		10.5		○			
Iloilo								2	400	400	10.5	○		○		
General Santos	1	200(*)	200(*)	10.5	1 QC	1 QC	○	1	200		10.5			○		*) Multi purpose usage of int'l and dom'c container
Zamboanga	1	200(*)	200(*)	10.5	1 QC	1 QC	○	1	200		10.5			○		*) Multi purpose usage of int'l and dom'c container
San Fernando								2	400		10.5			○		
Pt. Princesa								1	200(*)		10.5				○	*) Multi purpose usage of int'l and dom'c B, B/B and long dis. RO/RO.
Ozamiz								1	300(*)		-6.5				○	*) Multi purpose usage of int'l and dom'c B, B/B and long dis. RO/RO.
Tacloban								1	500(*)		-6.5				○	*) Multi purpose usage of int'l and dom'c B, B/B and long dis. RO/RO.
Legazpi								1	200	200	10.5	○			○	Development will be at Tabaco or Pantao

Note): Port of Irene, Limay, Cotabato and Masao which are Regional ports, also handle international bulk cargo.

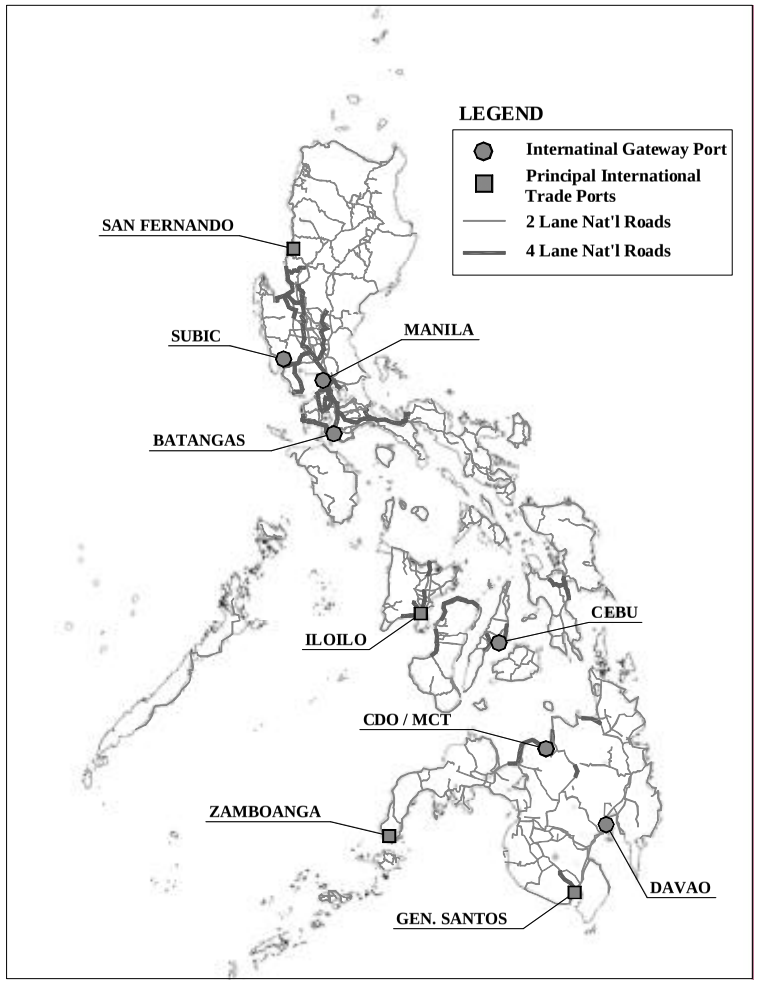


Figure 11.2.1 International Gateway Port and Principal International Trade Port (2009)

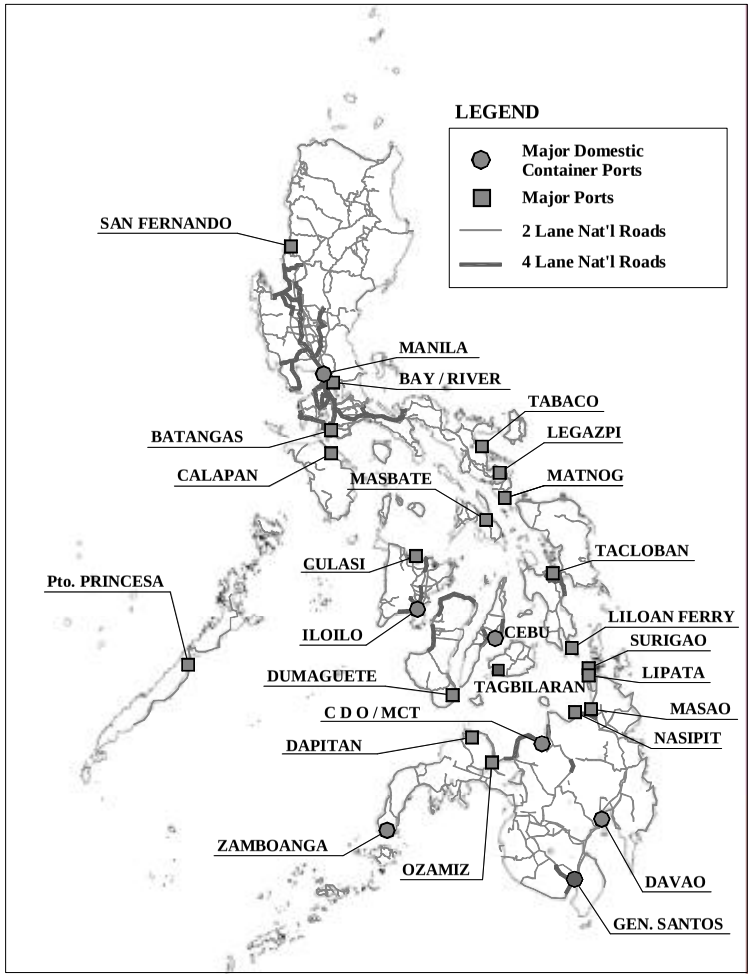


Figure 11.2.2 Major Domestic Container Port and Major Port (2009)

1) International Gateway Port

a) Subic

- Two international berths will be developed by 2009.

b) Manila (MICT and South Harbor)

- The existing facilities can accept the increased demand by 2009.

c) Batangas

- In order to handle the demand of international container, two berths will need to be developed by 2009.

d) Cebu

- One berth for international container will be developed by 2009.

e) CDO/MCT

- The existing facilities can accept the increased demand by 2009.

f) Davao

- Initially, one quayside crane will be installed to increase the container handling efficiency. Due to the narrow container handling yard, yard expansion including the construction of an additional berth is desirable. As a result, two quayside cranes for international container and a 250m expansion of the existing berth are required by 2009.

2) Principal International Trade Port

a) Iloilo

- For handling international bulk and break bulk, 400m berth extension is required by 2009.

b) General Santos, Zamboanga and San Fernando

- These three ports are also principal international trade ports. The existing facilities can accept the increased demand until 2009 at these ports.

3) Major Port

- Four ports are considered as Major ports. At Legazpi, one of the Major ports, although one more berth is required by 2009, this development shall be implemented at Tabaco or Pantao due to the spatial limitation there.

(2) Ports for Domestic Transport

1) Ports for Establishment of a Nationwide Maritime Transport Network

With regard to domestic container transport, seven ports will be developed as Major domestic container ports in 2009 nationwide, and container will be transported by long distance RO/RO ferry and geared/gearless vessels. It is proposed that all seven ports (i.e. Manila (North Harbor), Cebu, Iloilo, Cagayan de Oro (CDO/MCT), Davao, General Santos, Zamboanga) as well as Batangas port install container handling quayside cranes such as a mobile crane, and that gearless container vessels be used at these ports to improve the container handling efficiency (see Table 11.2.2 and Figure 11.2.2).

Domestic bulk and break bulk will mainly be handled at 27 ports in 2009. Among them, 7 are Major domestic container ports and 20 are Major ports.

Strategic Development Ports, which are developed from 2004 to 2009, and their required facilities are shown by each planning option in Table 11.2.2. Nine berths for domestic container and nine berths for domestic bulk and break bulk (including "multi purpose usage" with other cargo) are required to be developed. The outline of the major development of individual ports will be explained here (see also Appendix 10.4.9 and 10.4.10).

a) Major Domestic Container Port

- Among 7 major domestic container ports, 5 ports (Manila (North Harbor), CDO/MCT, Iloilo, General Santos and Zamboanga) will install quayside cranes.
- Cebu will utilize the existing gantry crane for domestic container after construction of the new international container terminal.

b) Major Port

- In order to deal with domestic bulk and break bulk cargo, berths at Dumaguete, Tagbilaran, Lipata and Dapitan will be developed. Although Nasipit is also required to be developed, domestic bulk and break bulk cargo will be handled at Masao since soil conditions surrounding Nasipit are not suitable for expansion.

Table 11.2.2 Plans for Domestic Container, Bulk and Break Bulk in 2009

Name of port	Domestic container							Domestic bulk, break bulk							Major dom'c container port	Major port (Total 0.75 m ton or others)	Remarks
	No. of berths (@200)	Berths length (m)	Berths length to be developed (m)	Depth of berth (m)	Qauy side cranes	Cranes to be installed	Strategic Dev't Ports for dom'c container	No. of berths (@100)	Berths length (m)	Berths length to be developed (m)	Depth of berth (m)	Short dis. RORO berth (m)	RORO berth to be developed (m)	Strategic Dev't Ports for dom'c bulk and break bulk			
Manila (South Harbor)	2	400		-7.5			○								○		
Manila (North Harbor)	2	400	400	-10.5	4 QC	4 QC		13	1,300		-6.5						*) Part of the long dis. RO/RO ferry berth will be deepened.
	11	2,200	750(*)	-7.5 or more													
Batangas	1	200		-7.5	1 QC	1 QC	○	2	200		-6.5	400				○	
Cebu	1	200		-10.5	2 GC			9	900		-6.5	400			○		
	3	600		-7.5													
CDO/MCT	1	200	200	-10.5	1 QC	1 QC	○	4	400	100	-6.5			○	○		
	2	400		-7.5													
Davao	1	200		-7.5	1 QC	1 QC	○	2	200		-6.5				○		
Iloilo	1	200		-10.5	1 QC	1 QC	○	13	1,300		-6.5	100			○		
	1	200		-7.5													
General Santos	1	200(*)	200	-10.5	1 QC	1 QC	○	2	200		-6.5				○		*) Multi purpose usage of int'l and dom'c container
	1	200		-7.5													
Zamboanga	1	200(*)	200	-10.5	1 QC	1 QC	○	5	500		-6.5	100			○		*) Multi purpose usage of int'l and dom'c container
	1	200		-7.5													
Nasipit	1	200		-7.5				3	300	200	-6.5			*		○	The development for domestic B, B/B cargo will be carried out at Masao.
Dumaguete	1	200		-7.5				3	300(*)	100	-6.5			○		○	*) Multi purpose usage of dom'c B, B/B and short dis. RO/RO
Bay/river								7	700		-6.5					○	
Masao		150(*)		-10.5(*)				1	150(*)		-10.5(*)					○	*) Multi purpose usage of int'l and dom'c B, B/B and long RO/RO ferry
Pt. Princesa	1	200(*)		-10.5(*)				1	200(*)		-10.5(*)					○	*) Multi purpose usage of int'l and dom'c B, B/B and long RO/RO ferry
Ozamiz		300(*)		-6.5					300(*)		-6.5	300	ramp	○		○	*) Multi purpose usage of int'l and dom'c B, B/B and long RO/RO ferry
Matnog												300				○/(Major corridors)	
Tacloban		500(*)		-6.5(*)					500(*)		-6.5(*)					○	*) Multi purpose usage of int'l and dom'c B, B/B and long RO/RO ferry
Tagbilaran								4	400	200	-6.5			○		○	
Legazpi								4	400		-6.5					○	
Tabaco								1	100		-6.5	200	ramp	○		○	
Lipata								1	100	100	-6.5	200	100	○/(Major corridors)		○/(Major corridors)	
Dapitan	1	200		-7.5				2	200	200	-6.5			○		○/(Major corridors)	
Masbate		200(*)		-6.5(*)					200(*)		-6.5(*)	100				○	*) Multi purpose usage of dom'c B, B/B and long RO/RO ferry
Surigao		300(*)		-6.5(*)					300(*)		-6.5(*)					○	*) Multi purpose usage of dom'c B, B/B and long RO/RO ferry
San Fernando								3	300		-6.5					○	
Calapan								1	100		-6.5	200				○/(Major corridors)	
Culasi	1	200(*)		-7.5(*)					200(*)		-7.5(*)	100		○		○	*) Multi purpose usage of dom'c B, B/B and long RO/RO ferry
Liloan												200	100	(Major corridors)		○/(Major corridors)	

Note): Some short distance RO/RO berths at the ports along the major corridors are also indicated in this table.

- One quayside crane for the domestic container cargo will be introduced at Batangas port taking into account the nationwide network of domestic container ports for gearless vessels.

c) RO/RO Port for Major Corridors

As mentioned in chapter 10, RO/RO ports along the two major north-south corridors already have RO/RO ramps. However, Liloan Port and Lipata Port need additional RO/RO ramps to cope with increasing transport demand until 2009. In addition, Caticlan Port should be promptly improved to secure an efficient transport network. Moreover, Mansalay Port, which has deeper basin area and is located nearer to Caticlan Port, should be developed instead of the existing Roxas Port to cope with berthing of larger RO/RO ships.

The San Recardo Port along the East Corridor, which is strategically located and can form an advantageous sea route to Lipata port in Mindanao Island instead of Liloan Port, should be promptly developed. In this regard, taking into account the uncertainty of the improvement of land linkage between Panaon Island and Lyete Island, it is assumed that both the Lipata–Liloan route and the Lipata–San Recardo route will be operation in 2009. Thus, 5 RO/RO ports for major corridors should be strategically developed by 2009. The 5 ports are listed in Table 11.2.3. The RO/RO port network for major corridors in 2009 is shown in Figure 11.2.3.

2) Formation of Maritime Transport Bases to Support Regional Society

It is proposed that port development be implemented for enhancement of mobility, supporting the remote islands development and social reform as in the long-term plan.

a) RO/RO Port for Mobility Enhancement

Fifty-one (51) ports are selected as RO/RO ports for mobility enhancement in 2009. Among them, forty-nine (49) ports are selected based on the following criteria.

- RO/RO cargo volume is about 30 thousand ton or more in 2009 (except for RO/RO ports for major corridors)
- The port is prioritized if it is located in the SZOPAD
- Road connection is good in 2009 (except for ports located in the SZOPAD and along the East Luzon Link (see Figure 10.2.1))
- The port has different hinterland of neighboring RO/RO ports
- The port is able to contribute to formulate the close linkage between the north-south corridors (except for ports located in the SZOPAD) or the East Luzon Link

Table 11.2.3 List of RO/RO Ports for Major Corridors (2009)

	Name of Port	Region	Name of Municipality	Population of Municipality (2009)	Income classification of Municipality	RO/RO Cargo Volume (2009)	RO/RO Passenger (2009)	Existing RO/RO Ramp (2001)	Existing RO/RO vessels calling (2001)	Strategic Development Ports	Remarks
PAN-PHILIPPINE HIGHWAY (East Corridor)											
1	***Matnog (PPA)***	Region V	Matnog	37,586	4th	2,387,567	2,826,492	○	○		
2	Balwharteco (Allen)	Region VIII	Allen	23,818	5th	1,583,121	1,646,029	○	○		Private Port
3	***Liloan (PPA)***	Region VIII	Liloan	23,548	4th	616,735	711,923	○	○	○	Additional 1-RO/RO Ramp
4	San Ricardo	Region VIII	San Recardo	10,640	5th	157,886	174,304			○	
5	***Lipata (PPA)***	Region XIII	Surigao City	144,019	2nd	638,243	632,310	○	○	○	Additional 1-RO/RO Ramp
STRONG REPUBLIC NAUTICAL HIGHWAY (West Corridor)											
1	***Batangas (PPA)***	Region IV	Batangas City	309,733	1st	566,239	5,340,383	○	○		
2	***Calapan (PPA)***	Region IV	Calapan City	132,493	4th	545,698	2,284,664	○	○		
3	Mansalay	Region IV	Mansalay	48,840	3rd	109,140	456,933			○	
4	Caticlan	Region VI	Malay	28,344	4th	109,140	456,933	○	○	○	Additional 1-RO/RO Ramp
5	***Iloilo (PPA)***	Region VI	Iloilo City	422,888	1st	99,288	3,407,496	○	○		
6	***Bacolod (PPA)***	Region VI	Bacolod City	496,012	1st	213,754	3,489,143	○	○		Private Port
7	***Dumaguete (PPA)***	Region VII	Dumaguete	119,241	2nd	58,168	2,004,319	○	○		
8	***Dapitan (PPA)***	Region IX	Dapitan City	82,359	2nd	18,890	1,352,008	○	○		
						7,103,869	24,782,937	11	11	5	

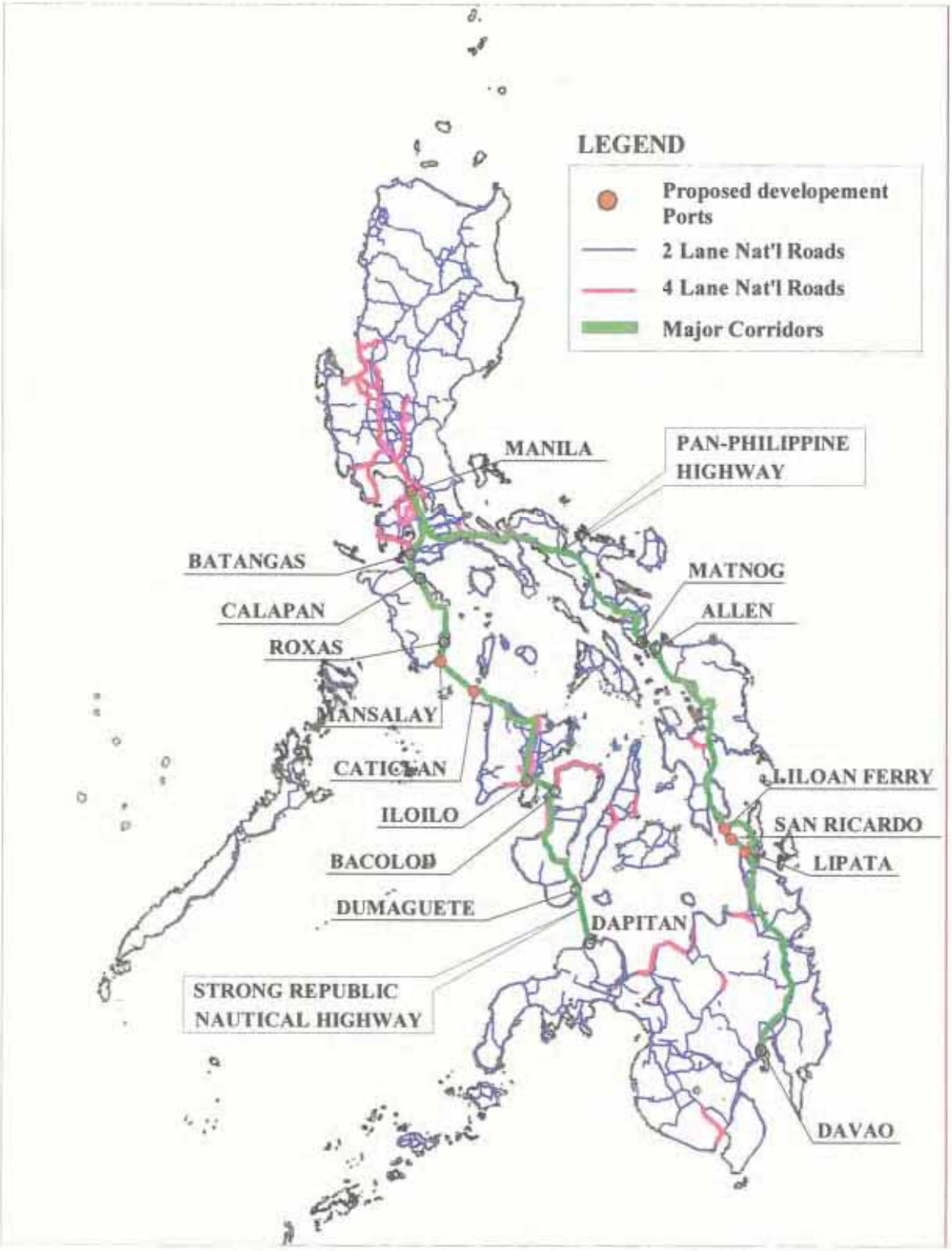


Figure 11.2.3 RO/RO Port Network for Major Corridors (2009)

Regarding the above 5th criterion, since it is necessary to closely link the two major north-south corridors immediately to enhance the mobility in this country, four linkage routes, i.e. Trans Visayas RO/RO routes are proposed in this section as follows.

Linkage Route 1: Matnog/Sorsogon - Bulan - Masbate - Mandaon - Culasi (Roxas)
Linkage Route 2: Tacloban - Palompon - Bogo - Hagnaya - Sta. Fe - Bantayan - Cadiz - Conception - Culasi (Roxas)
Linkage Route 3: Lipata - San Ricardo - Padre Burgos - Maasin - Tapal (Ubay) - Tagbilaran - Loon - Argao - Santander - Dumaguete
Linkage Route 4: Manila - Coron - Taytay - Cuyo - San Jose de Buenavista - Iloilo - Bacolod - San Carlos - Toledo - Cebu - Jetafe - Guindulman - Guinsiliban - Balingoan - Cagayan de Oro

Twenty-nine (29) out of 49 ports will contribute to the forming of a close linkage between the north-south corridors. Although Conception Ports does not clear the above 1st criterion of cargo volume, it should be involved in the short-term development plan because it is very important for the formation of linkage route 2.

In addition, the mountain range in Eastern Luzon is an obstacle to improving the road network. Consequently, especially the people of coastal towns facing the Pacific Ocean find it difficult to transport goods and to move to/from the Central and Western Luzon as well as within the Eastern Luzon. Therefore, it is necessary to form a maritime linkage which connects to the national roads and complements the road network in this area. This maritime linkage is proposed as the East Luzon Link in this Study. The 8 ports selected to form this East Luzon Link are as follows.

Real Port - Dingalan Port - Baler Port - Casiguran Port - Dilasag Port - Palanan Port - Maconacon Port - San Vicente Port

On the other hand, twelve (12) out of 49 ports are selected by priority because they are located in the SZOPAD.

Other two ports, Tabaco port and Ozamiz port are selected because they need additional RO/RO ramps to cope with increasing transport demand in 2009.

Twenty-eight (28) out of 51 ports should be newly developed as strategic development ports by 2009. The 51 RO/RO ports for mobility enhancement and 28 strategic development ports are listed in Table 11.2.4. The RO/RO port network for mobility enhancement in 2009 is shown in Figure 11.2.4. The RO/RO Ferry Service Routes for mobility enhancement in 2009 are listed in Appendix 11.2.1.

In addition, the number of people benefiting from mobility enhancement will increase from 14 million in 2000 to 22 million in 2009 as a result of the proposed project.

Table 11.2.4 List of RO/RO Ports for Mobility Enhancement (2009)

	Name of Port	Region	Population of Municipality (2009)	Criteria						Growth Potencial of Hinterland			Existing RO/RO Ramp (2001)	Existing RO/RO Vessels Calling (2001)	Strategic Development Ports	Remarks
				RO/RO Cargo Volume (ton) (2009)	*1 Road Access (2009)	Peace and Dev't Area (2001)	Defferent Hinterland	Close linkage between the major corridors	Formation of East Luzon Link	Industrial Areas	Special Economic Zones	Priority Tourism Development Areas				
1	San Vicente (Sta. Ana)	Region II	25,200	35,784	○		○		○	○	○				○	
2	Maconacon	Region II	4,339	29,048	-		○		○	○					○	
3	Palanan	Region II	17,860	28,198	○		○		○	○					○	
4	Dilasag	Region IV	18,360	25,874	-		○		○	○	○				○	
5	Casiguran	Region IV	26,845	29,350	-		○		○	○	○				○	
6	Baler	Region IV	37,434	35,562	○		○		○	○	○				○	
7	Dingalan	Region IV	25,216	32,376	○		○		○	○	○				○	
8	***Real (PPA)***	Region IV	38,386	36,467	○		○		○	○	○		○			
9	***Cuyo (PPA)***	Region IV	22,840	25,835	△	○	○	○					○	○		
10	***Coron (PPA)***	Region IV	40,336	47,854	△	○	○	○		○			○	○		
11	***El Nido (PPA)***	Region IV	33,813	32,122	△	○	○			○		○			○	
12	Taytay	Region IV	67,125	47,854	○	○	○	○		○		○			○	
13	***Puerto Princesa(PPA)***	Region IV	202,552	30,864	○	○	○			○		○	○	○		
14	***Tabaco (PPA)***	Region V	123,134	466,741	○		○			○	○		○	○	○	Additonal 1-RO/RO Ramp
15	***Bulan (PPA)***	Region V	95,009	90,259	△		○	○			○		○	○		
16	***Masbate (PPA)***	Region V	82,086	242,121	○		○	○					○	○		
17	Mandaon	Region V	36,276	34,281	○		○	○							○	
18	***Culasi (PPA)***	Region VI	146,063	84,246	◎		○	○			○		○	○		
19	Concepcion	Region VI	39,581	18,124	○		○	○		○					○	
20	***San Jose de Buenavista (PPA)***	Region VI	55,790	89,604	○		○	○			○			○		
21	Cadiz	Region VI	164,099	175,441	◎		○	○							○	
22	***San Carlos (PPA)***	Region VI	136,707	129,872	○		○	○			○		○	○		
23	Bantayan	Region VII	79,434	157,317	△		○	○		○				○	○	
24	***Sta. Fe (CPA)***	Region VII	26,767	25,429	△		○	○		○			○	○		
25	***Hagnaya (CPA)***	Region VII	51,337	25,429	○		○	○		○	○		○	○		
26	Bogo (Polambato)	Region VII	74,471	102,952	○		○	○		○	○		○	○	○	Additonal 1-RO/RO Ramp
27	***Cebu (CPA)***	Region VII	838,145	574,382	◎		○	○		○	○		○	○		
28	***Toledo (CPA)***	Region VII	164,609	129,872	◎		○	○		○	○		○	○		
29	***Argao (CPA)***	Region VII	71,138	67,581	○		○	○		○	○		○	○		
30	Santander	Region VII	16,140	28,472	△		○	○		○	○		○	○		Private Port
31	***Catagbacan (PPA)***	Region VII	52,721	324,546	○		○	○				○	○	○		
32	Tapal (Ubay)	Region VII	69,758	78,699	○		○	○				○			○	
33	***Jetafe (PPA)***	Region VII	31,279	29,715	○		○	○			○	○	○	○		
34	Guindulman	Region VII	34,008	33,763	○		○	○				○			○	
35	***Palompon(PPA)***	Region VIII	60,245	123,356	○		○	○		○	○		○	○		
36	***Maasin (PPA)***	Region VIII	84,470	78,699	○		○	○						○	○	1-RO/RO Ramp on-going const.
37	Padre Burgos	Region VIII	10,595	36,435	○		○	○							○	
38	Nabilid	Region IX	40,660	91,092	△	○	○			○	○				○	
39	Siocon	Region IX	39,500	37,525	○	○	○				○				○	
40	Sirawai	Region IX	19,973	37,949	○	○	○				○				○	
41	***Zamboanga(PPA)***	Region IX	726,967	198,294	○	○	○			○	○		○	○		
42	Solar (Olutanga)	Region IX	27,330	25,964	○	○	○							○	○	
43	***Guinsiliban (PPA)***	Region X	6,044	71,558	○		○	○			○			○	○	
44	***Ozamis (PPA)***	Region X	131,069	2,466,996	○		○				○		○	○	○	Additonal 1-RO/RO Ramp
45	***Cagayan De Oro (PPA)***	Region X	548,248	30,835	◎		○	○		○			○	○		
46	***Balingoan (PPA)***	Region X	9,730	37,795	○		○	○		○	○		○	○		
47	***Kolambugan (PPA)***	Region X	28,702	27,267	○	○	○			○	○			○	○	
48	***Basilan (PPA)***	ARMM	83,476	79,302	○	○	○						○	○		
49	Buli-Buli (Sumisip)	ARMM	59,107	56,152	-	○	○								○	
50	***Jolo (PPA)***	ARMM	100,582	95,553	○	○	○						○	○		
51	Languyan	ARMM	48,052	45,649	-	○	○								○	
				6,633,796		15	51	29	8	28	27	7	25	30	28	

Note: *1 ◎ Connection to 4 Lane National Highway, ○ Connection to 2 Lane National Highway, △ Connection to other Good Road

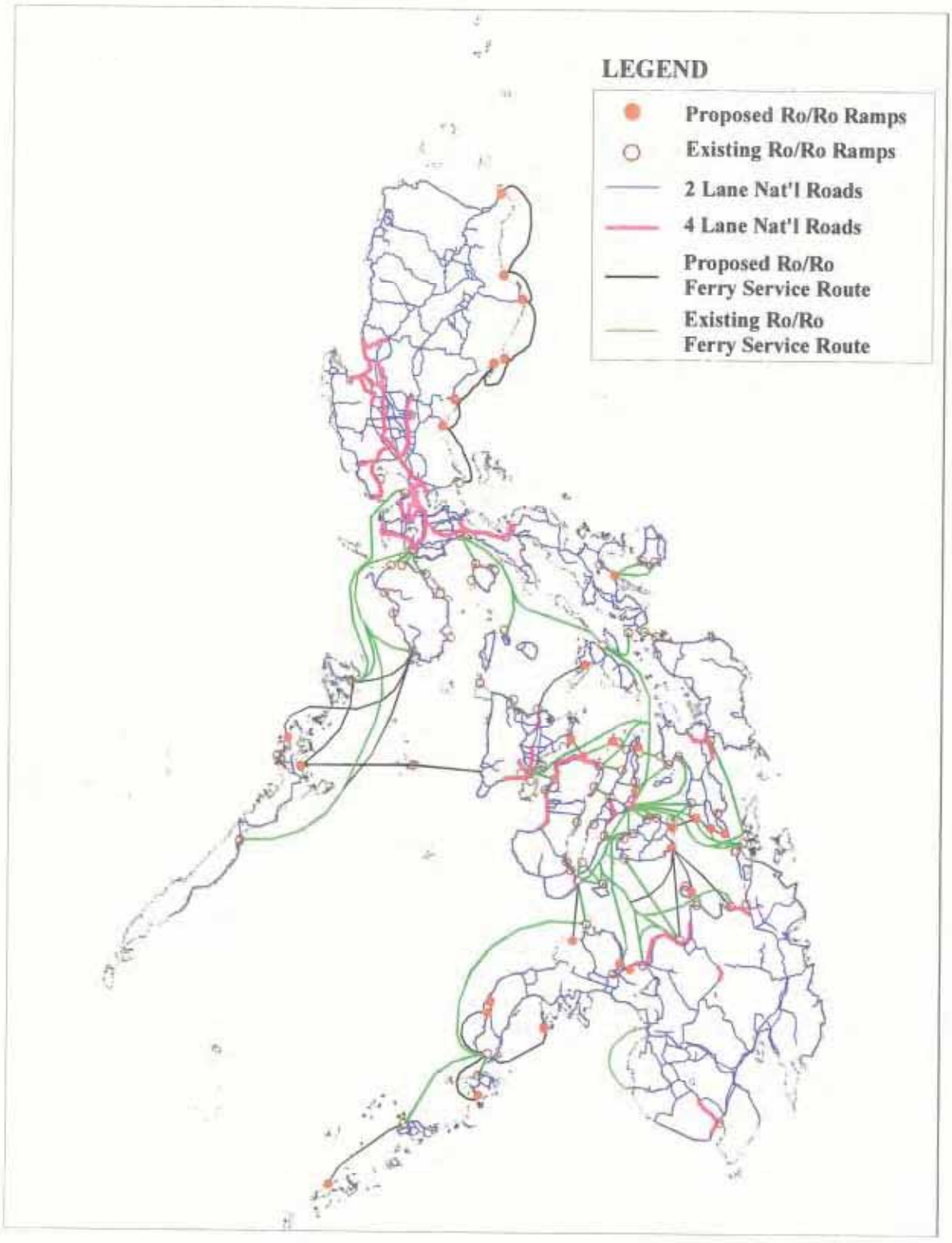


Figure 11.2.4 RO/RO Port Network for Mobility Enhancement (2009)

b) RO/RO Port for Remote Islands Development

In order to support the daily life in remote islands and remote islands development, thirty-one (31)

ports are selected as RO/RO ports for remote islands development in 2009. These ports are selected based on the following criteria.

- Population of the island that has existing port facilities is more than 10,000 in 2009
- The port is prioritized if it is located in the SZOPAD
- Income classification of the municipality where the port is located is 5th or less in 2001 (except for ports located in the SZOPAD)
- The port has different hinterland of neighboring RO/RO ports
- The port has high growth potential of hinterland (except for ports located in the SZOPAD)

For remote islands that have a population of more than 10,000 in 2009 and existing port facilities, a port in such an island is given priority if it is located in the SZOPAD, or the income classification of the municipality where it is located is 5th or less and it has high growth potential of hinterland. Good linkage between remote islands and main land/island is very important for securing the civil minimum requirement in Batanes area and Sulu/Tawi-Tawi areas.

Twenty-seven (27) out of 31 ports should be newly developed as strategic development ports by 2009. The 31 RO/RO ports for remote islands development and 27 strategic development ports are listed in Table 11.2.5. In addition, twenty-six (26) ports are selected as RO/RO ports connecting remote islands with the population center of the main island/other island and linking to RO/RO ports for remote islands development. Among them, four (4) ports should be newly developed. The 4 ports are listed in Table 11.2.6. The RO/RO port network for remote islands development in 2009 is shown in Figure 11.2.5. The RO/RO Ferry Service Routes for remote islands development in 2009 are listed in Appendix 11.2.2.

Among the 120 remote islands which have existing port facilities, 64.3% of the population will have safe and improved access to population centers in 2009 as a result of the proposed project (30.1% in 2000).

c) Social Reform Support Port

From the 22 social reform support ports described in chapter 10, seven (7) ports are selected from the viewpoint of promptly securing the accessibility of isolated islands/areas with high growth potential. The 7 ports are listed in Table 11.2.7. The location of social reform support ports is shown in Figure 11.2.6.

The percentage of remote islands and certain isolated areas/islands without sufficient port facilities (126 islands/areas in total) will decrease from 92.9% in 2001 to 71.4 % in 2009 as a result of the project (see Figure 11.2.7).

Table 11.2.5 List of RO/RO Ports for Remote Islands Development (2009)

	Name of Port	Region	Name of Island	Population of Municipality (2009)	Criteria							Existing RO/RO Ramp (2001)	Existing RO/RO Vessels Calling (2001)	Strategic Development Ports	Remarks
					Population of Island (2009)	Peace and Dev't Areas	Income classification of Municipality (2001)	Defferent Hinterland	Growth Potential of Hinterlamd						
									Industrial Area	Special Economic Zones	Priority Tourism Development Areas				
1	Basco	Region II	Batan	7,832	13,028		5th	○		○				○	
2	Alabat	Region IV	Alabat	17,769	49,104		5th	○		○		○	○		
3	Calatrava	Region IV	Tablas	11,106	180,744		5th	○	○					○	
4	Sta. Fe (Tablas Is.)	Region IV	Tablas	17,689	180,744		-	○	○					○	
5	Ambulong (Magdiwang)	Region IV	Sibuyan	15,052	65,821		5th	○	○				○	○	
6	***Cuyo (PPA)***	Region IV	Cuyo	22,840	27,195	○	4th	○				○	○		
7	Culion	Region IV	Culion	17,892	17,560	○	4th	○	○			○			
8	Araceli	Region IV	Dumaran	13,628	20,827	○	5th	○	○					○	
9	Balabac	Region IV	Balabac	31,597	11,382	○	3rd	○						○	
10	***Sta. Fe (Bantayan Is.) (CPA)***	Region VII	Bantayan	26,767	115,820		5th	○	○			○	○		
11	***Poro (CPA)***	Region VII	Camotes	24,949	85,264		5th	○	○	○				○	
12	Pilar (Ponson Is.)	Region VII	Ponson	13,090	13,090		5th	○	○					○	
13	Pitogo	Region VII	Lapining	24,188	20,843		5th	○			○			○	
14	Kaputian	Region XI	Samal	101,196	91,417		5th	○		○				○	
15	Batuganding (Balut Is.)	Region XI	Balut	22,529	15,355	○	5th	○						○	
16	San Juan	Region XIII	Dinagat	10,632	121,301		5th	○	○					○	
17	***San Jose (PPA)***	Region XIII	Dinagat	31,021	121,301		5th	○	○					○	
18	San Benito (Talisay)	Region XIII	Siargao	5,771	81,716		5th	○	○					○	
19	***Dapa (PPA)***	Region XIII	Siargao	23,702	81,716		5th	○	○					○	1-RO/RO Ramp on-going Const.
20	Pangutaran (Simbahan)	ARMM	Pangutaran	29,959	23,820	○	4th	○						○	
21	Pata	ARMM	Pata	13,477	11,020	○	5th	○						○	
22	Lugus	ARMM	Lugus	21,533	21,051	○	5th	○						○	
23	Siasi	ARMM	Siasi	67,516	55,456	○	4th	○						○	
24	Tapul	ARMM	Tapul	17,009	15,456	○	4th	○						○	
25	Lapak	ARMM	Pandami	22,819	16,839	○	5th	○						○	
26	Tampakan	ARMM	South Ubian	31,205	12,493	○	-	○						○	
27	Tandubas (Sapa-Sapa)	ARMM	Tandubas	28,461	18,619	○	-	○						○	
28	Tubig Indangan	ARMM	Simunul	36,533	23,283	○	-	○						○	
29	Lamion	ARMM	Bongao	66,493	37,330	○	-	○						○	
30	Sitangkai (Sibutu)	ARMM	Sibutu	60,318	60,318	○	4th	○					○	○	
31	Cagayan de Sulu (Tawi-Tawi)	ARMM	Cagayan Sulu	25,159	25,159	○	4th	○						○	
						17		31	12	4	1	4	5	27	

Table 11.2.6 List of RO/RO Ports Connecting Remote Islands (2009)

	Name of Port	Region	Population of Municipality (2009)	Income classification of Municipality (2001)	Existing RO/RO Ramp (2001)	Existing RO/RO Vessels Calling (2001)	*1 Road Access (2009)	Strategic Development Ports	Remarks
1	***Currimao (PPA)***	Region I	12,133	5th			○	○	
2	***Real (PPA)***	Region IV	38,386	3rd	○		○		
3	Atimonan	Region IV	70,952	2nd	○	○	◎		
4	***Lucena (PPA)***	Region IV	245,290	1st	○	○	◎		
5	***Batangas (PPA)***	Region IV	309,733	1st	○	○	◎		RO/RO Port for major corridors
6	Roxas	Region IV	51,623	4th	○	○	○		RO/RO Port for major corridors
7	Cawit	Region IV	60,679	2nd	○		○		
8	***Romblon (PPA)***	Region IV	45,802	4th	○	○	○		
9	***Cuyo (PPA)***	Region IV	22,840	4th	○	○	△		
10	***Coron (PPA)***	Region IV	40,336	2nd	○	○	△		
11	Taytay	Region IV	67,125	1st			○		RO/RO Port for Mobility Enhancement
12	***Puerto Princesa (PPA)***	Region IV	202,552	1st	○	○	○		
13	***Brooke's Point (PPA)***	Region IV	61,209	1st	○		○		
14	***Iloilo (PPA)***	Region VI	422,888	1st	○	○	◎		RO/RO Port for major corridors
15	***Cebu (CPA)***	Region VII	838,145	1st	○	○	◎		
16	Tapal (Ubay)	Region VII	69,758	2nd			○		RO/RO Port for Mobility Enhancement
17	***Catbalogan (PPA)***	Region VIII	99,922	1st	○	○	○		
18	Talalora	Region VIII	7,810	5th		○	△		
19	***Ormoc (PPA)***	Region VIII	183,151	1st	○	○	○		
20	***Davao (Sasa) (PPA)***	Region XI	1,405,217	1st		○	○		
21	Lupon	Region XI	69,938	1st			△	○	
22	***General Santos (PPA)***	Region XII	495,834	1st	○		◎		
23	***Surigao (PPA)***	Region XIII	144,019	2nd	○	○	○		
24	***Jolo (PPA)***	ARMM	100,582	3rd	○	○	○		
25	Punay	ARMM	24,509	5th			○	○	
26	Bongao (Pag-asinan)	ARMM	66,493	-		○	-	○	
								4	

Note: *1 ◎ Connection to 4 Lane National Highway ○ Connection to 2 Lane National Highway △ Connection to other Good Road

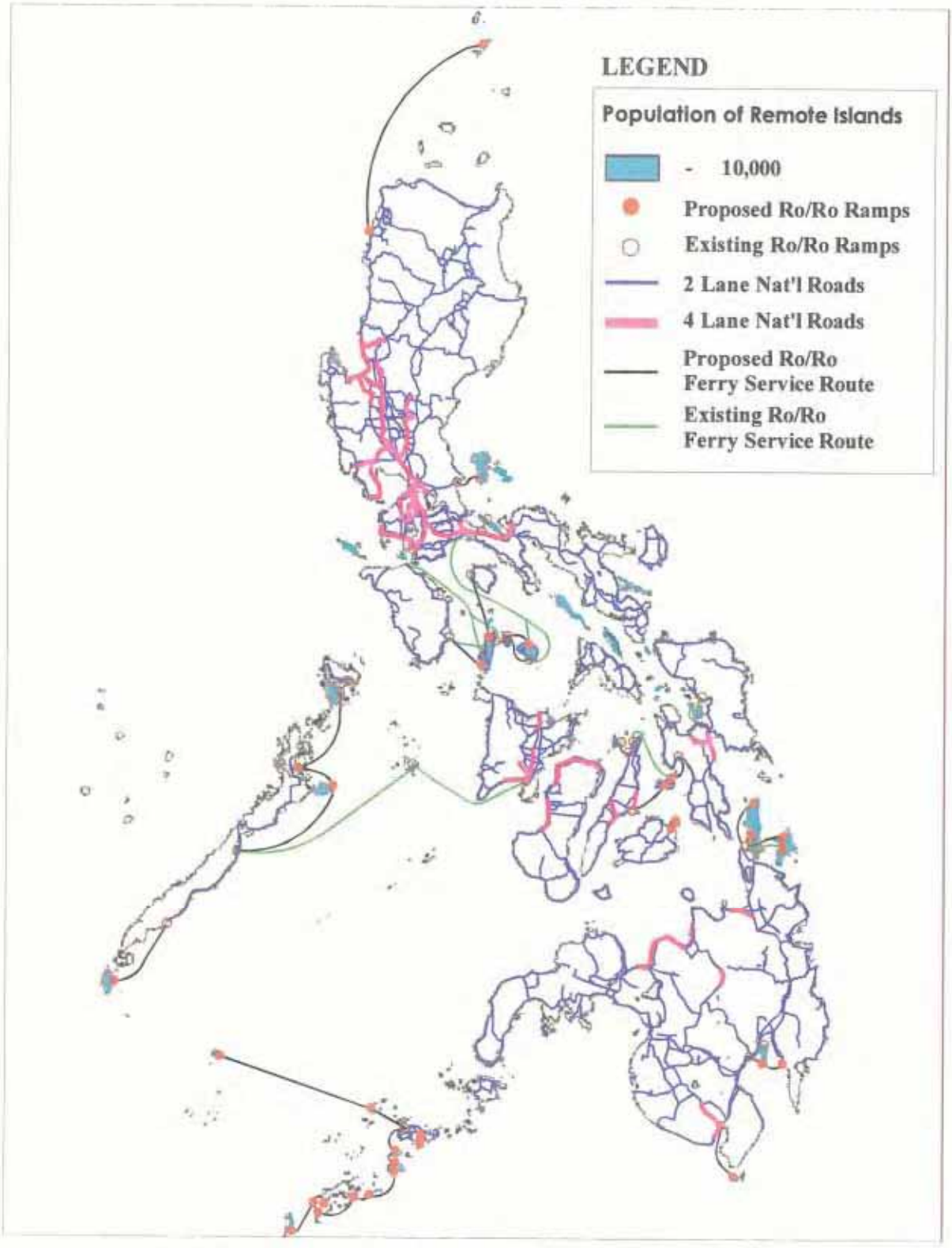


Figure 11.2.5 RO/RO Port Network for Remote Islands Development (2009)

Table 11.2.7 List of Social Reform Support Ports (2009)

	Name of Port	Region	Name of Municipality	Income classification of Municipality	Population of Municipality (2009)	Name of Remote Island	Population of Remote Is. (2009)	*1 Road Access	Peace and Development Area	Defferent Hinterland	Growth Potential of Hinterland			Strategic Development Ports	Remarks
											Industrial Areas	Special Economic Zones	Priority Tourism Development Areas		
1	Quezon	Region IV	Quezon	5th	18,257	Alabat	49,104	-		○		○			Complementary port for Alabat Port
2	Gumaca	Region IV	Gumaca	2nd	75,299			◎		○	○	○			Connecting port for Quezon Port
3	Dumaran	Region IV	Dumaran	4th	20,787	Dumaran	20,827	-	○	○	○				Complementary port for Araceli Port
4	Mercedes	Region V	Mercedes	4th	47,928			○		○		○		○	Connecting port for Siruma Port
5	Siruma	Region V	Siruma	5th	18,774			-		○	○	○		○	Isolated area
6	San Vicente	Region V	Caramoan	4th	45,549			△		○	○	○			Connecting port for Mayngaway Port
7	Mayngaway	Region V	San Andres	4th	36,151			○		○	○				Complementary port for San Andres Port
8	Milagros	Region V	Milagros	3rd	51,217			○		○					Marine Products Center of Masbate Is.
9	Calumpang	Region V	Balud	4th	34,548			-		○				○	Isolated area
10	Semirara	Region VI	Caluya	4th	23,177	Semirara	9,685	-		○				○	Isolated island, New port development
11	Malapascua	Region VII	Daanbantayan	3rd	80,846	Malapascua	3,822	-		○				○	Isolated island, New port development, High growth potential of tourism
12	Langub	Region VII	Sta. Fe	5th	26,767	Guintacan	7,504	-		○				○	Isolated island, New port development
13	Laoang	Region VIII	Laoang	3rd	64,719			○		○		○			Port for alternaitive route from east coast municipalities of Northern Samar to Legaspi
14	San Ishidro	Region VIII	San Ishidro	4th	34,910			○		○	○	○			Connecting port for Marapascua Port
15	San Francisco	Region VIII	San Francisco	5th	12,902			△		○					Port for cross-bay (Sogod Bay) sea route to Padre Burgos Port
16	Malabang Municipal	Region XII	Malabang	-	39,945			○	○	○	○				Port providing another outlet to the southern area of Lanao del Sur
17	Ganassi	Region XII	Ganassi	-	22,812			○	○	○		○			ditto
18	Palimbang	Region XII	Palimbang	3rd	52,665			-	○	○				○	Isolated area
19	Butuan Municipal	Region XIII	Butuan City	1st	324,744			-		○		○			River port providing water transportation to municipalities with poor access roads alomg Agusan River
20	Escolta	Region XIII	Dinagat	5th	12,008	Dinagat	121,301	-		○	○				Complementary port for San Jose Port
21	Pilar	Region XIII	Pilar	5th	10,207	Siargao	81,716	-		○	○				Complementary port for Dapa Port
22	Parang	ARMM	Parang	1st	69,649			○	○	○		○			Port as an alternative to the new port development plan of Cotabato City
									5	22	9	10	0	7	

Note: *1 ◎ Connection to 4 Lane National Highway, ○ Connection to 2 Lane National Highway, △ Connection to other Good Road

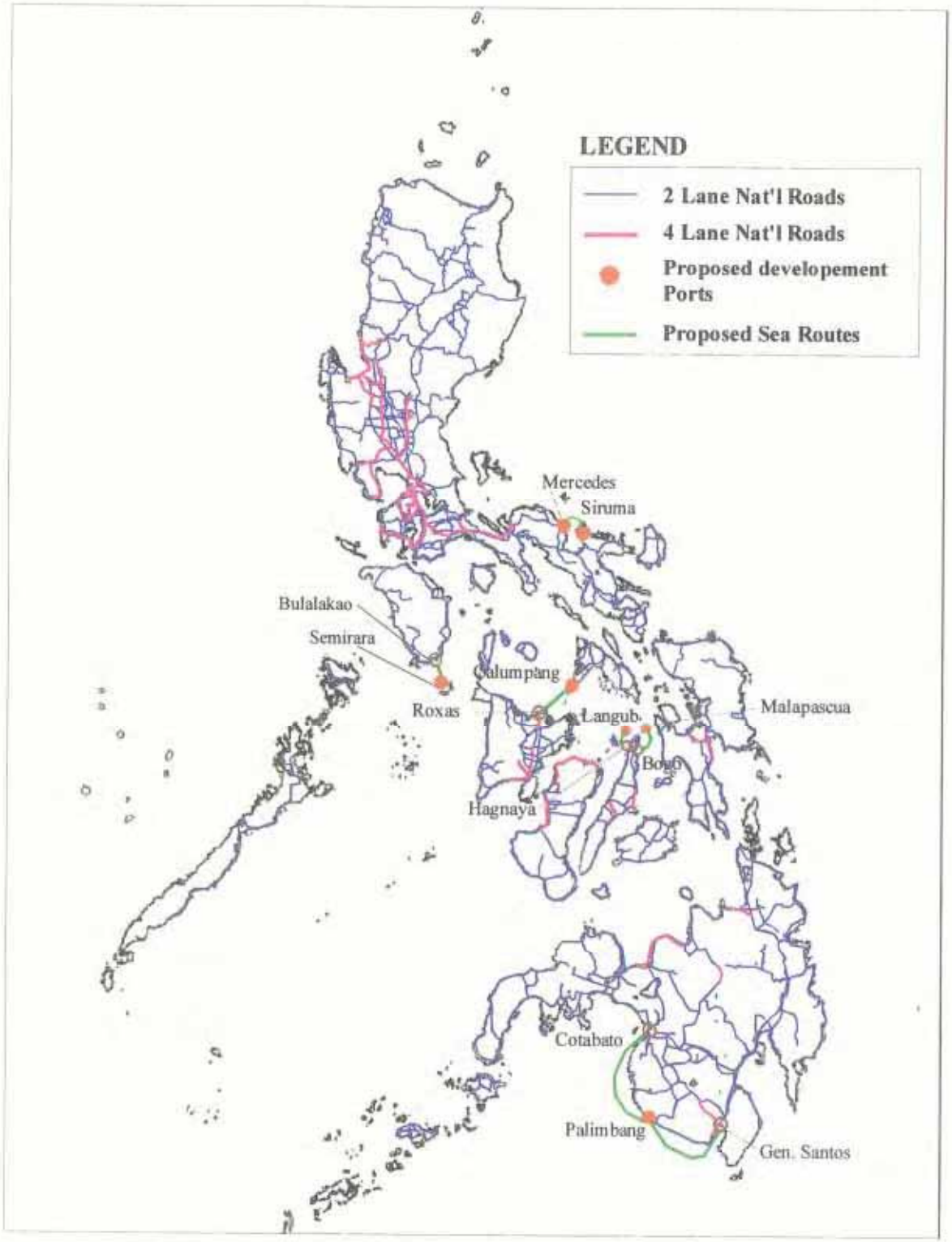
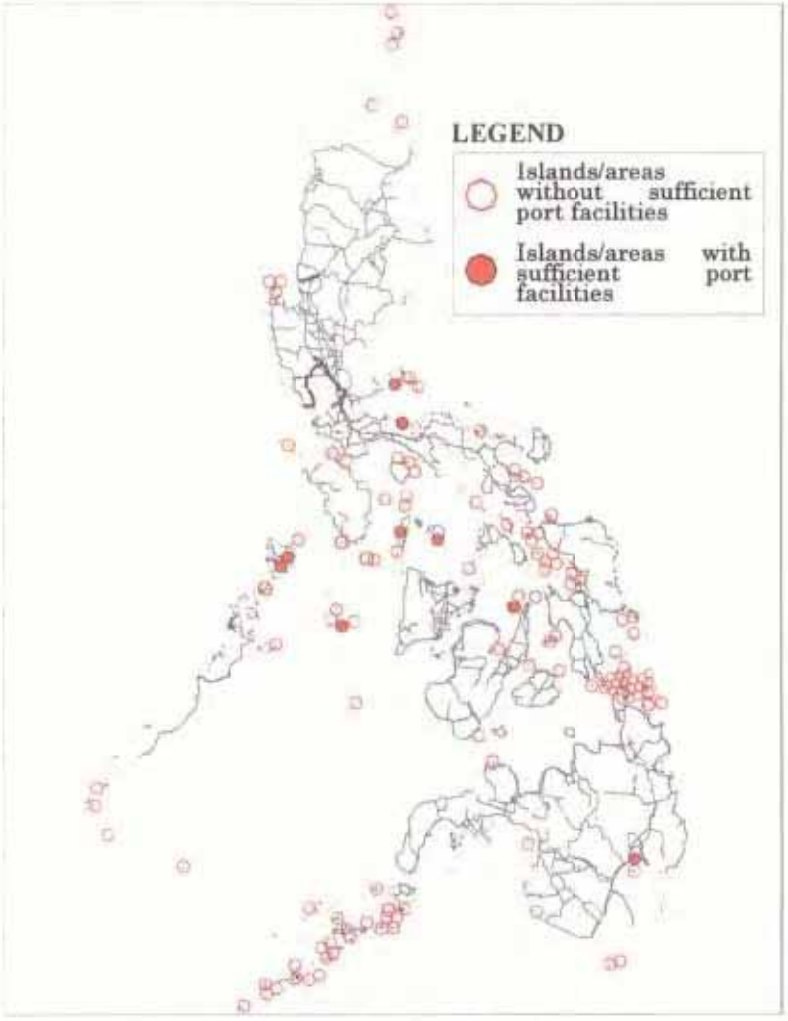
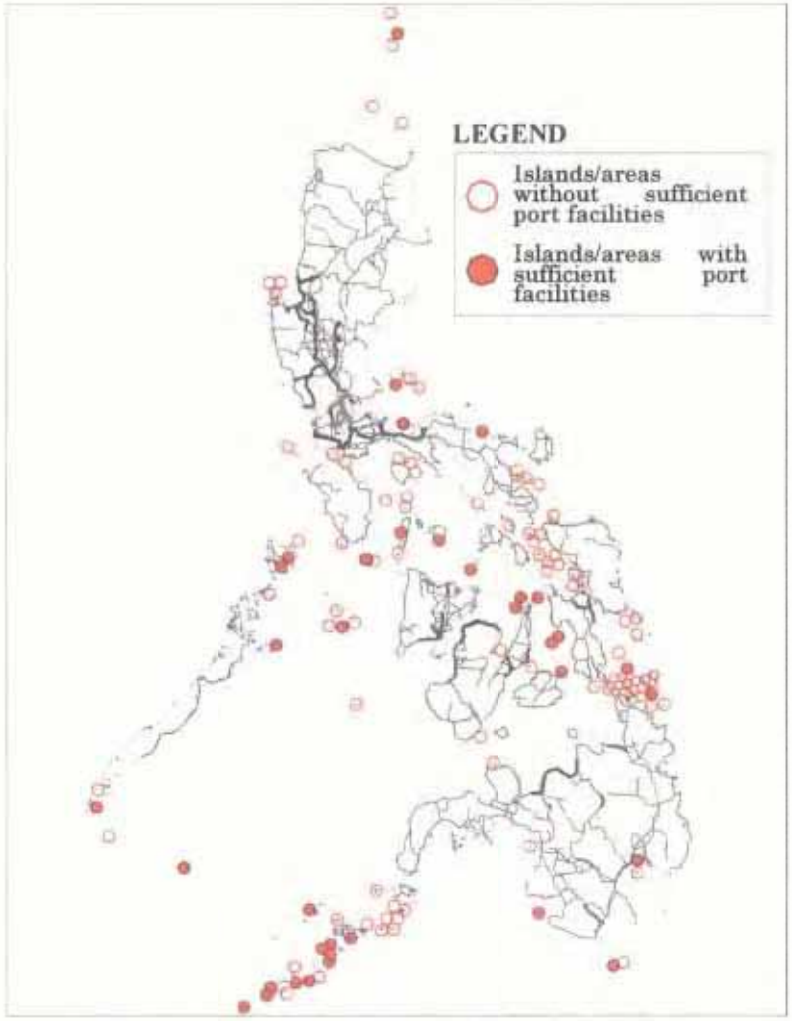


Figure 11.2.6 Location of Social Reform Support Ports (2009)



117 islands/areas for 126 in total (92.8%) (2001)



90 islands/areas for 126 in total (71.4%) (2009)

Figure 11.2.7 Situation of Remote Islands and Certain Areas/Islands without Sufficient Port Facilities (2009)

3) Ports for Passenger Transport

Same to the long-term plan, it is expected that the majority of maritime passengers will be transported by conventional way. Namely, long distance passengers are expected to be transported by long distance RO/RO ferries similar to the current system while short and middle distance passengers will be transported by RO/RO ferries and/or passenger vessels.

11.3 Estimated Cost for the Development and Development Schedule

The investment cost by planning options and the development schedule during initial five years will be shown in Table 11.3.1. The development schedule is proposed taking into account the urgency and importance of them. Total investment cost during five years is about 41 billion pesos, and the cost of the urgent projects is about 15 billion pesos.

Table 11.3.1 Cost for New Development Projects by 2009 and the Development Schedule

Purpose of investment	Name of port	Berth length (m)	Depth (m)	Cost (m Pesos)	Total cost by option (m Pesos)	Implementation schedule: Urgent	First half	Second half	Remarks
International container	Subic	560	-13	6,800		○			
	Batangas	700	-13	1,020	14,120	○			
	Cebu	300	-13	3,700				○	
	Davao	250, 2QC	-12	2,600		○			Part of 500m berth.
International bulk and break bulk	Cebu	Dredging for 200	-10.5	50			○		
	Iloilo	400	-10.5	1,700		○			
	Zamboanga	Dredging for 200	-10.5	50	3,300		○		
	Legazpi	200	-10.5	1,500				○	Due to the limitation of space, the development will be done at Tabaco or Pantao.
Domestic container	Cebu	Dredging for 200	-10.5	50			○		For dom'c container dedicated.
	Cagayan de Oro/MCT	200, 1QC	-10.5	1,670			○		For dom'c container dedicated.
	Batangas	1QC		100			○		For dom'c container dedicated.
	Iloilo	1QC		100			○		For dom'c container dedicated.
	Davao	1QC		100			○		For dom'c container dedicated.
	General Santos	200, 1QC	-10.5	1,670	11,905		○		For dom'c container dedicated.
	Manila (North Harbor)	Terminal I (1,150)+4QC	-10.5	6,495			○		For dom'c container dedicated, and long dis. RORO ferry.
	Zamboanga	200, 1QC	-10.5	1,670			○		For dom'c container dedicated.
	Culasi	Dredging for 200	-10.5	50				○	
Domestic bulk and break bulk	Cebu	Dredging for 900	-6.5	50			○		
	Zamboanga	Dredging for 500	-6.5	50			○		
	CDO/MCT	100	-6.5	500			○		
	Dapitan	200	-6.5	1,000			○		
	Nasipit	200	-6.5	1,000	4,600			○	Due to the unsuitable soil condition, the development will be done at Masao.
	Tagbilaran	200	-6.5	1,000				○	
	Dumaguete	100	-6.5	500				○	
	Lipata	100	-6.5	500				○	
RO/RO ports for major corridors	2 Ports (Caticlan, San Ricardo)			850	850		○		
	3 Ports (Lipata, Liloan, Mansalay)							○	
RO/RO for mobility enhancement	18 Ports (Taytay, Mandaon, Conception, Cadiz, Bantayan, Bogo, Tapal, Guindulman, Maasin, Padre Burgos, Guinsiliban, San Vicente, Maconacon, Palanan, Dilasag, Casiguran, Baler, Dingalan)			4,520	4,520	○			
	10 Ports (El Nido, Tabaco, Nabilid, Siocon, Sirawai, Olutanga, Ozamiz, Kolambugan, Sumisip, Languyan)						○		
RO/RO for remote island development	27 Ports (Basco, Calatrava, Sta Fe (Tablas Is.), Magdiwang, Araceli, Balabac, Poro, Pilar (Ponson Is.), Pitogo, Kaputian, Balut, San Juan (Loreto), San Jose (Dinagat Is.), San Benito, Dapa, Pangutaran, Pata, Tapul, Lugus, Siasi, Lapak, Tampakan, Tandubas, Cagayan de Sulu, Tubig Indangan (Simunul Is.), Lamion (Bongao Is.), Sitangkai) 4 Conecting Ports (Currimao, Lupon, Punay, Bongao (Pag-asinan))			1,705	1,705			○	
Social reform ports	6 Ports (Mercedes, Siruma, Calumpang, Malapascua, Langub, Palimbang)			161	161		○		
			Total:	41,161		15,180	15,516	10,465	

Chapter 12 Environmental Consideration

12.1 General

"Sustainable Development" requires that the environment be protected in the course of economic growth. However, many infrastructure development projects aimed at promoting economic growth and improving people's living standards impact the environment of the project site and the surrounding area.

The history suggests that the culture of environmental compliance by industries as well as people might not be sufficient to keep the State clean and free from pollution. Rivers and seashore around the urban area are always found full of debris and polluted water and main roads in the cities are occupied by full of vehicles of which emission causes serious air pollution. However, the inland transportation now relies mostly on the trucks, buses and cars, and they generate the traffic congestion badly which could lower the economic growth and people's health.

A State must grow to accommodate the increase of the population and the demand of the people and industries for better life and business chances in the future. Consequently, the movement of cargo and passenger will increase to meet the vitalized economic and social activities, however, the environmental condition should not be impaired any more. It is essential to select the environmentally-friendly mode of transportation for the sustainable development of the State. The maritime transportation is the most environmentally-friendly method comparing with land and air transportation. To accommodate the increased cargo and passenger and the stricter environmental requirements, various modes of maritime transportation including long, medium and short distance and Ro/Ro, conventional and dedicated vessels will be employed.

Following the changes of types/sizes of the cargo and vessels, the types and sizes of the port facilities are also changed, and the needs of the people and industries will develop new navigation routes for further economic and social growth. Therefore, the port development is one of the most critical requirements to accommodate the expanding cargo and passenger flow with the least environmental negative impact to contribute the sustainable development of the State now and in the future.

Environmental laws of the Philippines are fairly comprehensive, however, ensuring compliance with these laws continues to be an issue. The Government is introducing the Environmental Management System (EMS) with the self-monitoring approach for the industries to improve their environmental performances. It is necessary for the industries as well as public agencies to develop and promote the culture of environmental compliance through implementing and maintaining the EMS and its training to their employees, and it is essential for the State to provide environmental education and training in school for children and students to promote and enhance understanding on the need for environmental protection and compliance.

12.2 Institutional Framework for Environmental Consideration

12.2.1 Basic Framework

The 1987 Philippine Constitution lays down the basic framework for environmental policy. Section 16, Article II states that *"The State shall protect and advance the rhythm and harmony of nature."* Section 15 of the same Article also mandates the State *" to protect and promote the people's right to health."*

The basic environmental ordinance consists mainly of two Presidential Decrees (P.D.).

- P.D. No. 1151 (Established and enacted on June 1977) : the "Philippine Environmental Policy" which constitutes the environmental policy of the State, the responsibility, the Environmental Impact Statements, etc.
- P.D. No. 1152 (Established and enacted on July 1977) : the "Philippine Environmental Code" which regulates Air Quality Management, Water Quality Management, Land Use Management, Natural Resources Management and Conservation, Waste Management, etc.

12.2.2 Framework for EIS System

Laws and regulations for Environmental Impact Statement (EIS) System are fairly comprehensive and the Procedural Manual for the EIS System is a big help for project proponents / stakeholders / agencies concerned to prepare and/or review the EIS/IEE (Initial Environmental Examination) thoroughly and uniformly. However, it is recommended to include the soil contamination test as one of the contents of the EIS for onshore and/or seabed/riverbed soil to identify the ingredient of toxic substances, such as heavy metal, etc. to prevent the spread of any toxic substances due to the implementation of port development projects.

The EIS System must be kept functioning as planning, regulatory and management tool and improving those effectiveness with regard to the environmental protection and compliance.

(1) Legal Framework

Presidential Decree No. 1151, otherwise known as the "Philippine Environmental Policy," is the first policy issuance on Environmental Impact Statement (EIS) System in the Philippines. Effective since 1977, section 4 thereof explicitly requires *"all agencies and instrumentalities of the national government, including government-owned and controlled corporations, as well as private corporations, firms and entities to prepare an environmental impact system (EIS) for every action, project or undertaking which significantly affects the quality of the environment."*

The Philippine Environmental Impact Statement (EIS) System was formally established in 1978 by virtue of Presidential Decree (PD) No. 1586. Reiterating the policy statement under PD 1151, it declared *environmentally critical projects (ECPs)* and *projects within environmentally critical areas (ECAs)* as projects which require the submission of an Environmental Impact Statement (EIS). Section 4 thereof provides that *"no person, partnership or corporation shall undertake or operate any in part such declared ECP or project within an ECA without first securing an Environmental Compliance Certificate (ECC)."* PD 1586 also identified the lead agency for the implementation of the EIS System and provided sanctions for its violation.

The major categories of ECPs and ECAs were identified through Presidential Proclamation No. 2146, series of 1981. The categories were given technical definitions by EMB's predecessor agency, the National Environmental Protection Council (NEPC), through NEPC Office Circular No. 3, series of 1983.

Since the issuance of the foregoing, the EIS system has undergone several refinements to make it a more effective planning, management, and regulatory **tool** in addressing environmental problems in the country. The DENR has consistently endeavored to strengthen and tighten the system, by continuously introducing new features and requirements in response to changing economic realities and the growing environmental consciousness of the Philippine populace.

The latest of this effort is DENR Administrative Order (DAO) No. 37, series of 1996 or DAO 96-37, which expressly supersedes DAO 21, series of 1992. DAO 96-37 is an attempt to further streamline the EIS system and to strengthen the processes for its implementation. (Definition of Terms for EIS System defined in DAO 96-37 is shown in Appendix 12.2.1.)

In consonance with the basic policy of DENR described below, DAO 96-37 seeks to address the following objectives:

a) *Ensure that environmental considerations are incorporated at the earliest possible stage of project development.*

b) *Further streamline the current procedures in the conduct of the Environmental Impact Assessment (EIA) in order to improve its effectiveness as a planning, regulatory and management* ***tool****.*

c) *Enhance maximum public participation in the EIA process to validate the social acceptability of the project or undertaking so as to ensure the fullest consideration of the environmental impact of such project or undertaking*. (Section 2.0, Article I)

(2) Roles of the Agencies / Entities Concerned

The Department of Environment and Natural Resources' (DENR) basic policy governing the

implementation of the Philippine Environmental Impact Statement (EIS) System is articulated in Section 1.0, Article I of DAO 96-37, to wit:

It is the policy of the DENR to attain and maintain a rational and orderly balance between socio-economic growth and environmental protection through the sustainable use, development, management, renewal and conservation of the country's natural resources, including the protection and enhancement of the quality of the environment, not only for the present generation but for the future generations as well.

To implement the policy above, Executive Order No.192 designated the Department of Environment and Natural Resources (DENR) as the *"primary government agency responsible for the conservation, management, development and proper use of the country's environment and natural resources."* Its Environmental Management Bureau (EMB) is specifically tasked *"to recommend rules and regulations for environmental impact assessments and provide technical assistance for their implementation and monitoring."*

The following table shows the review and approval agencies for ESI and IEE:

Table 12.2.1 Reviewing and Approving Agencies for EIS and IEE

Type of Project	Environmental Documents Required	Endorsing Official	Approving Official	Processing Timeframe for EIS or IEE (Not to exceed)
Environmentally Critical Project (regardless of location)	EIS & ECC	EMB Central Office Director	DENR Secretary/EMB Director	120 working days
Non-Environmentally Critical Project located in Environmentally Critical Area	IEE or EIS (judged by DENR) & ECC	(In case of IEE) EIA Division, Regional Office	(In case of IEE) EMB Director/ Regional Director	(In case of IEE) 75 working days
Projects Not Covered by the EIS System	ECC	EIA Division Chief EMB Central/Regional Office	EMB Director/ Regional Director	15days

(3) Requirements for Port Development Project

The port development projects are required to prepare the EIS instead of the IEE in accordance with

the requirements of DAO 96-37 Procedural Manual as described below.

The following projects and undertakings are covered by the EIS System:

1) Environmentally Critical Projects (ECPs) which require EIS

The following categories of projects are designated as Environmental Critical Projects;

a) Heavy Industries
b) Resource Extractive Industries
    1. Major mining and quarrying industries
    2. Forestry projects
    3. Fishery projects
c) Infrastructure projects (Detailed clarification on Infrastructure Projects described in DAO 96-37 Procedural Manual is shown in Appendix 12.2.2.)
    1. Major dams
    2. Major power plants (fossil-fueled, nuclear-fueled, hydro-electric, or geothermal)
    3. Major reclamation projects (exceeding 25 ha)
    4. Major roads and bridges
d) Golf course projects

2) Projects located in Environmentally Critical Areas (ECAs) which require basically IEE

The following areas are designated as Environmentally Critical Areas;
(Detailed clarification on Infrastructure Projects described in DAO 96-37 Procedural Manual is shown in Appendix 12.2.3.)

a) All areas declared by law as national parks, watershed reserves, wildlife preserves, and sanctuaries;
b) Areas set aside as aesthetic potential tourist spots;
c) Areas which constitute the habitat for any endangered or threatened species of indigenous Philippine wildlife (flora and fauna)
d) Areas of unique historic, archeological or scientific interest
e) Areas which are traditionally occupied by cultural communities or tribes (indigenous cultural communities)
f) Areas frequently visited and/or hard-hit by natural calamities (geologic hazards, floods, typhoons, volcanic activity, etc.)
g) Areas with critical slopes
h) Areas classified as prime agricultural lands
i) Recharged areas of aquifers

j) Water bodies characterized by one or any combination of the following conditions:
    1. tapped for domestic purposes
    2. within the controlled and/or protected areas declared by appropriate authorities
    3. which support wildlife and fishery activities
k) Mangrove areas characterized by one or any combination of the following conditions:
    1. with primary pristine and dense young growth
    2. adjoining mouth of major river systems
    3. near or adjacent to traditional productive fry or fishing grounds
    4. which act as natural buffers against shore erosion, strong winds and storm floods
    5. on which people are dependent for their livelihood
l) Coral reefs characterized by one or any combination of the following conditions:
    1. with fifty percent (50%) and above live coralline cover
    2. spawning and nursery grounds for fish
    3. which act as natural breakwater of coastlines.

3) Preparation and Submission of EIS / IEE

Proponents who wish to undertake a project that is considered as an ECP, regardless of location, must prepare an Environmental Impact Statement (EIS). The EIS is submitted to the Environmental Management Bureau (EMB) as the primary basis for the review and eventual issuance or denial of an Environmental Compliance Certificate (ECC) by the DENR Secretary. In general, it is the EMB that is responsible for implementing the EIS system for ECPs.

Subject to the agreed-upon scope described in DAO 96-37 Procedural Manual, an EIS shall at least contain the following basic items:

a) Project Description, including data on project location, specifically describing the primary and secondary impact zones, project rationale, alternatives, including alternative sites or actions, no action alternatives, and project phases;
b) Scoping Report;
c) Baseline Environmental Conditions for land, water, air, and people;
d) Impact Assessment, including a discussion of the impact of the project or undertaking on the environmental and public health;
e) Environmental Risk Assessment, when appropriate;
f) Environmental Management Plan;
g) Proposals for Environmental Monitoring and Guarantee Funds when required;
h) Supporting Documents, such as documents on social acceptability, process of public participation, technical and socio-economic data used, gathered, or generated; and
i) Accountability Statements of the preparer and the proponent.
j) For projects located in ancestral lands or domains, as defined under DAO No. 2, series of 1993,

or subsequently by law, of indigenous communities, a specific chapter in the socio-economic impact assessment shall be devoted to a discussion of indigenous peoples' concerns and possible socio-economic, political and cultural impacts of the proposed project on such people.

k) For projects or undertakings with significant impact on women, a specific chapter in the socio-economic impact assessment shall be devoted to a discussion and consideration of gender issues.

l) For projects or undertakings with significant impact on population, a specific chapter on the socio-economic impact assessment shall be devoted to a discussion of the relationship among population, development, and the environment.

On the other hand, proponents whose projects are located within ECAs are generally required to submit an Initial Environmental Examination (IEE) to the Environmental Management and Protected Areas Sector (EMPAS) of the DENR Regional Office where the ECA and the project are proposed to be situated.

Subject to DAO 96-37 Procedural Manual, an IEE shall at least contain the following basic items:

a) a brief description of the environmental setting and receiving environment, including the primary and secondary impact areas;
b) a brief description of the project or undertaking and its process of operation;
c) a brief description of the environmental impact of the project or undertaking, including its socio-economic impact;
d) a matrix of mitigation and enhancement measures;
e) a documentation of the consultative process undertaken, when appropriate;
f) a brief discussion of indigenous peoples' concerns and possible socio-economic, political and cultural impacts of the proposed project or undertaking on such people for projects or undertakings located in ancestral lands or domains, as defined under DAO No. 2, series of 1993, or subsequently by law, of indigenous communities;
g) a brief discussion of gender issues for projects or undertakings with significant impact on women;
h) a brief discussion of the relationship among population, development, and the environment for projects or undertakings with significant impact on population; and
i) Accountability Statements of the prepare and the proponent.

However, the following criteria, among others, shall guide proponents and the DENR Regional Office (RO) in determining whether a project in an ECA will be required to submit an EIS instead of an IEE:

a) significant environmental impacts have not been adequately addressed by proposed mitigation and enhancement measures;
b) strong public opposition or low social acceptability;

c) high risk to public safety, welfare, and health;
d) use of significant amount of highly pollutive substances
e) production of toxic or hazardous wastes; or
f) significant socio-cultural impacts.

DAO 96-37 Procedural Manual requires for "major ports and harbors" and "reclamation projects" defined below to prepare EIS instead of IEE as follow;
"Proponents of such projects are advised to proceed directly to the preparation of EIS instead of IEE and submit the same to the DENR Regional Office concerned. However, the DENR RO may request assistance from the EMB in the evaluation or assessment of the EIS. In such case, the DENR RO should involve the EMB in the entire process (e.g., from scoping to review).

a) **major ports and harbors**: construction, significant extension, expansion, widening or improvement of all national, international and commercial airports, seaports, and harbors.
b) **reclamation projects**: filling or draining of areas (foreshore, marshes, swamps, lakes, rivers, etc.) between five (5) to twenty-five (25) hectares."

Therefore, port development projects must prepare the EIS instead of IEE.
(The indicative list, shown in the Procedural Manual above, providing examples of projects or activities whose proponents are required to submit an EIS instead of IEE is shown in the Appendix 12.2.4.)

Port development projects may include dredging, reclamation, pile driving, excavation and other activities disturbing the original ground/soil, and ports are sometimes located near river mouths, urbanized area and/or industrial complex where there is some possibility toxic substances are contained in the ground/soil. Should any toxic substances be contained in the original ground/soil, those toxic substances may be spread to other areas due to the port construction work and give serious impacts to the environment. In order to minimize the potentiality above, it is recommended to implement the soil contamination test during the EIS stage and include this requirement into the content of the EIS as a mandatory requirement.

12.2.3 Framework for Pollution Control and Waste Management

Important legislation on pollution control and waste management covers air and water quality management, solid waste management, control of toxic wastes and hazardous substances, and incentives to control pollution.

P.D. 984 - The Pollution Control Law - as amended by Executive Order 192, authorizes the Department of Environment and Natural Resources to establish standards for ambient air and water

quality, effluent standards for water pollution sources and emission standard for air pollution sources. It also charges the DENR to issue permits to construct and operate air and water pollution control devices. Finally, it gives the Pollution Adjudication Board, a quasi-judicial body attached to DENR the authority to issue fines and penalties for violations of P.D. 984.

P.D. 1181 supplements the provisions of P.D. 984 by providing for the abatement, control and prevention of vehicular pollution and establishing the maximum allowance emissions of specific air pollutants from all types of vehicles. For water pollution control, P.D. 600 as amended by P.D. 979 prohibits the discharge of oil, noxious liquid substances, and other harmful substances into the country's inland and territorial waters.

For the proper management of solid wastes, P.D. 825 prohibits the improper disposal of garbage while P.D. 856, otherwise known as the Sanitation Code, places the responsibility on the local government units for the solid waste management in their area of jurisdiction.

The Toxic Substances and Hazardous and Nuclear Wastes Control Act (R.A. 6969) authorizes the DENR to establish a program to regulate, restrict or prohibit the importation, manufacture, processing, sale, distribution, use and disposal of chemical substances and mixtures that present unreasonable risk and/or injury to health or the environment; to prohibit the entry, even in transit, of hazardous and nuclear wastes and their disposal into the Philippine territorial limits for whatever purpose; and to provide advancement and facilitate research and studies on toxic chemicals. With the enactment of R.A. 6969, intractable chemicals such as polychloride biphenyls (PCBs), mercury, arsenic and other toxic and hazardous materials are regulated, thereby strengthening previously existing regulations which were specific to the control of particular substances such as pesticides (P.D. 1144), and food additives, drugs and cosmetics (R.A. 3720, R.A. 6425, and P.D. 280).

A landmark legislation for the control of air pollution is the Philippine Clean Air Act of 1999 (R.A. 8749), which provides for a comprehensive air pollution control policy. It further stipulates the development of an integrated air quality improvement framework, standards on ambient air quality from mobile and stationary sources and mitigation of all sources of air pollution. It also urges the establishment of a comprehensive air pollution control policy in the Philippines which includes the development of an integrated air quality improvement framework, standards on ambient air quality from mobile and stationary sources and most notably an emphasis to establish an Environment and Natural Resources Office in every province, city and municipality in accordance with Section 484 of the Local Government Code.

The Local Government Code of 1991 (R.A. 7160) provides that local governments should share with the national government the responsibility in the management and maintenance of ecological balance within their territorial jurisdiction subject to national policies and other pertinent provisions of the Code. Upon the implementation of the Code, additional functions and responsibilities

identified for local governments are the integration of environmental planning in local planning, the implementation of environmental protection programs and projects, and the enforcement of environmental laws and regulations. The devolution of the responsibility of managing the environment signifies at the same time the need for local government authorities to improve their competencies in environmental management in the exercise of regulatory powers and in initiating measures and programs that will minimize environmental degradation due to increasing modernization.

In view of these premises, a new imperative for local governments to address is the formulation of their own Environmental Code that will serve as the local Agenda 21 for a particular local government unit. Such a Code is envisioned to translate both international and national policies into specific and tangible regulatory activities and strategic interventions. The formulation of Local Environment Codes fulfills global and national efforts to institutionalize sustainable development where it is most basic as indeed many of the environmental problems addressed by Agenda 21 are associated with local activities.

Towards this objective, the Guide in the Formulation of a Local Environment Code (1996) sets distinct concerns and priorities for consideration by the local governments in the formulation of their respective Codes. It provides a broad base of information and some model provisions that should guide a local government unit in preparing its own local environment code especially on the more pressing issues that should be addressed in environmental management of land, air and water resources.

12.2.4 Framework for Resettlement of Inhabitants

The National Housing Authority (NHA) issued Memorandum Circular No. 1070 entitled Policy Guidelines for the Implementation of the Resettlement Assistance Program to Local Government Units in September 1994. This serves as an institutional framework for local government units in their resettlement assistance to affected communities.

Most of the major and medium class port areas in the Philippines can be seen illegal occupants, some are residents and some venders along the passage way to the ports, and most of their livelihood are to rely on the port related activities.

There are confirmed Policy Guidelines to take care of involuntary resettlement confronted by the National Housing Authority, LGUs, and other government agencies together with project proponent concerned, however, those do not work directly for removing the underlying causes of the existence of the illegal occupants. It is essential that the poverty alleviation policy is implemented positively and step by step to promote the State economic growth and the social development which provides a

social framework to grow the people willing to become independent. Moreover, addressing issues of inequality will require significant investments in human capital, especially in improving the quantity and quality of primary education, which would be one of the primary requirements for the sustainable growth of the country.

Pursuant to the Board Resolution No. 3039 dated 30 September 1994, the Circular above was issued governing the Policy Guidelines for the Implementation of the Resettlement Assistance Program to Local Government Units. The content of the said memorandum circular is described in the following paragraph:

(1) Statement of Policy

Given the mandate under the Urban Development and Housing Act (UDHA) of 1992, to provide technical and other forms of assistance to Local Government Units (LGUs), upon the request. In the implementation of their respective urban development and housing programs, the National Housing Authority hereby adopts a policy of providing assistance to Local Government Units in pursuit of their Housing Program particularly in the area of providing Resettlement Sites. As contemplated, the Resettlement Program shall be implemented as a joint undertaking with the LGU's, where the participating LGUs shall contribute land and /or funds for development. LGUs shall likewise take full responsibility in the maintenance and operations of resettlement sites.

(2) The Program: Its Policy and Operational Framework

The Resettlement Housing Assistance Program to the Local Government Units is a strategy designed to enhance the capability of the LGUs in the delivery of resettlement housing through a hands-on training on project planning and implementation as well as to maximize the capability of NHA to expand its operations nationwide through a resource sharing scheme with the Local Government Units as well as other sectors in the development of resettlement sites.

The general concept is to enhance active participation of LGUs in the housing provision by providing support and deliver their mandated tasks under the NHA.

1) Objectives

a) To serve as the framework of defining the possible areas of collaboration and partnership with LGUs in the development of resettlement sites as mandated under UDHA.

b) To institutionalize the mechanisms and processes that would allow for a smooth transition of expertise to the LGUs with the end view of sharing their capabilities and potentials along housing development.

c) To serve as the mechanism for the implementation of the corporate policy of attracting the LGUs to actively participate and to venture in housing.

d) To maximize corporate capacity to deliver housing to the level mandated under the Shelter Program and the Medium-Term, Philippine Plan 1993 to 1998.

e) To provide opportunity to harness idle properties and land suitable for housing purpose.

f) To effect a more equitable regional coverage and implementation of the shelter program.

2) Policy Framework

a) The Program is a joint housing development project undertaking of the NHA and the LGUs and a sole intervention scheme by NHA or a subsidy to LGUs Resources and expertise are shared where one party will fill in the inadequacy of the other towards the effective and efficient delivery of government housing assistance to qualified beneficiaries.

b) The target LGU - partners are those urban and "urbanizable" areas defined under RA7279 whose housing need is classified as high and medium, and where the presence of illegal settlements requiring immediate clearance is prevalent.

c) The target beneficiaries of the resettlement projects generated shall be those families within the lowest 30 % of the urban population who are illegal settlers, and their illegal settlements have been declared to be in danger area or areas needed by national or local government for infrastructure projects. The beneficiaries must qualify as Social Housing Program beneficiaries as defined under RA 7279 or UDHA. Such affordable residential home lot will have basic services and facilities in accordance with development standards and provides the minimum acceptable requirement under BP 220.

d) The primary role of NHA shall be to provide technical assistance to LGUs in the development of its resettlement program. Depending on the capability of the LGU-partner and the assistance being sought, the NHA may provide funds out of its subsidy allocation from the National Government to cover the land development cost. However, the primary role of the LGU is to provide land and manpower resources in the implementation of the project. The LGU may also provide funds for land development. In the event that NHA provides funds, this shall be treated as a one-time grant to the LGU concerned. In all cases, a cap shall be established as to the amount of assistance to be extended to the LGU and the end-beneficiaries of the Program.

e) No funds shall be directly transferred to the LGU. In a situation however, where the LGU

shall provide counterpart finds for the land development, over and above its land contribution, both funds may be deposited under a common account, disbursements from which shall be jointly authorized by both parties as governed by an agreed Terms of Reference for Fund Disbursement and Utilization. The LGU may likewise opt to front-end the necessary funds subject to reimbursement by NHA. Other options may be adopted subject to acceptable government accounting and auditing rules and regulations. In all cases, contracts awarded to undertake the infrastructures works shall be in accordance with provisions of PD 1594, and its IRR, as amended.

f) To ensure the continuity of the Program, the project cost shall be recoverable from the end beneficiaries. The NHA however, shall not recover its contribution to the LGU. As one-time grant to LGU, no LGU shall be granted additional funding assistance until other qualified urban and "urbanizable" centers have been granted similar assistance by NHA. It is therefore mandatory for the LGU to recover the investments made. Funds recovered by the LGU shall be placed under the Program Trust account to be managed and administered by a Housing Board.

g) The Program shall be implemented through a Memorandum of Agreement between and among participating entities. The Memorandum of Agreement shall be annotated on the Transfer Certificate of Title (TCT) of the land subject of the Agreement.

h) To achieve equitable distribution of the limited funds available under the Program, the NHA shall allocate funds based on the ranking of the housing needs by regions. The allocation of funds within the region shall be determined on the basis of prioritization criteria. The NHA shall likewise allocate funds for each of the Priority Selection Criteria set.

3) Program Scope

a) For a Local Government Unit to avail of the Program benefits, the following conditions must be satisfied:
   - Availability of land classified for housing
   - Availability of a counterpart Project Team
   - Establishment of a working Housing Board
   - Feasibility Study indicating therein the cost recovery scheme
   - List of prospective project beneficiaries qualified under RA 7279

b) Priority Selection Criteria in the Program Scope, the Priority No.1 is as follow;
   - Priority No.1 : Where the provision of resettlement site in that LGU is of prime national interest affecting major economic and social programs and projects of national character.

(3) Operational Framework

1) General Terms and Conditions.

In addition to the priority selection criteria set, the program shall be subject to the following general terms and conditions:

a) The participating LGU must be willing to provide equity contribution either in the form of land and/or cash equity to finance land development. The participating LGU must likewise assume project management and maintenance.

b) The readiness of the LGU to participate in the Program must be demonstrated by way of the establishment or creation of a Local Housing Board composed of representatives from government-private sector-beneficiaries to oversee the planning, implementation and monitoring of the local Housing programs and projects. In addition, the LGU must create a housing project team which shall serve as the core of its Housing Office and who will be provided with an on-the-job training on housing program/project development.

c) The commitment of the LGU to undertake the housing project must be demonstrated by its compliance to the mandated tasks under RA 7279 (i.e. completion of the land inventory, completion of the identification of land suitable for socialized housing beneficiaries).

d) The target beneficiaries of the Resettlement projects to be implemented by participating LGUs are the urban poor families for relocation and resettlement assistance under RA 7279.

2) Land Contribution

As a general rule, NHA will not finance land acquisition. Land to be contributed by the LGU shall be located within the urban center where livelihood opportunities are available or within an area where livelihood opportunities could be made available, identified and evaluated as suitable for socialized housing, and titled under the name of the LGU. It must be free from any lien, encumbrances of any other legal problems as well as acceptable by and affordable to the intended beneficiaries.

3) Cost Sharing

a) Cost of land acquisition shall be on the account of the LGU.

b) The contribution of NHA shall be utilized for land development. Land development cost shall include survey works, earthworks, roads and alleys, drainage system, sewerage and

sanitary facilities, and water utilities.

c) Given the current level of subsidy granted by the National Government to NHA for the development of Resettlement sites, the Board shall set the ceiling of assistance on per project, per LGU basis (i.e. Ph 1.2 M per hectare or Ph 112 M per LGU). The level of assistance shall be assessed and updated on an annual basis.

d) The contribution of NHA shall cover only the basic minimum requirement under RA 7279 and acceptable under BP 220 standards. For this purpose, a cap of Ph 30,000 per home lot of family-beneficiary is established. The level of assistance shall be assessed and updated on an annual basis.

e) LGU shall assume the cost for the maintenance and operations of the resettlement site.

4) Physical Aspect

a) The NHA shall issue the design standards for resettlement sites to specify the basic acceptable minimum standards.

b) The end product shall be a serviced home lot. Lot size shall be limited to 60 square meters to no more than 100 square meters, depending on the affordability of the beneficiaries. No vertical construction is envisioned. Housing consolidation shall be considered as the equity of the beneficiaries.

c) Sites shall be provided for community facilities (i.e. schools, health clinic, multi-purpose center, open spaces and playgrounds) where warranted. The construction of school buildings, health centers, markets, multi-purpose centers, basketball court and others shall be on the account of the LGU or the Agency concerned. For this purpose, agencies concerned must actively participate in the planning process to ensure funding and provisions of the necessary facilities.

(4) Primary Roles and Responsibilities

1) The Local Government Unit shall:

a) Provide the Project site and ensure the property is free from liens, encumbrances and other legal problems and acceptable to the intended beneficiaries.

b) Provide additional funding should the funds to be provided by NHA not suffice to complete the Project in accordance with the agreed specifications as well as shoulder additional costs

due to variations in the plans and specifications introduced by the LGU.

c) Create a full-time technical team responsible for the undertaking of the Project operations and management, to wit: (a) physical development of the site, (b) beneficiary selections and relocation procedures; (c) disposition and cost recovery/collection; and (d) project maintenance and operations.

d) Prepare the subdivision development plans as well as detailed engineering drawings, technical specifications and cost estimates for land development with the assistance from the NHA, where necessary, and secure approval of the same and other related permits and clearances from concerned government agencies.

e) Undertake estate management functions such as the collection of fees from the identified beneficiaries of the Project and the related tenurial activities.

f) Ensure titling of all individual lots covered by the property

2) The NHA shall**:**

a) Provide funds from the subsidy support granted to the NHA by the National Government and its contribution to the Project to cover the funding requirement for the land development and installation of utilities.

b) Provide technical personnel in the project planning, implementation, beneficiary selection, relocation procedures, estate management and other areas where assistance is requested by the LGU.

c) Assist the LGU, in the preparation of the subdivision development plans as well as detailed engineering drawing, technical specifications and cost estimates for land development of the Project.

d) Conduct periodic inspection to monitor the implementation of the Project and the utilization of the funds under the Trust Account.

12.3 Environmental Consideration in Port Development and Use

12.3.1 Environmental Impact Factors

The “Environmental Assessment Sourcebook (Word Bank Technical Paper Number 139)” refers as

follows;
“Some of the most biological productive ecological zones in the world are coastal marine areas. They include beaches, sand dunes, estuaries, mangrove and other swamps, marshes and coral reefs. Estuaries, mangroves, marshes and other wetland areas provide the breeding grounds, nurseries and habitats for many major commercial species of shellfish and finfish consumed worldwide. Coastal marine ecological areas are fragile because the complex food chains and life cycles of all species are easily damaged when a few are affected by environmental changes. Thus, dumping urban and industrial wastes or runoff of agricultural chemicals may damage a relatively small area, but the impacts may ricochet throughout the rest of the ecosystem.”

Generally, the port activities are closely related to the industrial development and other projects in hinterland. It brings impacts and effects on wide area combining with economic growth and urban activities.

Port activities impact on environment in various ways through the implementation of construction, closing water area by breakwater, navigation of vessels, cargo handling at wharves, etc. Then, various activities closely related to the port are also seen in the areas behind the port, for instance, production activities of industries using advantageous location, activation of traffic occurred from port and so forth. Furthermore, in the surrounding urban areas of port, mostly, the population increases with the growth of economic activities, and various pollution issues or negative impacts on natural environment tend to get serious.

It is difficult to grasp the future environmental aspects from the impact of port development alone. For example, in case of estimating future water quality in the port, in addition to the impacts from port construction and facilities, discharge from industrial estates and living life in hinterland must be taken into consideration.

Table 12.3.1 shows the relation between environmental impact factors and components in the port development and related activities.

Table 12.3.1 Relationship between Environmental Impact Factors and Components on the Port

Components / Impact Factors	Air Quality	Water & Bottom Condition	Noise & Vibration	Odor	Topo-graphy	Coastal Hydrology	Fauna & Flora	Scenic View	Waste	Socio-Culture	Socio-economy
Construction Work	○	○	○	○	○		○		○	○	○
Existing of Port		○			○	○	○	○		○	○
Use of Water Area Facilities	○	○			○		○		○		○
Use of Land Area Facilities	○	○	○	○			○		○		○
Operation of Hazardous Handling Facilities	○	○		○			○				○
Treatment and Disposal of Waste	○	○		○			○		○	○	
Traffic Functions	○		○				○			○	○
Industrial Production Activities	○	○	○	○	○		○		○	○	○
Operation of Distribution and Storage Function	○		○	○							○
Use of Recreational Facilities		○					○		○	○	○

(1) Environmental Impact Factors Concerning Port Development

1) Impact by Construction Work

a) Impact on Air

Construction works discharge various air pollutants. The co-relation between the principal types of construction works and main pollutants is shown in Table 12.3.2.

Table 12.3.2 Co-relation between Construction Works and Pollutants

Components / Factors	Dust	SOx	NOx	Smut
Dredging		○	○	○
Foundation		○	○	○
Sand Drain		○	○	○
Superstructure		○	○	○
Backfill	○	○	○	○
Reclamation	○	○	○	○
Land Making	○	○	○	○

The diffusion of air pollutants from construction machinery is a problem within 100m from the source. However, air pollution accompanied with construction works is temporary. And the magnitude of impact is generally less than that generated from the industrial activity or road traffic.

b) Impact on Water/Soil Quality

It is estimated that various polluted substances give loads into water/soil with bottom soil blown up by construction works. The co-relation between the principal types of construction works and main environmental components is shown in Table 12.3.3.

Table 12.3.3 Co-relation between Construction Works and Environmental Components

Components / Factors		Water Quality		Soil
		SS	noxious-ness	noxious-ness
Dredging	Dredging	○	○	○
	Reclamation	○	○	○
Foundation	Dredging	○	○	○
	Replacing	○		
	Rubble Mound	○		
Sand Drain	Spreading Sand	○		
	Sand Pile	○		
	Counterweight	○		
Sand Compaction Pile		○		
Backfill			○	○
Dumping		○	○	○

Increase of SS is conspicuously seen in the extent of 500 to 1,000 m from the work point. It diminishes the scenic view and has a negative impact on recreation facilities and aquatic species.

c) Impact by Noise/Vibration

Construction works generate noise and vibration. The co-relation between the principal types of construction works and occurrence of noise/vibration is shown in Table 12.3.4.

Table 12.3.4 Co-relation between Construction Works and Noise/Vibration

Components / Factors		Noise	Vibration
Dredging	Cutter Suction	○	
	Grab	●	●
Pile Foundation	Driving Pile	○	○
Soil Improvement	Sand Drain, Sand Compaction Pile	○	○
Concrete	Structure, Block	○	
Land Making	Leveling, etc.	○	○

Note : ○;continuous, ●;intermittent

Noise/vibration is temporary. But it aggravates the living environment when residential areas, schools or hospitals exist in the vicinity.

d) Impact of Odor

Odor will be occurred in case of eliminating sludge polluted with noxious and organic materials. Usually, the odor is caused by the H_2S component in the sludge material that has a smell of rotten eggs and is very unpleasant for residents.

e) Impact on Geographical Feature

Construction works might alter the geographical feature of quarry or pattern of ground water system. It could result in a loss of habitat for terrestrial lives and loss of natural vegetation.

f) Impact on Ecosystem

(A) Impact on Aquatic Species

Contamination of water/bottom by construction works threatens the habitat of aquatic species. It might collapse coral reef, change the distribution of benthic organisms and reduce fishery products. Conspicuous water muddiness reduces light intensity in the water, which prevents photosynthesis of plant plankton and seaweed. It reduces the biological productivity of water area. The absorption of sand particles causes plant plankton to sink and prevent photosynthesis of seaweed.

(B) Impact on Terrestrial Species

Changes in air quality and occurrence of noise/vibration during construction works alter the ecosystem of terrestrial species. SO_x, NO_x or fluorine reduces the growth of terrestrial plants and withers them. Terrestrial animals are also threatened through the impact on their respiratory organs. Noise/vibration influences the behavior of terrestrial animals and may prompt them to leave their traditional habitat.

g) Impact of Disposal Wastes

Without an adequate disposal site, residual soil or construction materials are likely to be dumped on land or in the sea, which would be detrimental to water/bottom quality, soil condition and the ecosystem.

h) Impact on Socio-culture

Laborers for construction works will inflow from outside. It is possible that friction between

outside laborers and local residents on matters of race, religion, manners and customs might occur.

i) Impact on Socio-economy

Increase of working opportunities/incomes and emergence of new economic activities are expected, thereby contributing to regional revitalization. But, it might cause distortions such as outflow of work forces or occupational change. Passing of construction vehicles and boats might obstruct usual land/sea traffic. In addition, fishing vessels may be hampered by the resulting congestion and tourism/fishery resources may also be adversely affected (e.g. increase in muddiness).

2) Impact by Existing Port Facilities and Sites

a) Impact on Water/Bottom Quality

Outer facilities such as breakwater and reclamation site, etc. might make water stagnant. Increase of organic matters indicated by COD and depletion of dissolved oxygen due to decomposition of organic matters can lead to eutrophication, in which phenomena such as red tide and hypoxic milky blue-green water occur. On the bottom, when organic materials are accumulated and decomposed under a non-oxygen state, H_2S occurs. Resulting on an offensive odor which negatively impacts marine life.

b) Impact on Geographical Feature

Dredging for channel, basin and anchorage and existence of port facilities and reclamation site change the geographical feature of an area. Beach erosion and accretion due to pattern change of littoral drift might occur, which can impact on existing forms of use of land and water area and extinguish tidal flats. In addition, the change of ground water level/pressure and intrusion of seawater into ground water accompanied with reclamation and excavation might impact on forms of water use in surrounding areas and terrestrial vegetation.

c) Impact on Oceanology

The reflection and refraction of wave by channel, outer facility or reclamation site might affect the current flow. Topographical changes and eutrophication due to stagnation or promotion of water flow might be caused around the breakwater, shore protection and underwater structure. Tidal changes are an important factor related to the change of water quality in the port.

d) Impact on Ecosystem

(A) Impact on Aquatic Species

Dredging or occurrence of outer facilities and sites might reduce habitats of aquatic species. And eutrophication caused by the change in current flow or water quality might change the habitation environment indirectly. A change in the current flow could alter the distribution of planktonic larva, while the quality of water/bottom can change the distribution of species and feeding grounds due to eutrophication, etc.

Although concrete lye increases the pH in the water locally and temporarily, it does not pose a threat to aquatic species because seawater has the capacity to absorb pH. If anything, concrete structures are able to become a new base for seaweed and benthic organisms.

(B) Impact on Terrestrial Species

Use of land for port and port related facilities will reduce the habitat of terrestrial species. Decrease of tidal flat impacts on inhabitants such as birds living and feeding there. Terrestrial animals feeding on them can be damaged indirectly. Mangrove is very sensitive to silting, accumulation, stop of water inflow, water stagnation and oil.

e) Impact on Scenic View

Large-scale reclamation, long breakwaters, land facilities, chimneys and tanks, etc. will result in an artificial view. The impact is large if the area has intrinsic scenic value or value as a tourist resource.

f) Impact on Socio-culture

The residents, cultural assets and historical heritage in the project area might be obliged to relocate due to the appearance of sites. The opposition movements and aggravation of social/racial confrontation might occur due to the loss of living basis and inflow of new community or culture.

g) Impact on Socio-economy

Fishery and aqua-cultural activities might be restricted due to the occurrence of sites, such as a reduction or change of fishing grounds and loss or transfer of nurseries. The volume of fishery resources might be indirectly changed through a change in the current flow, water/bottom quality and ecosystem. If there is existing land use for human activities, these

activities will have to be diverted. If it becomes impossible to obtain or drain water, an economic loss would be incurred.

3) Impact by Use of Water Area Facilities and Wharves

a) Impact on Air

Vessels discharge SO_x, NO_x, dust and CO, which have a negative impact on the human body, mainly the respiratory organs. In addition, SO_x and NO_x damage vegetation and generate acid rain.

b) Impact on Water/Bottom Quality

Vessels discharge bilge water including oil. Inflow of bilge water to the sea area produces an oily film on the surface and spoils the scenic view. It might make the water and aquatic lives smell and damage the physiology of aquatic lives. Water gives off perceptible odor when the concentration of oil reaches 0.01ppm, whereas fish begin to smell in 24 hours. But the odorization does not occur if the concentration is 0.001ppm or less. Fish which come in contact with mud containing over 2mg/g(dry) of oil begin to smell in an extremely short time.

c) Impact on Topography

The furrow waves generated by sailing of vessels might erode natural beaches and riverbanks, which changes terrestrial vegetation and forms of land use.

d) Impact on Terrestrial Species

Physiology of fauna and flora may be affected by SO_x and NO_x from vessels. Impact of NO_2 appears as growth retardation or abnormal coloring of leaves of commercial products such as tomatoes or soybeans, etc. Also, impact of SO_2 appears as abnormal coloring, withering and reduced yields of barley, carrots, cotton, lettuce, spinach, cedar and so on.

e) Impact of Wastes

Oil and wastes are discharged from ship. Wood chips are produced from lumber handling wharves. In addition, it is necessary to appropriately dispose of dredged sand produced by dredging works for maintenance of channel and anchorage. Water/bottom conditions and scenic views are negatively impacted by oil film and floating trash. Decomposition of organic matters such as wood or paper corrupts water/bottom quality. Spilled oil impacts on

marine lives and birds feeding on them. Dumping of dredged sand containing hazardous materials pollutes the water/bottom, which can impact on the human body.

f) Impact on Socio-economy

Operation of fishing boats might be restricted if port facilities are close to fishing grounds. Fishing activities may have to be transferred elsewhere or income may be reduced due to restrictions on fishing activities. On the other hand, some employment opportunities will be generated by port related activities.

4) Impact by Loading, Storage and Movable Facilities

a) Impact on Air

Dust from activities of loading bulk cargo or open storage yards will damage respiratory organs of port laborers and local residents. The extent of diffusion of dust with diameter of 0.1mm and specific gravity of 3 will reach 2km in wind velocity of 10m/s. Inflow of dust to the sea area deteriorates water/bottom quality.

b) Impact on Water/Bottom Quality

Leak or scattering of bulk cargo from open storage yard pollutes water/bottom. Decomposition of organic matters such as cereals or chips advance eutrophication such as increase of COD or nitrogen/phosphorous and decrease of DO. Water and bottom might be polluted due to the efflux of pesticides or heavy metal ion from coal, bauxite, sulfur ore, tin ore and copper ore. Increase of SS by leakage deteriorates scenic view and impacts on physiology and activities of aquatic species.

c) Impact of Noise/Vibration

Noise/vibration from machinery used in operation might threaten the living environment of local residents. Port can not be managed owing to complaints from residents. If residential areas, schools and hospitals exist in vicinity, and operation is continued through the night, impacts would become larger.

d) Impact of Odor

Ammonia or trimethylamine might be generated through handling farm/marine products. Although impact of odor is temporary, unpleasant feelings might arise, especially if schools, hospitals or residential areas are in the vicinity.

e) Impact on Aquatic Species

Change of water/bottom condition due to leakage from handling facilities and storage impacts on aquatic species. Increasing the level of nutrient in the water increases photosynthesis of plant plankton and changes species composition. Emergence of oxygen depleted water due to eutrophication makes existence of aquatic species impossible. Pesticides or heavy metal ions from mineral resources damage aquatic species directly. It might indirectly damage human bodies through biological concentration.

f) Impact of Wastes

Abandoned oil and garbage cause sanitary problems. Also, inflow of them into the sea area deteriorates water/bottom conditions.

g) Impact on Socio-economy

New employment opportunities will be generated. Economic activities such as commerce and services together with job creation will be accelerated.

5) Impact by Operation of Facilities Handling Hazardous Materials

a) Impact on Air

SO_x, NO_x, hydrocarbon and dust will be generated from petroleum distribution base and other hazardous handling facilities. Generally, as for the impact of SO_x, NO_x and dust, that from industrial activities or traffic functions is far bigger. But, hydrocarbon is mostly generated by evaporation from hazardous handling facilities. It causes headache, giddiness or disease of respiratory organs. Also, it is causative of photochemical oxidant.

b) Impact on Water/Bottom Quality, etc.

Oil, odor and other materials discharged from hazardous handling facilities cause various impacts on fauna/flora and the socio-economy.

6) Impact from Waste Treatment and Disposal

a) Impact on Air, etc.

SO_x, NO_x, dust and odor are discharged from waste treatment facilities and waste disposal

sites. These cause various impacts on fauna and flora.

b) Impact on Socio-culture

Slums might be formed by the people who make a living by collection of waste materials. Emergence of slums could create friction with neighboring residents and social unrest due to deterioration of security.

(2) Environmental Impact Factors Associated with Activities Closely Related to Port

1) Impact by Traffic Functions

a) Impact on Air

Transportation of cargo handled at the port will increase road traffic volume. As production and economic activities increase, general traffic increases also. Air pollution by SO_x, NO_x, CO and dust impacts on human health and physiology of animals and plants, and generates acid rain.

b) Impact of Noise/Vibration

Transportation of cargo and increase of production and economic activities in surrounding area will increase road and railway traffic. This increases noise/vibration that threatens the living environment of residents.

c) Impact on Fauna and Flora

Air pollution and noise/vibration accompanied with use of traffic function site might change physiology and ecology of terrestrial species.

d) Impact on Socio-culture

Provision of traffic network might change the local population distribution and forms of communication. Population movement may result in the extinction of a unique local culture and cause cultural friction due to encounter with alien cultures.

e) Impact on Socio-economy

Increase of road traffic volume can cause the economic loss by increasing traffic congestion and traffic accidents. On the other hand, there are many cases in which the traffic system

has been markedly improved and produced a favorable effect on the local social environment.

2) Impact by Industrial Production Activities

a) Impact on Air, etc.

Air/water pollutants, noise, odor and wastes are discharged from factories and facilities in industrial estate. These impact on various aspects such as human and flora/fauna.

b) Impact on Topography

Land subsidence might be caused by decrease of groundwater level/pressure due to pumping up. Land subsidence might induce flood and high tide. Also, falling of groundwater level/pressure can cause the decrease of well water and intrusion of sea water into well.

c) Impact on Socio-culture

According to the increase of employment opportunities accompanied with operation of industries, population of surrounding area flows into the industrial area, which changes the population distribution of the region. If regional plan is obliged to be changed due to distortion of the local economic activities, residences and educational facilities may be affected.

d) Impact on Socio-economy

Employment opportunities will increase. And, economic activities such as commerce and service will be vitalized. On the other hand, transfer of laborer from existing industries might cause distortion in the local economy. Air and water/bottom pollution will impact on agricultural and marine production.

3) Impact by Distribution and Storage Functions

a) Impact on Air, etc.

Dusts, noise/vibration and odor are discharged from distribution and storage facilities.

b) Impact on Socio-economy

Laborer will be needed for new activities. But, the scale of employment is generally small because of rationalization by mechanization.

4) Impact by Use of Recreational Facilities

a) Impact on Water/Bottom Quality and Fauna/Flora

Drainage from hotel or marina might cause eutrophication. On the other hand, it is expected that tidal flats or shallows created in artificial beach will prompt decomposition of organic materials and make water clear. However, at the present time, it is difficult to quantitatively grasp the ability of an artificial beach to purify water quality. Change of water/bottom quality might change the circumstances of aquatic species for better or worse.

b) Impact on Socio-culture

Tourists introduce alien culture. The original function of existing cultural assets might be changed to recreational function. Unique culture may become extinct, which means that the feelings of local residents must be considered if the project is to be successful.

c) Impact on Socio-economy

Fishing activities will be restricted at artificial beaches and areas for pleasure boats. Distortion of the local economy might occur due to labor transfer from existing industries.

(3) Environmental Impact by Oil Spills

A large-scale oil spill from tanker seriously impacts on economic activities, operation of adjacent ports and the ocean environment, particularly fisheries in surrounding areas. In such an event all possible measures for collection and treatment as prevention of diffusion must be taken.

Life stage, physiology, metabolism, habitat and breeding patterns of fishery stock are all effected by oil spill. Short-term losses occur with the immediate death or contamination of adult fishes. Long-term losses resulting from the killing of larvae and juvenile are revealed as a reduction of catch in future years. Although the degree of mortality and other effects depend upon the type and concentration of oil spilt, temperature and the time of exposure, the generally estimated concentrations causing lethal toxicity to marine organisms exposed for a few hours are: gastropod molluscs 1-100 μg/ml, bivalve molluscs 5-50 μg/ml, crustaceans 1-10 μg/ml, finfish 5-50 μg/ml and larvae of all species 0.1-1 μg/ml.

Generally, adult fish can move to avoid oil pollution. Sedentary organisms can not move away,

though they may avoid contamination by shutting shells or valves. On the other hand, most finfish and shellfish are floating during their egg or larval stage, which therefore makes them vulnerable to oil. And immature organisms of which systems for detoxifying or eliminating oil and metabolites are incompletely developed are physiologically more sensitive. Although ocean fish can readily avoid oil, fish in other habitats such as estuaries or fish farms where the water is shallow and bounded by land may be at a higher risk. This means that the danger would be bigger if fish are in particular season for breeding and move into the coastal shallows.

Oil spill can cause extensive damage to planktonic organisms and affect the larval and adult populations feeding on them. The damage can expand through the food chain.

Population of fish may sometimes recover quite quickly. But, it is possible that a different biological community will emerge, which can reduce the catch of certain species and lead to a change in catching methods and costs. If contaminated sediments continue to release hydrocarbons, oyster farms would be obliged to relocate.

12.3.2 Countermeasures for Environmental Conservation

In the implementation of port development project, various countermeasures for environmental conservation should be proposed according to the type and size of impact.
Item that should be subject to EIS will be examined and estimated the magnitude of impact. The process is that the rough magnitude of impact is grasped for each item first, and then the estimated figures are determined. Secondly, the impact on the background areas and the present environmental circumstances are compared and assessed. In case the predicted level is not in compliance with an environmental conservation target, feasible countermeasures should be proposed for further assessment. Table A12.3.1 and Table A12.3.2 show the environmental impact worksheet and checklist, respectively, attached in the Appendix.

(1) Countermeasures against Air Pollution

As countermeasures for dust, use of adequate machinery, enclosure by fence, sprinkling, provision of buffer zone, covering bare ground and hardening earth, etc. can be considered. When the port is close to the residential areas, progress control not to operate a lot of machinery simultaneously, provision of smoke protection fences, etc. should be considered in order to control SO_x, NO_x and smut discharged from machinery.

Efficient port management to reduce the berthing time of vessels is necessary for emission control. Vessels alongside the mooring facility may need to be obligated to use A-type heavy oil (for generators) in which content of sulfur is low.

Transportation system should be planned to be free from traffic congestion. Sufficient buffer zones, such as green belts, need to be adopted between traffic facilities and residential areas. Low-pollution factories or commercial facilities can be substituted for buffer zones.

As for the air pollution by industrial production activities, reduction of discharge amount by treatment tank and diffusion/dilution of concentration on the ground by tall chimneys will be needed.

(2) Countermeasures against Water/Bottom Contamination

In case conducting dredging or reclamation, it is fundamentally important to select proper plan (e.g. settling pond), construction method (e.g. using sedimentation coagulant) and machinery.

The soil contamination tests must be carried out to identify the contents of any toxic substances, such as heavy metal prior to the commencement of the site work.

Aprons where toxic and dangerous substances are handled need to adopt reverse slope not to leak the toxic substances spilt on the wharves into waters. Drainage system should be provided in order to collect such toxic substances and convey them to sedimentation tank. Substances possible to pollute water/bottom must to be stocked in indoor facilities or covered by sheets not to leak outside by rain.

Establishment of storage facilities for bilge water based on the "1978 Protocol on the International Treaty for Prevention of Pollution by Ships of 1973 (MARPOL 73/78)" should be considered in the planning stage.

As for the countermeasures for polluted water from industrial facilities or others, measures to reduce the quantity of discharged water by selecting adequate production process are necessary. And the quality of the discharged water should be within the designated tolerance.

(3) Countermeasures against Noise/Vibration

Adequate construction method and machinery should be selected. Setting soundproof apparatus, work hours and location of source should be taken into consideration in the step of planning.

Trunk roads or other sources of noise/vibration should be located distantly from residential areas, schools or hospitals.

(4) Countermeasures against Offensive Odor

Dredging method, machinery and dumping site should be selected appropriately. Surface of

reclaimed area needs to be covered rapidly. Working hours, transportation method of dredged soil and application of deodorant, etc. should be considered.

The facilities possible to generate odor should be detached from sensitive areas such as schools, hospitals or residential areas. Sealed warehouse and deodorant apparatus should be installed.

(5) Countermeasures against Topographic Change

Project site and face line of the facilities need to be determined prudently. Construction plan should be established based on the sufficient investigation for ground water system. Deliberate pumping up of groundwater is needed as a countermeasure against subsidence. Construction of banks, groynes and diversion channels, and protection of beaches, etc. are available as countermeasures against erosion or accretion.

It is desirable to set the upper limit of navigation speed or vessel's size in the channel adjacent to natural coastal line.

(6) Countermeasures against Oceanographic Change

Project site and face line of facilities need to be determined prudently. Construction of wave dissipation revetments and jetties may need to be planned. Impacts will be reduced by proper selection of the type of facilities, for instance, introduction of non-reflection type or penetration type breakwaters.

(7) Measures for Conservation of Ecosystem

A project should be planned so that the ecosystem be conserved through the appropriate investigation of ecology in the subject areas and sufficient countermeasures against air and water/bottom pollution be taken. Zoning plan should be considered to save existing untouched areas as much as possible. Particularly, it needs to greatly pay attention to wetlands. Destruction or degradation of wetlands may directly impact on the biological resources of other countries, because fishes and birds do not recognize national boundaries or may migrate long distances.

Adequate prevention measures against the generation or spread of muddiness from the construction works should be adopted. The low-noise/vibration construction machinery should also be introduced. And the construction timing needs to be selected adequately considering distribution, migration and spawning seasons of species. Construction of artificial beaches or shallows and adoption of gentle slope revetments are available for the rebirth of habitats.

(8) Measures for Views

Legal compliance should be considered sufficiently in the special areas such as national parks. In the planning stage, facility location, land use and colors of structures need to be taken into consideration. Implementation of planting may be necessary.

(9) Countermeasures against Wastes

An adequate planning for collection, transportation and disposal site is important. And, for instance, use of remnant harmless construction materials for artificial fish reefs need to be considered.

Wastes discharge in the port area must be strongly banned through the legal regulations. Preparation of machinery and materials for cleaning or establishment of garbage treatment system is necessary.

(10) Measures for Socio-Culture

Project site should not involve the important points as a locally unique culture. Sufficient dialogues with residents or specialists and information release should be implemented before construction works. Vocational training programs for technical transfer to local laborers will be needed in order to exploit them for conservation of locally unique cultures.

There are many cases that the replacement of cultural assets declines the value of them. Securing adequate place for transfer including museums, establishment of proper transfer schedule and compensation for economic and cultural loss must be taken into consideration prudently.

Archaeological and historical assets that are not found in preliminary survey may be discovered during the project implementation. Certain procedures for such unanticipated discoveries, for instance, notification to the relevant departments, request of site inspection by experts and cessation of work, etc. should be mentioned in project design and construction contracts.

(11) Measures for Socio-Economy

It is important to hold sufficient dialogues with residents and disclose information. If resettlement is needed due to construction works, replacement areas should be secured at least equal living standards that the settlers had before. Appropriate sanitary and public health systems should be provided.

Employment planning and employee training may be necessary for the new employment opportunities.

If economic loses for residents are evident through port development, certain compensation is

necessary.

If traffic congestion is predicted, appropriate road development and provision of traffic safety facilities are necessary.

(12) Countermeasures against Oil Spill

1) Corralling Oil and Using Treatment Agents

In case of spill of gasoline, corralling should never be attempted because the danger of fire and explosion is far bigger. The best choice is to allow gasoline to spread and diffuse naturally. Small-scale spill of diesel oil may not significantly damage to surrounding environment. It is better to wait for evaporation and natural dissipation. Because, it is difficult to effectively disperse by agents due to its low gravity. Under the poor mixing condition, dispersed droplets tend to return and re-form oil films.

As for the heavy oil, use of treatment agents is effective. However, treatment agents should be used in case that oil films are thin and difficult to collect by mechanical or physical methods. Because, oil treatment agents are not perfectly harmless. If oil films gather locally and there is no fear to become high density to damage the fishery resources and ecosystem, the best approach is to wait for natural purification by microbes, etc. And treatment agents should not be used in shallow water because it can damage benthic organisms.

Treatment agents need to be used immediately before the oil spreads. Also, they must be sprayed on an appropriate scale on proving that the mechanical containment fail. It must be considered prudently not to damage to the ecological precious areas.

2) Deploying Defensive Apparatus, etc.

If methods mentioned above can not gather or disperse oil films, deploying defensive apparatus or fishing nets filled with wood chips and bulldozing sand barriers are effective to prevent damages in adjacent areas. The apparatus must be deployed before the oil arrives. Prior careful planning for selection of locations and means of deployment is necessary. Suitable boats, communications and well-trained, experienced personnel are also needed for immediate and appropriate deployment. Subsequently, the spilt oil must be skimmed and pumped in order to collect, store, transport and treat appropriately.

In bad weather, the oil may escape from the apparatus. But at least every conceivable effort such as using absorbent materials must be made in order to gather the oil and minimize damage.

3) Establishment of System

In case of extremely large-scale oil spill, a party responsible for the accident alone can not deal with such a situation. Various related parties (for example, PCG) must help the party to alleviate the disaster. Therefore, a system to cope with accidental oil spills should be established.

12.3.3 Promoting Sea Transportation from the View Point of Environmental Conservation

In urban areas, environmental issues such as air pollution and noise/vibration by vehicular traffic need to be solved. Also, the efficiency of urban activities can be raised through the mitigation of traffic congestion. The conversion to energy-efficient transport needs to be accelerated so that CO_2 emissions responsible for the green house effect and SO_2 which causes of acid rain can be reduced.

Sea and railroad transportation are both highly energy efficient and gentle to the environment (see Table 12.3.5). Because of their high transportation capacities, the so-called "Modal Shift" can assist in the reduction of labor, dissolution of traffic congestion, saving of energy and conservation of the global environment.

Table 12.3.5 Environmental Characteristics by Transport Means

Means	Cargo Volume (million ton・km / labor)	Cargo Volume (ton / one time)
Truck	0.264	5～10
Railroad	2.225	500～650
Vessel	3.712	3,000～5,000

Means	Energy Consumption (kcal / passenger・km)	CO2 Emission (C-g / passenger・km)
Vehicle	580	44.6
Taxi	1,295	89.3
Public Bus	247	19.4
Railroad	100	4.7
Ferryboat	295	23.9
Aircraft	394	30.2

Table 12.3.5 (Continued)

Means	Energy Consumption (kcal / ton・km)	CO2 Emission (C-g / ton・km)
Truck	616	48.3
Railroad	114	5.9
Vessel	120	9.7
Aircraft	5,250	402.4

Source: Japan Transport Economic Research Center

Efficiency improvements and technical innovations together with the unification of sea and railroad transportation are desirable to be accelerated in order to improve the environment. The access between the wharves and passenger terminals and the trunk roads and railroad stations should be strengthened through the construction of roads, railroads, chassis yards and car parks, etc.
(Note : Railroad transportation system is desirable when the hauling distance exceeds approx. 200 km.)

12.4 Environmental Condition Survey

The Environmental Condition Survey was conducted at the ports nominated for the short term development plan of the Study. Survey results are summarized in Table 12.4.1. It is necessary to take into account the following findings when the port development projects are to be planned and implemented.

Squatters exist in and around areas located in major and medium urban ports except Batangas Port of which resettlement issues had been solved during the first phase of the project. The resettlement of the affected residents will be necessary at the ports where squatters are found in the course of the port development. It is important to facilitate smooth implementation on the resettlement of the affected residents.

Ports that were suffered from the earthquakes due to their locations situated on or near the fault lines are Padre Burgos, Masao, General Santos, Zamboanga and Lipata. In addition, ports of Mandaon, Tapal, Guindulman, Manila and Tagbilaran experienced the earthquake having the seismic intensity of around 6. Especially, the port of Padre Burgos is obliged to submit the Engineering Geological and Geohazard Assessment Report (EGGAR) to DENR as additional requirement for ECC application when developing port facilities because the said area locates near the probable fault lines. It is necessary to plan the port development with taking account of the earthquake impact.

Mangrove is found around the ports of Batangas, Mandaon, Tapal, Guindulman, Padre Burgos, Pilar,

Zamboanga, Ozamiz and Lipata and coral at Mindanao Container Terminal, Davao, Cadiz and Guinsiliban. It is necessary to examine the condition of the aquatic flora and fauna to protect the mangrove, coral and other aquatic resources in the course of the planning of the port development.

Insufficient water depth at Cadiz and Pilar port obstructs the smooth navigation of the vessels during the low tide and the navigation in Pilar port is also obstructed by the fish-traps installed in Pilar Bay.

The roads linking the ports of Masao, San Ricardo and Mandaon and their hinterland are found in poor condition, therefore, it is necessary to improve those access roads when the port development projects are implemented.

Heavy siltation is found at Masao Port and Santa Ana Pier of Davao Port. It is necessary to implement the survey on the siltation during the planning stage of the port development.

Heavy metals (lead, cadmium and copper) were monitored in the coastal waters by the DENR. It is necessary to carry out the seabed soil examination/analysis during the planning stage of the port development to prevent any spread of the hazardous substances due to the implementation of the port development project.

Table 12.4.1 Summary of Environmental Condition Survey

	Natural Environment					Social Environment							Notes
	Weather / Topo / Geography / Hydrography / Geology	Aquatic / Terrestrial Flora / Fauna	Earthquake / Volcanic Eruption	Typhoon / Weather Related Disaster	Other Natural Environmental Concerns	Population / House Holds	Fishing Industry	Waste Disposal System	Squatters in Port Area	Squatters in Other Area	Resettlement	Other Social Environmental Concerns	
Batangas	Gradual, then steep slope nad drop	Mangrove	From Taal Volcano	0.66 occurrence per year	Impact from on-going project	City:264,658/ 52,931 Brgy:11,065/2,123	21,000MT/year Aquaculture:23,100 MT/year	Port has own waste collection system	None	Along railroad tracks	Provided at Brgy. Balete and Sico	Impact from on-going project	Resettlement issues already solved during Phase I Project.
Cebu	Gentle slope seaward	None	None		None	City:662,299 / 135,089	(Whole Cebu) 72,000MT/year Aquacul.:84,000 MT/year	Maritime:Sold to recyclers	Adjacent area of port	Along port area and streets in the city	Required	Wastes dumped by passengers caused pollution	Resettlement required when the existing port area be developed
Mindanao Container Terminal	No data	Coral	Intensity-2 in 1999. No damages reported		None	Tagoloan:54,106 / 9,838	No data	Sewerage treatment plant in Port Complex	None	Along the creeks and dikes	None		No major environmental issues identified.
Davao	Sasa Wharf : Steep slope & drop seaward.	Coral	None		Sta. Ana Pier : Heavy siltation monitored	City:1,147,116 / 240,057	8,300MT/year Fisherman:1,390 HH	Maritime:None	Adjacent area of port	At coastal and river side	Required	Domestic wastes from squatters, Dust generation from cargo handling	Resettlement required. Need to examine the siltation in the port carefully for Sta. Ana. Dust control required.
Iloilo	Gentle to moderate slope seaward	None	None		None	City:365,820 / Brgy:1,170 / 378	120,000MT/year Aquaculture: 16,100MT/year	Maritime:Sold to recyclers	Approx. 50 HH at Iloilo River Terminal Others:none	Within the proposed port area	Required when Iloilo River Terminal be developed		Resettlement required when Iloilo River Terminal be developed. ICPC Wharf extension proposed by PPA.
Masao	Gentle slope seaward	None	Frequent tremors, Phil. Fault traversing the City	Port has no protection from W-SW monsoon.	Siltation from the river	City:267,279 / 50,430	600 fishermen	Maritime:None	None	None	None	2 km out of 7 km road connecting the port and the city is of gravel base.	Phil. Fault traversing the City. Siltation from the river be examined. Effects from W-SW monsoon be examind. Road improvement be required.
Cagayan de Oro	Moderate to steep slope seaward	None	Intensity-2 in 1999. No damages reported	Flooding at hinterland recorded	Canals/creeks polluted	City:461,877 / 93,525 Brgy:16,780 / 3,980	(Whole Misamis Oriental) 17,700MT/year	Maritime:Sold to recyclers	Proposed expansion area (behind reclamation site)	Along coastline	Required		Ressetlement required
General Santos	Gentle slope seaward	None	Ave. 6 times/year. 20km from Mindanao Fault	None	Heavy metals and high coliform are contained in water from fishpond, monitered by CENRO	City:411,822 / 46,959 Brgy:46,959 / 9,076	42,274 MT/year	Maritime:None	Adjacent area of port	Within the city	Required		Resettlement required. Earthquake:Ave. 6 times/year. 20km from Mindanao Fault. Heavy metals are contained in water. Soil/water tests required.
Manila (North Harbor)	Gentle slope seaward	None	Intensity-4 & 6 in 1999 Affected by Mt. Pinatubo		Water/air polluted due to domestic & maritime wastes and Vehicle emission	Manila:1,581,082 / 333,547	163,300MT/year Mainly at Navotas Fishing Port	Maritime:Sold to recyclers	Along R-10 (30m strip, half of Right of Way occupied)	Adjacent areas	Required	Garbage spills over to shore and water from garbage dumping area.	Resettlement required (Also South Harbor, MICT & Pasig River as well).
Zamboanga	Steep slope and drop	Coral	Earthquake: frequently due to proximity to Cotabato Trench Tsunami:Occurred in Aug. 16, 76 with 5 to 10 m wave		Air pollution generated by vehicle emission and industry. Squatters degrade water quality at the port.	City:601,794 / 117,152	175,300 MT/year Aquaculture: 47,500MT/year	Untreated sewage discharged 200 m offshore into the sea	Adjacent area of port	Near Fort Pilar	Required. 25 ha area reserved for relocation		Ressetlement required. Earthquake: frequently due to proximity to Cotabato Trench Tsunami:Occurred 5-10m wave. Untreated sewage discharged 200 m offshore into the sea.
Ozamiz	Gentle slope seaward	Mangrove	No record, but Faults are not so far.	Panguil Bay protects the port from typhoon.	None	City:110,420 / Brgy:3,070 / 623	4,560 MT/year 1,340 fishermen and 31 fishpond operators	Sanitary Landfill construction is on going. Maritime:Sold to recyclers	Port entrance area	Coastal area	100 families have been relocated from the port area. There is a plan only for acquiring a lot for other squatters.		Resettlement required. Sanitary Landfill construction is on going.
Tagbilaran	Gentle slope seaward		Magnitude 5.6 recorded in 1996	No records of port damage	None	City: Brgy:7,703 / 915	No data	Maritime:None	50 HH	At City's proposed reclamation area	Required		Resettlement required. Magnitude 5.6 recorded in 1996. The City has a reclamation proposal at along the causeway access road.
Lipata	Steep slope and drop	Mangrove	Frequent tremors due to Fault line traversing the City	0.48 occurrence/year	None	City:118,534 / 22,541	6,800 MT/year	Maritime:None	None	Urban center 2,942 HH	Not required for port development, but resettlement site of 5.7 ha provided		Frequent tremors due to Fault line traversing the City

	Natural Environment					Social Environment							Notes
	Weather / Topo / Geography / Hydrography / Geology	Aquatic / Terrestrial Flora / Fauna	Earthquake / Volcanic Eruption	Typhoon / Weather Related Disaster	Other Natural Environmental Concerns	Population / House Holds	Fishing Industry	Waste Disposal System	Squatters in Port Area	Squatters in Other Area	Resettlement	Other Social Environmental Concerns	
Cadiz	Gentle slope seaward	None	None	No records of port damage	Insufficient depth at low tide	Brgy:1,112 / 235	36 fishing boat operators 141 fishing boats	Maritime:None	In and around the port	In Barangay 3	Required.		Resettlement required. Insufficient depth at low tide.
Bantayan	Gentle slope seaward. White sand on the reef area.	None	None	No records of port damage		Municipality:68,125 / 2,189 Brgy:2,189 /	Fish ponds 26 ha Total fishing production:No data	Maritime:Sold to recyclers	12 HH	None	The municipality has already informed to relocate when the port development is implemented and residents accepted.	Marine sanctuaries 410 ha	Resettlement procedures required even though the residents accepted. Marine sanctuaries
San Ricardo	Slope seaward and drop	None	Last destructive : April 1995	Ave. 5 tropical cyclones every 5 years	None	Municipality:8,964 / 1,676 Brgy:664 / 122	No. of fishermen : 1,254 HH	Domestic:Open dump Maritime:None	None	None	None	Road conditions in the municipality and barangays are very poor, especially in the rainy season. White beach at coastal barangys	Last destructive earthquake : April 1995 Road conditions in the municipality andbarangays are very poor, especially in the rainy season. White beach at coastal barangys
Mandaon	Gentle slope seaward	Mangrove	Intensitu 6 : Feb. 16, 2003	Ave. 3 tropical cyclones every 2 years	Rough sea condition at Nin Bay during southwest monsoon and typhoon seasonn	Municipality:31,572 / 6,119 Brgy:3,317 / 662	No. of fishermen : 649 HH	Domestic:Open dump Maritime:None	Venders only	None	None	Road condition in the hinterland is rough. White beach at coastal barangys	Intensitu 6 : Feb. 16, 2003 Road condition in the hinterland is rough. White beach at coastal barangys
Concepcion	Gentle slope seaward	None	None	No records of port damage	None	Municipality:34,240 / 6,435	4,703 fishermen 1,770 fishing boats Fish pond area : 186 ha	Maritime:Sold to recyclers	12 HH	Within the proposed port area	The municipality has already informed to relocate when the port development is implemented and residents accepted.	Marine protected area : 5 sites Fish sanctuaries : 2 sites	Resettlement procedures required even though the residents accepted. Marine protected areas (5) and fish sanctuaries (2)
Tapal	Gentle slope seaward and drop	None	Intensity VI, Feb. 8, 1990	0.54 occurrence per year	None	Municipality:59,827 / 11,511 Brgy:1,136 / 255	No data	Maritime:None	None	Near port area	None	White beach and diving site	Intensity VI, Feb. 8, 1990
Guindulman	Gentle slope seaward	Mangrove	Intensity VI, Feb. 8, 1990	0.54 occurrence per year	Port development plan includes dredging and reclamation	Municipality:29,166 / 5,573 Brgy:4,176 / 789	No data	Maritime:None	None	Coastal area	None		Intensity VI, Feb. 8, 1990
Padre Burgos	Steep to very steep slope seaward	Mangrove clusters at coastal areas	Last destructive : April 1995 Port area subject to EGGAR due to near probable fault lines	Ave. 5 tropical cyclones every 3 years	None	Municipality:8,926 / 1,672 Brgy:1,217 / 207	Fishermen : 493 HH	No solid waste collection system by the municipality	Food/vendor stalls only	Coastal area : 20 HH	Port area : None Coastal area : Municipality allows them to stay untill the area needed by the municipality		Mangrove clusters at coastal areas No solid waste collection system by the municipality Last destructive : April 1995 Port area subject to EGGAR due to near probable fault lines
Guinsiliban	Moderate to steep slope seaward	Coral	Intensive I, June 8, 1999 No record od damages	No records of port damage	None	Municipality:5,465 / 1,115 Brgy:1,102 / 254	Fishermen : 329 HH		None	In Barangay	None	Road is good, but landslide may disturb.	Intensive I, June 8, 1999
Pilar	Shallow and fishtrap exists	Mangrove	Mt. Bulusan eruption in 1988. No record of port damage.	Ave. 3 tropical cyclones every 2 years	Navigational hazards in Pilar Bay. LGU/PPA intend to relocate the port.	Municipality:57,898 / 10,833 Brgy:8,051 / 1,503	Fishermen : 698 HH	Maritime:None	Port adjacent area : 30 FF	Coastal and river area	Resettlement land is provided atBrgy. Dao, however, the resettlement procedures required		Resettlement required. Naivgational hazards in Pilar Bay. LGU/PPA intend to relocate the port to Brgy. San Antonio, 8 km to SW.

12.5 Environmental Partnership Program

12.5.1 Governance and Compliance

(1) The Philippine Environmental Partnership Program (PEPP)

1) Objective and Legal Framework for the PEPP

The Philippine Environmental Partnership Program (PEPP) was launched on 5 June, 2000. This is the government-industry partnership program that was established as an initiative of DENR and EMB, with support from the Office of the President, other government agencies, private institutions, and the business community. Its objective is to establish support systems to enable industry to improve its Environmental Management System (EMS) and other preventive strategies such as Cleaner Production and Pollution Prevention. Under the program, a package of regulatory assistance, incentives, and other supports will be provided to allow industry to explore and implement cost-effective and sustainable solutions for managing industrial pollution. The main objective is to help Philippine industries become more efficient, pro-active and competitive through pollution prevention initiatives.

Secretary Elisea Gozun of DENR signed last June 2, 2003, DENR Administrative Order (DAO) 2003-14 creating the Philippine Environment Partnership Program (also known as PEPP). DAO 2003-14 promotes among institutional partners, self-monitoring and compliance, including voluntary self-regulation, in industries for an improved environmental performance.

DAO 2003-14 or the PEPP DAO is a product of multi-sectoral policy dialog, as a response to the need and demand of industry for government assistance and incentives that will encourage them to implement and sustain a proactive environmental management tool and improve their environmental performance.

Through the PEPP DAO, DENR hopes to pursue and strengthen three policies now enunciated in RA 8749, or the Clean Air Act, and included in the proposed Clean Water Act. These are the promotion of self-regulation, cooperation or partnership with industry and the community in industrial environmental management and emphasis on pollution prevention rather than pollution control.

2) Introducing Environmental Management System (EMS)

The groundbreaking features of DAO 2003-14 are as follows;

- Introducing the concept and approach of the Environmental Management System (EMS).

- Targeting at all levels of the establishments, i.e. one side is the top-shelf establishments who implement and maintain ISO 14001 - based EMS, and another who aim for improved environmental performance but are not yet in full compliance with the administrative and/or technical requirements of environmental laws.

Those features above are perceived in the provisions of DAO 2003-14, to wit:

Section 3. Definition of Terms

(b) *Environmental Management System (EMS) - is a part of the overall management system of a project or organization that includes environmental policy, organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining an improved overall environmental performance.*

(c) *EMB PEPP EMS - an environmental management system as defined above but scaled down in terms of focus. Its significant features include commitment and procedures for public disclosure of acceptable indicators of the company's environmental management system and performance, commitment to pollution prevention, compliance with the minimum requirements of environmental laws and commitment and procedures to assist host communities in environmental protection and resources conservation. The EMB PEPP EMS may be upgraded by a company to ISO 14001 - based EMS.*

Section 5. Program Categories or Tracks

There shall be two (2) categories or tracks of participation of establishments in the PEPP. Track 1 shall cover establishments with proven or demonstrated superior environmental performance while Track 2 shall govern establishments aiming for improved environmental performance but are not yet in full compliance with the administrative and/or technical requirements of environmental laws.

DENR launched PEPP to encourage industries to make their best efforts to comply with the environmental laws. Environmental laws of the Philippines are fairly comprehensive; however, ensuring compliance with these laws continues to be an issue.

PEPP mentions that there are two (2) categories or tracks of which the environmental compliance situation of the establishments now is much different, however, the PEPP introduces the system of EMB PEPP EMS to mitigate the requirements of ISO 14001 - based EMS with some conditions for the beginners to employ the new Environmental Management System as a management tool for promoting their environmental compliance without any fear.

The Environmental Management System (EMS) is a part of the overall management system of a project or organization, as described in the definition above, and the EMS could be used as an effective tool for improving overall environmental performance. The EMS has a lot of features, however, the followings are one of the approaches for developing and promoting a culture of

environmental compliance together with improving the environmental performance by implementing self-monitoring through the EMS;

- The top of the establishment shall establish the environmental policy and objective.
- The organizational structure, responsibilities, practices, procedures and resources shall be established and defined.
- The action plan shall be prepared to achieve the policy and objective above.
- The action plan shall be implemented as planned.
- The action taken shall be reviewed.
- Should any nonconformance be identified during the course of the action taken, the cause(s) of the nonconformance shall be identified.
- The corrective action shall be taken to eliminate the cause(s) of the nonconformance.
- The nonconformance and cause(s) learned shall be reflected to the following plan.
- The preventive action shall be taken to prevent any predictable nonconformance, if any.

In other words, the policy and objective above are understood as the idealized vision of the environmental condition in the future (not necessarily for a long period) desired by the top of the establishment. The difference between the idealized vision and the present condition should be the area to be improved as achieving the target, and the action plan should be prepared to overcome all of those differences. The action plan should be implemented and each result of the action plan implemented should be reviewed to measure the achievement. When any nonconformance will be identified during the review, the cause(s) of the nonconformance should be analysed and defined. During the analysis of defining cause(s), it is very important to probe the cause(s) retracing as far back as the management system. As long as the cause(s) retraced to the management system can be identified, the functional corrective action can be planned and implemented to eliminate the real cause(s).

One of the most important factors of the Management System (EMS, QMS, or whatsoever) is the training for all levels of the constituent member of the establishments. Each member should be given training that is suitable for the respective level of the member. During the course of the training, members should be introduced to the basic requirements of the establishment's EMS, together with the methodologies for preparing concrete action plan, reviewing the process as self-monitoring, identifying the cause of the nonconformance, reflecting the aspects learned to the next planning, etc.

It is necessary for the industries and public agencies to develop a culture of environmental compliance in daily work through implementing and maintaining the EMS and its training. On the other hand, it is necessary to provide environmental education and training in school for children and students to promote and enhance understanding on the need for environmental protection and environmental compliance throughout the country since environmental protection will become their responsibility in future. This education and training will be begun as a "discipline" at first but must

be continued until such time when environmental compliance becomes a "common practice".

12.5.2 Sustainable Development

"Sustainable Development" requires that the environment be protected in the course of economic growth. However, many infrastructure development projects aimed at promoting economic growth and improving people's living standards impact the environment of the project site and the surrounding area.

Undertaking port development projects will require a careful balancing of the goals of economic development and environmental protection and enhancement. The most cost-effective and least disruptive way to increase the overall capacity of the port is to increase the volume of cargo that existing facilities can handle. This mainly relies on increasing productivity of the existing port facilities, which may involve the introduction of IT, reviewing the contracts with the terminal operators and ensuring compliance with contract provisions, providing appropriate training to all levels of personnel by port administrative bodies and terminal operators, respectively, etc.

To accommodate increasing cargo volumes and changes in cargo and ship sizes, new facilities may have to be constructed or existing facilities expanded. During the planning stage of those port development projects, the government agencies, the port administrative bodies or private sector as a proponent of the project should take into account the environmental consideration for the whole life of the project, i.e. during the stages and period of planning, detailed designing, construction, port operation and expansion/modification/removal of the facilities. The project proponent must be responsible for ensuring that its engineering and designing division including outsourcing is taking measures during the planning and designing stage for **reducing** the environmental impact to the natural and social environment for the whole life of the project and selecting the structure type/materials/equipment that can be **reused** or **recycled** in the future as much as possible.

In order to promote the sustainable State economic growth for the coming decades, all sectors of the industries for the export, import and domestic purposes will fully activate their businesses and services, that is the key requirement to accommodate the population growth in the country. The efficient and environmentally-friendly transportation method for the industrial and daily life cargo as well as the passenger movement is the essential factor for achieving the goal of the country.

As discussed in 12.3.3 above, the maritime transportation is the most environmentally-friendly among the transportation methods. Given the geographical condition of the Philippines, the long, medium and short distance maritime transportation respectively must be promoted to support the industries and people's daily life. Therefore, the port development must be necessary to accommodate the expanded cargo and passenger flow with the least environmental impact in the

country now and in the future as well.

12.6 Recommendation

(1) Promoting Environmentally-friendly Transportation System

Maritime and railway transportation modes are both highly energy efficient and environmentally-friendly. It is necessary to use environmentally-friendly transportation modes to reduce CO_2 emissions which cause the green house effect and SO_2 which causes acid rain. Since it is not likely or feasible that railway facilities can be developed to a sufficient extent in future, maritime transportation offers the best solution. Therefore, it is necessary to promote the further development of port facilities.

(2) Consistent Environmental Consideration

It is necessary for the industries and public agencies to develop a culture of environmental compliance in their daily work through implementing and maintaining the EMS and its training. On the other hand, it is necessary to provide environmental education and training in school for children and students to promote and enhance understanding on the need for environmental protection and environmental compliance throughout the country.

During the planning stage of the port development projects, the government agencies, the port administrative bodies or private sector as a proponent of the project should take into account the environmental consideration for the whole life of the project, i.e. during the stages and period of planning, detailed designing, construction, port operation and expansion/modification/removal of the facilities. The project proponent must be responsible for ensuring that its engineering and designing division including outsourcing is taking measures during the planning and designing stage for reducing the environmental impact to the natural and social environment for the whole life of the project and selecting the structure type/materials/equipment that can be reused or recycled in the future as much as possible.

(3) Measures for Resettlement without causing problems and Poverty Alleviation

When selecting the site for a port development project, a location without any residents is the optimum choice, however, it may be necessary to select a location where residents are found. Should any resettlement of the residents occur in the course of port development project, the following must be taken into account;

- To conduct consultation with residents reflecting their diversity
- To complete the development of relocation site before the relocation commenced

- To involve residents in the formation of livelihood program

It is essential that the poverty alleviation policy be successfully implemented to remove the underlying causes of illegal residents and occupants in urban areas.

As one of the approaches to promote poverty alleviation and eliminate the inequality of opportunity that is one of the causes of the poverty, significant investments in human capital are required. The quantity and quality of primary education must be improved if the country is to achieve sustainable growth.

(4) Improving EIS System

The EIS System must be implemented and maintained as an effective planning, regulatory and management tool and be improved for further effective environmental performance.

It is recommended to include the soil contamination test as one of the contents of the EIS for onshore and/or seabed/riverbed soil to identify toxic substances, such as heavy metal, etc., and prevent the spread of any toxic substances due to the implementation of port development projects.

Chapter 13 Economic Analysis

13.1 Objective and Methodology of Economic Analysis

13.1.1 Objective

The objective of the economic analysis is to appraise the economic feasibility of the strategic port development projects proposed by the JICA Study Team, mainly focusing on the short-term port development projects in the target year 2009, from the viewpoint of the national economy. At present, port capacity in the Philippines is insufficient. In particular, international container cargo is growing faster than other port cargo. Major port authorities are now preparing for port expansion and provision of efficient equipment for container cargo handling. Port construction to accommodate international container cargo is already underway at Cagayan de Oro (PIA) and Batangas (PPA). In addition to those two ports, Manila, Cebu and Subic are just about to initiate port development for international container cargo. These urgent container terminal projects are analyzed from the economic impact point of view.

Apart from international cargo, domestic cargo is also expected to increase at a high growth rate toward the target years 2009 and 2024. In particular, RO/RO port and related highway projects in the Philippines were launched in 2002 by the national government and are being promoted by making use of available financial resources. JICA Study Team has also planned the nationwide RO/RO development plan, which consists of RO/RO ports for major corridors, the RO/RO ports for mobility enhancement, and RO/RO ports for remote islands. In fact, there are an enormous number of candidate RO/RO ports which need to be developed to secure efficient inter-island transport and to accelerate economic development in the region. All these RO/RO port development projects in rural areas as well as along major corridors should be carefully selected, prioritized and developed one after another. The economic analysis for the nationwide RO/RO development plan proposed by the JICA Study Team is carried out in this chapter in order to examine the economic benefits of selected port projects, and to evaluate their economic viability by means of numerical comparison of costs and benefits.

In addition to the nationwide RO/RO development plan, domestic multi-purpose berths need to be urgently developed to meet the increasing seaborne cargo demand at port. Recently, cargo vessel size has been increasing year by year, but 69% of berths in the Philippines have a water depth of less than 10m. Due to these draft constraints of ports, a number of cargo vessels have not been able to maximize cargo transport efficiency. Cargo handling system at berth also needs to be improved. Both labor-oriented cargo handling and ship-gear loading/unloading system at port have been the cause of port congestion and ship waiting time at anchorage. In order to provide port users with much faster, safer and more reliable cargo handling, domestic multi-purpose berths must be renovated and restructured. All these cost requirements are examined and compared with benefits derived from

modernization of ports.

In the long term, Philippine port authorities will face further port development needs to catch up with continuously growing cargo and passenger traffic demand. This Study is going to examine the magnitude of benefits derived from the long-term strategic port development projects as well. Needless to say, any port development project which can create greater benefits than others must be prioritized and implemented ahead of others. The economic analysis identifies the economic importance of projects and can be used by planners to prioritize projects.

13.1.2 Methodology

The economic analysis is carried out, according to the procedure shown in Figure 13.1.1. "With" and "Without" cases are compared in the economic analysis. All benefits and costs of the strategic port development projects are calculated in market price at first, and then converted into economic price. Evaluation of the strategic port development projects is carried out using this economic price, based on the border price concept.

There are various kinds of methods to evaluate the feasibility of infrastructure investment projects. The following three methods are typical ones.

1) Economic Internal Rate of Return (EIRR)
2) Cost Benefit Ratio (B/C)
3) Net Benefit (B-C)

Economic Internal Rate of Return (EIRR) is a rate which makes the present value of project costs equal to the present value of project benefits at the base year. EIRR means a real and gross profit ratio of a project which is measured from the economic and social point of view. Cost Benefit Ratio (B/C) is a ratio of the present value of project benefits to the present value of project costs. The present value is calculated assuming the given discount rate. In this analysis, the social discount rate or the opportunity cost of capital in the Philippines (15%) is an evaluation criterion for EIRR, and is used as the given discount rate. Net Benefit (B-C) is a residual present value of project benefits, after subtracting the present value of project costs. In general, EIRR is the most popular index for evaluating a project among the above three indices. In this study, economic internal rate of return (EIRR) based on a cost-benefit analysis is adopted in order to appraise the feasibility of projects.

13.2 Economic Analysis

13.2.1 "With" and "Without" Case

In the cost-benefit analysis, benefits and costs of projects are defined as the difference between "With" and "Without" case of projects. Therefore, the definition of "With" and "Without" case is very important in order to evaluate the feasibility of the port development projects. The following conditions are assumed in this economic analysis.

(1) "With" Case

In an economic analysis, benefits are mainly brought about by improvement and expansion of cargo handling capacity. Therefore, the "With" case scenario includes all improvement in productivity and all expansion of port facilities in the strategic port development projects.

(2) "Without" Case

A cost-benefit analysis is conducted on the difference between the "With" and "Without" case. In this study, the following conditions are adopted as the "Without" case.

1) No investment is made for the existing port.
2) When cargo handling volume reaches the maximum handling capacity of a port, inbound cargo which cannot be handled at the same port is assumed to be handled in adjacent ports, and then transported to the final cargo destination through by truck. In the same way, outbound cargo which cannot be handled at the existing port is assumed to be handled at adjacent ports. In order to use adjacent ports, outbound cargo has to be transported from the origin of cargo by truck.
3) Industrial estates which have already begun production or are being developed within the hinterland of a port will continue the industrial activities in accordance with their original industrial plan. However, future plans of industrial estates will be suspended, since investors will lose their interest for investment due to the inconvenience to their industrial production. This could be detrimental to the national economy.

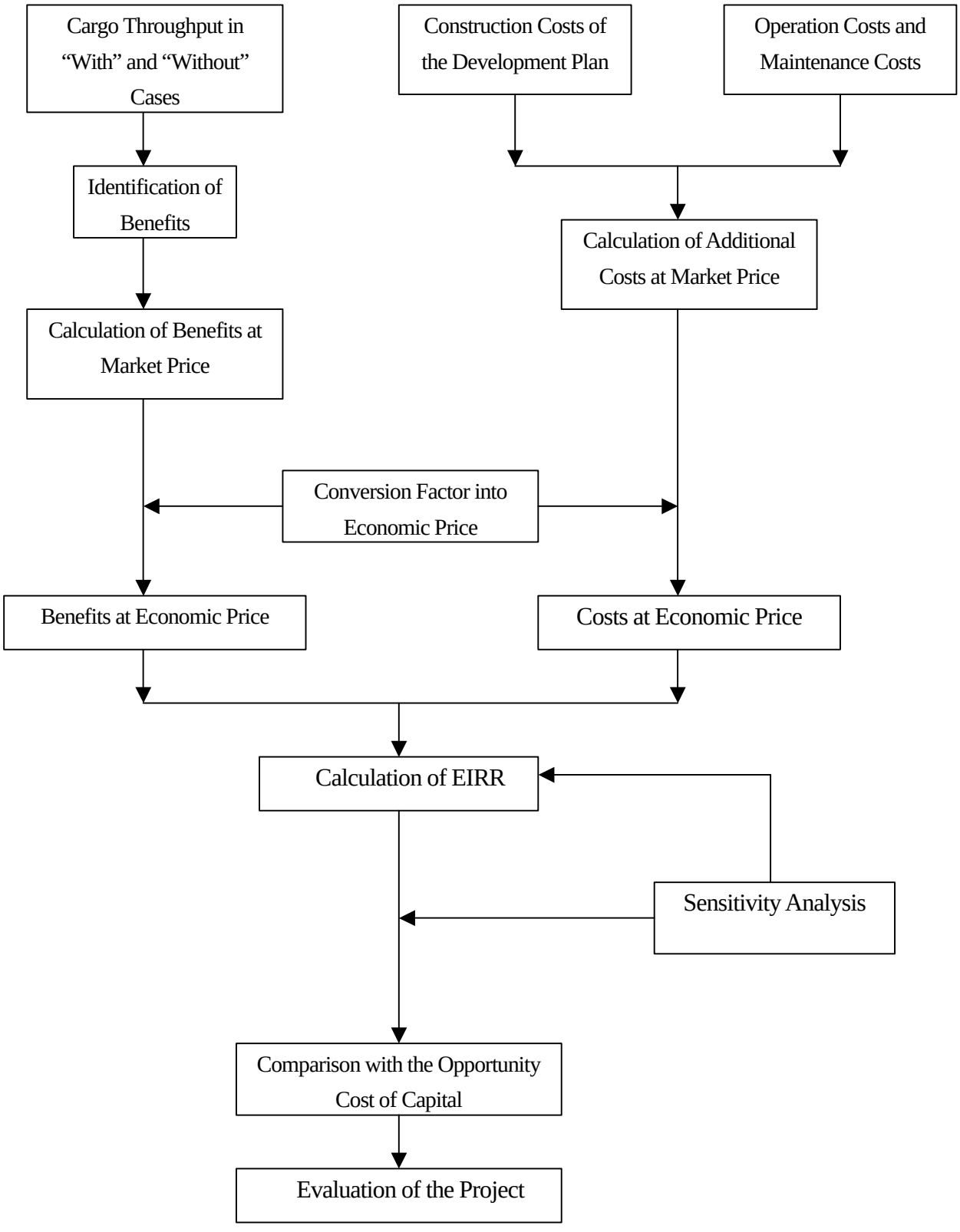


Figure 13.2.1 Procedure of Economic Analysis

13.2.2 Prerequisites of Economic Analysis

In order to estimate costs and benefits of projects, the following requisites are assumed for the analysis.

(1) Base Year

The base year here means the standard year when costs and benefits are estimated in the analysis. Each project has its own "base year".

(2) Project Life

Taking the depreciation period of main port facilities into account, the period of calculation for the economic analysis (project life) is assumed to be 30 years after the completion of project implementation.

(3) Foreign Exchange Rate

Foreign exchange rate adopted for this analysis is US$ 1.00 = 54.87 Pesos (August 2003), the same rate as used in the cost estimation.

13.2.3 Economic Prices

(1) Method of Conversion from Market Prices to Economic Prices

For the economic analysis, prices are expressed at economic prices rather than market prices, based on the border price concept. There are various methods to convert market prices to economic prices. Here, economic prices are calculated by eliminating transfer items such as taxes and subsidies etc. In general, all costs and benefits are divided into three categories: labor, tradable goods and non-tradable goods. And labor is further classified into skilled labor and unskilled labor. As for skilled labor, economic price is determined by multiplying by the conversion factor for consumption. The prices of tradable goods are expressed in CIF and FOB value for import goods and export goods respectively. These values indicate the actual border price. However, since the border price of non-tradable goods cannot be converted directly, the border price of inputs which are needed to produce non-tradable goods must be examined and adopted.

(2) Transfer Items

Import and export duties, other taxes and subsidies are merely transfer items which do not actually

reflect any consumption of natural resources. Therefore, these transfer items should be eliminated from costs and benefits of projects for the economic analysis.

(3) Conversion Factor

There are 4 kinds of conversion factor for labor and goods:

a) Standard conversion factor (SCF),
b) Conversion factor for consumption (CFC),
c) Conversion factor for skilled labor, and
d) Conversion factor for unskilled factor.

Each conversion factor is determined as follows.

1) Standard conversion factor (SCF)

Standard conversion factor is introduced to the analysis to determine the economic price of certain goods which cannot be directly revalued at the border price. These goods include most non-tradable goods and services. The standard conversion factor of the Philippines in 2000 is estimated to be 0.967, applying the following simple approximate equation and basic data.

$$SCF = \frac{(X + M)}{(X + M + D)}$$

Where:
X: Commodity exports
M: Commodity imports
D: Import duty

Table 13.2.1 Basic Data for Estimation of SCF from 1995 to 1999

(Unit: million pesos at current price)

	Commodity Exports (FOB)	Commodity Imports (FOB)	Import Duty	SCF
1995	446,736	684,431	97,601	0.921
1996	538,627	851,887	104,566	0.930
1997	736,775	1,065,329	94,800	0.950
1998	1,187,997	1,213,732	76,005	0.969
1999	1,358,766	1,210,302	86,497	0.967

Source: 2000 Philippine Statistical Yearbook

2) Conversion factor for consumption (CFC)

Conversion factor for consumption is introduced to convert market price of consumption goods into the border price. Conversion factor for consumption is usually calculated in the same manner as standard conversion factor, replacing total imports and exports by those of consumption goods only. However, value for abovementioned consumption goods has not been announced officially. In this analysis, "foreign exchange premium (1.2)" which is derived from the NEDA guide line, will be adopted to determine the conversion factor for consumption goods. Conversion factor for consumption is expressed by the following equation:

$$CFC = 1 / 1.2 = 0.833$$

3) Conversion factor for skilled labor

The cost of skilled labor is calculated based on actual market wages, assuming that the market mechanism is properly functioning. However, since the market wages are domestic costs or market costs, they must be converted into the border price by multiplying the market wages by the CFC. Therefore, conversion factor for skilled labor is equal to CFC.

$$\begin{aligned} \text{Conversion Factor for Skilled Labor} &= \text{Market Wage Rate} \times \text{CFC} \\ &= 1.0 \times 0.833 \\ &= 0.833 \end{aligned}$$

4) Conversion factor for unskilled labor

Since wages which are paid to unskilled labor during project implementation are usually far from the above opportunity cost, these market wages should not be introduced to the analysis as the economic value of unskilled labor. Unskilled labors are usually provided from the agricultural sector. In this economic analysis, the economic cost of unskilled labor is estimated based on a simplified measure of the opportunity cost, considering the productivity of the agricultural sector.

$$\begin{aligned} \text{Conversion Factor for Unskilled Labor} &= (\text{Opportunity Cost / Worker's Cost of Construction}) \times \text{CFC} \\ &= (140.0 / 190.0) \times 0.833 \\ &= 0.614 \end{aligned}$$

13.2.4 Costs of Projects

(1) Components of Project Costs

Components of project costs are tabulated in Table 13.2.2. Values of components are converted from

the financial price basis into the economic price basis. Financial costs and taxes which are included in the components as the sub-cost items have to be excluded from values of components because they are “Transfer cost items” rather than “Economic cost items”.

Table 13.2.2 Components of Project Costs

Components of Project Costs	Definition of Components of Project Costs
Construction Cost	This is the initial construction cost or reconstruction cost or rehabilitation cost of port facilities, and costs of large-scale equipment installed at a port.
Replacement Cost	This is the cost of replacing large-scale equipment. This cost is generated when the service life of equipment expires. Economic/physical life time of each facility and item of equipment is stipulated in “Depreciation life time table of facilities and equipment”.
Maintenance Cost	This is the annual cost for maintaining expected functions of facilities and equipment at a port. Costs of maintaining facilities and equipment are usually estimated by a fixed proportion of original construction and purchasing costs, excluding costs of dredging and reclamation costs. Usually, fixed portion for facilities and equipment is 1% and 5%, respectively.
Operation Costs	This is the annual cost for operating facilities and equipment at a port. It is mainly composed of personnel cost, communication cost, travel cost and material cost. Personnel cost is based on the present financial data of port authorities, and must be converted into the economic price by CFC for skilled labor. Other costs are usually estimated as 40% of personnel costs.

(2) Sub-classification

Sub-classification of project costs and reasons for the sub-classification are summarized in Table 13.2.3 and Table 13.2 4, respectively.

Table 13.2.3 Sub-classified Cost of Project

Sub-classification	Sub-classified cost
By components of Costs	+ Personnel cost by skilled and unskilled labor cost
	+ Material and fuel cost
	+ Purchasing cost of equipments
	+ Land acquisition cost
By supplying methods of materials and services	+ Local portion
	+ Foreign portion

Table 13.2.4 Reason of Sub-classification

Sub-classification	Reason
Sub-classified costs by components of costs	Methods are applied for estimating opportunity costs of unskilled labor and land acquisition cost from ones for the other sub-classified cost items.
Sub-classified costs by supplying methods	Economic value of materials and services are different depending on whether they are supplied domestically or from abroad.

13.2.5 Benefits of Projects

(1) Benefit Items

As benefits of projects brought about by the short-term plan, the following items are identified.

1) Saving in Land Transportation Cost
2) Saving in Water Transportation Cost by Introduction of Large Vessel Calling at Port.
3) Saving in Cargo Handling Cost
4) Saving in Interest of Cargo Costs
5) Reduction of Vessel Waiting Time
6) Reduction of Vessel Time at Berth
7) Reduction of Cargo Damage and Accidents at a Port
8) Promotion of Regional Economic Development
9) Increase in Employment Opportunities and Income

Benefit item 1), 2), 3), 4), 5), 6) and 8) are considered countable, but benefit item 7) and 9) are usually uncountable. As a result, some kinds of benefit items of projects which can be clearly identified as benefit items are not necessarily enumerated in this analysis.

(2) Calculation of Benefits

1) Saving in Inland Transportation Costs

In the “Without” case, investment activities for industrial estate might be delayed or cancelled, due to the inconvenience of port utilization. In this analysis, only on-going projects at industrial estates are assumed to be fully developed by the target year. Other projects which are not initiated for industrial production are not assumed to be developed from now on. Based on the above assumption, the “Without” case will not be able to take advantage of a new port. Accordingly, a considerable amount of overflowed outbound cargo which is generated at the existing industrial estates must be transported to the nearest adjacent commercial port by truck. At the same time, a considerable

amount of overflowed inbound cargo which needs to be accommodated at the existing industrial estates must be handled at the nearest adjacent port, and then transported to the final destination by truck.

On the other hand, in the "With" case, all outbound and inbound cargo will be loaded and unloaded at a new port. Therefore, saving in land transportation costs can be taken into account as a substantial benefit of the project. Benefit which will accrue to the national economy from the project can be calculated by the following formula.

Saving in Land Transportation Cost
= (Volume of Overflowed Inbound and Outbound Cargo at the Existing Port)
* (Land Transportation Cost between the Nearest Adjacent Port and Industrial Estates Concerned)

2) Saving in Water Transportation Cost by Introduction of Large Vessel Calling at Port

When large container vessel calling is available because of the "With" case, that larger vessel can transport a greater volume of cargo for one vessel navigation. As a result, cargo transport cost per ton becomes less expensive in the "With" case than in the "Without" case. The lower aggregated vessel transport cost by introduction of larger vessel call is regarded as a benefit of the project.

3) Saving in Cargo Handling Cost

When efficient cargo handling equipment is installed at ports in the "With" case, those cargo handling time will be lower compared to the "Without" case. Accordingly, the port will gain a considerable amount of benefits by reduction of cargo handling time at port. . Benefit which will accrue to the national economy from the project can be calculated by the following formula.

Saving of Cargo Handling Cost
= (Volume of Cargo in a Year) * (Total Reduced Hours per Unit Cargo Volume)
* (Handling Cost of Cargo per Hour)

(4) Promotion of Regional Economic Development

By estimating the mount of value added land price generated by industrial development in the port hinterland, benefits of "With" case are determined. In the analysis, only factories located in the port hinterland, which mostly handle goods for inbound / outbound, are examined. When foreign unit rate per square meter of value added land price is used in the analysis, that rate must be exchanged to local currency in the Philippines. In addition, since value added land price is influenced by the labor cost, it should be decided considering the difference of labor cost between two countries. The benefit

accrued from industrial development can be estimated by the following formula.

Benefits = Converted Unit Rate of Value Added Land Price (peso/m2)
* Factory Area (m2) * Contribution Rate to Port (%)

13.2.6 Economic Internal Rate of Return (EIRR)

(1) Calculation of EIRR

EIRR is introduced to the economic analysis to appraise the economic feasibility of projects. EIRR is the discount rate which makes the present value of project costs equal to the present value of project benefits during the project life. It is calculated by using the following formula.

$$\sum_{i=1}^{n} \frac{Bi - Ci}{(1+r)^{i-1}} = 0$$

Where, n : Project life,
Bi : Benefit in the i-th year: the first year is the base year,
Ci : Cost in the i-th year
r : Discount rate.

(2) Sensitivity Analysis

In order to examine the feasibility of a project when the given assumptions are changed, the following sensitivity analysis is carried out.

1) Project costs increase by 10%, and
2) Project benefits decrease by 10%

13.3 Economic Analysis for Port Development Project in the Philippines

13.3.1 Cost and Benefit

(1) Economic Cost

The financial costs have been adjusted to act for the project economic cost. The adjustments are in respect to the duties and tax. The contingency of price escalation is excluded. Taxes and duties are taken out as these factors are just transfers in the economy. The economic costs of each port are calculated according to NEDA's guideline in which the foreign components are multiplied by 1.2

and the local components by 1.0. The investment cost is distributed according to the implementation schedule.

(2) Economic Benefit

Benefits from savings in reduced vessel waiting time and reduced vessel time at berth were considerable in the economic evaluation of the project. The estimated vessel cost per day for each port is different. Vessel cost per day by average vessel size is calculated based on the demurrage or price of waiting, which cover crew salaries, food, fuel and oil expenses.

13.3.2 Economic Evaluation of Representative Port Development Projects

In order to conduct the economic analysis, the following four (4) port development projects are selected.

1) Batangas Port Phase-2 project (International container terminal)
2) Iloilo Port international bulk / breakbulk terminal construction project,
3) Zamboanga Port domestic and international multi-purpose terminal construction project, and
4) Araceli RO/RO terminal construction project

EIRR of each project is calculated according to the base case traffic demand forecast. The calculation tables of EIRR estimation are shown in Appendix 13.3. Table A13.3.1 to A13.3.4 show the result of the economic analysis of the above 4 port development projects. All four (4) projects have an EIRR value of more than 15%, which is recommended by NEDA as the appropriate economic value for project justification. Among various kinds of economic benefits, the reduction of vessel waiting time at port and cargo handling time at berth are the largest. Regarding the economic analysis at Batangas Port, the reduction of land transport cost also results in a large economic benefit. Import/export products which are needed or generated at Export Processing Zones (EPZ) in CALAVARZON region, are now transported to/from the Port of Manila. When the international container terminal at Batangas is operational, those import/export products at EPZ will be transported to/from the Port of Batangas, which is located close to EPZ in CALAVARZON. The reduction of land transport cost for import/export products at EPZ is one of the most important benefits in terms of the economic justification of the Batangas international container terminal project.

The results of the sensitivity analysis are shown in the same table. In the sensitivity analysis, the higher construction cost lowers the economic viability of the project. If expected large vessels do not arrive at port after the completion of the project, economic justification for the project will have been lost. Although all EIRR values exceed 15%, project promoters should take the overall economic environment and port cargo demand in the Philippines into account. Port infrastructure investment

should be achieved step by step in due consideration of changeable cost and benefits.

Table 13.3.1 Result of Economic Analysis

Classification	International GatewayPort	Important International Transport Port		RO/RO Port
Port	Batangas Phase-2	Iloilo	Zamboanga	Araceli
Project	International container terminal: 3 berths	International bulk/ break bulk berths (400m)	Domestic and international multi-purpose berth (200m)	RO/RO Pier (30m), Causeway (250m)
Project Cost	5,680 mil P	1,700 mil P	1,670 mil P	39 mil P
Benefits	1.Reduction of vessel waiting time. 2.Reduction of cargo handling time. 3.Reduction of land transport time.	1.Reduction of vessel waiting time. 2.Reduction of cargo handling time.	1.Reduction of vessel waiting time. 2.Reduction of cargo handling time.	1.Reduction of vessel waiting time. 2.Elimination of cargo handling cost by means of abolition of terminal operator service. (Self-propelled embarkation) 3.Reduction of passenger's waiting time at embarkation. 4.Reduction of cargo spoilage at embarkation / disembarkation.
EIRR	29.1 %	28.4 %	28.3 %	22.2 %
Sensitivity Analysis (The worse scenario)	26.9 %	26.0 %	26.2 %	20.2 %

Source: JICA Study Team

Chapter 14 Port Management and Operation

14.1 General

The major objective of this chapter is to describe all of aspects relating to the efficiency of the port. "Efficiency" is directly related not only to cargo handling activity / port procedure / berthing / utilizing berth but also to safety, security, and port and personnel development.

For improving the efficiency of sea transportation in the Philippines and supporting regional socio-economic development, it is important not only to develop adequate port facilities but also to utilize port facilities efficiently. To improve the cargo handling efficiency for effective port facilities' utilization, it is necessary to solve various problems brought by not only port users but also terminal operators and port authorities. Furthermore, waning competitive power among ports, insufficient understanding of each port's condition, port security and insufficient port promotion activities are issues that need to be urgently addressed.

In the following section, proper port management and operation system and implementation plans will be proposed.

14.2 Cargo Handling Efficiency

Lack of cargo handling equipment is one of the most important factors affecting the cargo handling efficiency in Philippine ports. Except for major ports with large volumes of cargo such as MICT, Manila South Harbor, Cebu, Davao and Batangas, most ports don't have sufficient cargo handling equipment, or they only have old equipment without enough spare parts / maintenance. As shown in Appendix 14.2.1, most ports only have forklifts as their main equipment. In small ports, manual operation (by human power) for bagged and bottled cargo is commonly observed. Insufficient equipment is more problem at larger scale ports which have a large quantity of cargo. Cargo handling efficiency differs greatly depending on whether proper equipment is available or not (this is especially true for containers). As shown in Table 14.2.1, it is obvious that the container handling efficiency at MICT and Manila South Harbor is much higher than the other ports.

14.2.1 Cargo Handling Efficiency in Philippine Ports

Cargo handling efficiency at major ports in the Philippines is shown in Table 14.2.1.

(1) Major Ports in the Philippines

Container cargo handling volume and efficiency of world major container ports such as Singapore, Hong Kong, Kaohsiung and Tokyo are shown in Table 14.2.2.
The productivity of container cranes in MICT is not inferior to those of major container ports in the world. However, there is strong evidence in the column of the productivity per hour that much higher productivity is achieved in Singapore, Hong Kong and other major ports than MICT and Tokyo although productivity per crane at those ports is lower. In major ports, utilizing plural cranes for one container vessel simultaneously is the standard way to achieve such a high level of productivity. Moreover, use of plural cranes is usually stipulated in the contract.

(2) Comparison with Targeted Cargo Handling Efficiency

In general, cargo handling efficiency targeted by commodity is shown in Table 14.2.3.
With regarding to foreign container handling, container handling efficiency in MICT and Manila South Harbor is satisfied these targeted values. However most of other ports are not satisfactory.
Furthermore, cargo handling efficiency is lower at multi purpose berths. Bulk cargo handling is frequently interrupted and the vessel is forced to leave the berth temporarily at the arrival of a RO/RO vessel, which is given priority in berthing. Specialization of berths by cargo handling types will increase the efficiency if the port has a multiple number of berths.

Table 14.2.1 Cargo Handling Efficiency at Philippine Ports

Port Name	Port Class by PPA A.O.07-99	Container			Breakbulk				Bottled Cargo	Bulk
		LO/LO Quay Crane	LO/LO Ship gear	RO/RO	Bagged	RO/RO	Log / Lumber	Manual Operation (by humans)		
Manila South Harbor	A	25 boxes /h	-	40 boxes/h	-	-	-		-	-
Manila North Harbor	A	-	8 boxes /h	23 boxes/h	-	45 T/h	31 T/h	17 T/h	-	52 T/h
MICT	A	35 boxes /h	-	-	-	-	-	-	-	-
Cebu	(A)	18 boxes /h	11 boxes /h	-	60 T/h	-	10 T/h	10 T/h	-	-
Subic	-	-	9 boxes /h	-	40 T/h	-	-	-	-	66 T/h
Davao	B	-	14 boxes /h	39 boxes/h	-	-	-	20 T/h	-	-
Iloilo	B	-	-	-	-	17 T/h	-	-	-	-
General Santos	B	-	18 boxes /h	29 boxes/h	41 T/h	-	-	-	-	30 T/h
Dumaguete	C	-	8 boxes /h	-	-	-	-	35 T/h	-	-
Tagbilaran	C	-	-	20 boxes/h	30 T/h	50 T/h	32 T/h	12 T/h	30 T/h	40 T/h
Basilan	D	-	-	-	-	-	-	19 T/h	-	58 T/h
Calapan	D	-	-	-	-	-	-	2 T/h	-	-
Matnog	D	-	-	-	-	27 T/h	-	-	-	-
Tubigon	D	-	-	-	-	-	-	15 T/h	-	-

* - : No data / No cargo handling operation in the type.

Source: JICA STUDY TEAM based on the survey and interview from PPA and Port Statistics, The Study on the Cebu integrated port development plan in the Philippines (JICA, OCDI), The Study on the Subic Bay Port Master Plan in the Republic of the Philippines (JICA, OCDI)

Table 14.2.2 Average Cargo Handling Efficiency in Major Foreign Container Ports

Cargo type / Port name	Volume (TEUs, 2001)	Efficiency (box/crane/h)	Efficiency (box / hour)	Remarks
Hong Kong (China)	17,900,000	21-25	100-125	Using 5 cranes for trunk line vessels
Singapore (Singapore)	15,520,000	22-24	100-130	Using 5-7 cranes for trunk line vessels (Maximum 200 box/h for Mega ship)
Busan (Korea)	8,072,814	22-25	75	Obliged to use 3 cranes by contract
Kaohsiung (Taiwan)	7,540,000	25-28	81	Using 3 cranes for vessels.
Rotterdam (Holland) Hanno Terminal	6,102,000	25	70	3-crane utilization is guaranteed by contract
Rotterdam (Holland) Delta ECT Terminal		23-25	80	"80 box / hour" is guaranteed by contract. ECT is full-automated terminal.
LA / LB (USA) Eagle Terminal	5,183,520 (LA)	25-26	-	Minimum vessel production guarantee is given to shipping companies by contract.
LA / LB (USA) TraPac Terminal	4,462,971 (LB)	30-33	-	-
NY / NJ (USA) Maher Terminal	3,316,275	30	-	Minimum vessel production guarantee is given to shipping companies by contract.
NY / NJ (USA) Hook Container Terminal		25-26	-	-
Tokyo (Japan)	2,535,841	35-38	80	Using 2-3 cranes for vessels.
Le Harve (France) Normandie Terminal	1,525,000	25	75	Average 3 cranes are basically utilized.
Le Harve (France) Atlantic Terminal		20	50	Average 2.5 cranes are basically utilized. (about 18 hours for 1,000 box)
MICT (Philippines PPA)	928,249	**35**	**105**	Container: 25 box / crane / hour (by Contract) Using 3 cranes for vessels. (Maximum 4)
South Harbor (Philippines PPA)	590,623	**25**	-	Container: 75% of equipment's official rate capacity (by Contract)
Cebu (Philippine CPA) (Upper: Gantry, Lower: Shipgear)	404,262 (2000)	**18.0** **10.9**	-	-

Source: JICA Study Team based on the result of survey and Containerization International 2002

Table 14.2.3 Cargo Handling Efficiency Targeted by Commodity

Commodity	Type of Package	Cycle Time	Efficiency (per hour)
Steel Products			
Steel Sheets	Skids (@1.5t-2.0t)	4 min/lift	4.0t x 15 lift= 60 t
Steel Plates	Bare (@2.0t-4.0yt)	5 min/lift	4.0t x 12 lift= 48 t
Steel Bars	Bare length cargo (@1.0t – 2.0t)	5 min/lift	3.0t x 12 lift= 36 t
Steel Coils	Bare (5.0t-8.0t)	5 min/lift	6.0t x 12 lift= 72 t
Steel Pipes	Bundles length cargo (@2.0t- 3.0t)	5 min/lift	3.0t x 12 lift= 36 t
Steel Scraps	Bare (Various), Magnet Instrument	2.5 min/lift	1.0t x 24 lift= 24 t
Lumber or Logs			
Lumber	Bundle (@1.0t-1.5t)	3 min/lift	3.0t x 20 lift= 60 t
Plywood	Bundle (@1.0t)	3 min/lift	2.0t x 20 lift= 40 t
Logs	Bare (Various), (By Folk Grub)	4 min/lift	30 tons/hour
Bagged Cargo			
Fertilizer	50 kgs / Bags (Per Sling 50 Bags)	4 min/lift	2.5t x 15 lift= 37 t
Cement	40 kgs / Bags (Per Sling 50 Bags)	3 min/lift	2.0t x 20lift= 40 t
Wheat (Grain)	50 Kgs / Bags (Per Sling 50 Bags)	4 min/lift	2.5t x 15lift= 37 t
General Cargo			
Palletized Cargo	1.8 t/Pallets	3 min/lift	1.8t x 20lift= 36 t
Wooden Case	1.0 t/Package	3 min/lift	1.0t x 20lift= 20 t
Bottled Cargo on Pallet	2.0 t/Pallet	3 min/lift	2.0t x 20lift= 40 t
Carton Box Cargo on Pallet	1.8 t/Pallet	3 min/lift	1,8t x 20lift= 36 t
Bulk Cargo			
Grain in Bulk Cargo	By Mechanical Operation. Depend on Ability of Machine		
Coal in Bulk Cargo	By Mechanical Operation. Depend on Ability of Machine		
Liquid Cargo			
Liquid Bulk	Depend on Ships Un-loading Pumps		
Container Box			
20’ / 40’ Box	by Gantry Crane	2.5 min/cycle	24 boxes/hour
10’/20’/40’ Box	by Ships Gear	5.0 min/cycle	12 boxes/hour

Source: JICA STUDY TEAM

14.2.2 Cargo Handling Contract in Major Ports

Port authorities at public ports contract out cargo handling operations to private companies in the Philippines. As contracts follow the conditions prescribed by PPA and CPA, which are the major port authorities in the Philippines, a standard condition of a PPA / CPA contract for cargo handling is described below.

(1) Cargo Handling Contract in PPA Ports

Detailed information on PPA Cargo Handling Contract is shown in Appendix14.2.3. The outline of PPA Administrative Order No.01-2001, "Guideline for the Issuance of Probationary & Long-Term Contract For Expired and Expiring CH Contract", new cargo handling contract system in PPA Ports, is as follows;

1) Probationary Contract

A probationary one-time contract for two years may be issued to existing terminal operators subject to compliance to the "Productivity", "Business plan" which consists of demand forecast, installing and updating cargo handling equipment and marketing strategy, "Development worker and employees' program", and so on. These items will be evaluated by the evaluation committee which consists of related PPA-PDO district manager, PMO port manager and representatives from cargo owners/shippers and PPA Head Office. After the evaluation and review by PPA Assistant General Manager, the probationary contract will be approved by PPA General Manager.

2) Long-Term Contract

After a probationary contract, a long-term contract of not more than ten (10) years may be issued depending on the operational, financial, and development needs of the port and the investment made by the operator, subject to the requirements such as "Cargo handling performance", "Business plan" and so on.

3) Mechanics of Implementation

Probationary contract on cargo handling operations is implemented when the existing contract is expired or expiring. After the submission of application documents and evaluation, PPA PMO shall conduct a public hearing with concerned port users. After approval of the probationary contract and when the cargo handler can keep the good condition on their cargo handling operation, long-term contract may be issued. If the terminal operator fails to comply with the contract conditions and the requirement for the port users' endorsement, the probationary

contract shall be cancelled and the Authority shall take over the cargo handling services and conduct a public bidding consistent with existing regulations. PPA PMO will be monitored the contract annually even the long-term contract is approved.

4) Outline of "Business Plan"

In the renewal PPA's cargo handling contract stated in PPA A.O. 01-2001, statement of "Business plan" is newly defined. "Business plan" is employed by the terminal operator to effectively provide, manage, operate, and market to ensure fast turn around of vessels, attain service satisfaction of concerned users and entice port clientele to patronize the port. The plan shall include, among, others, the following items;

- *Traffic Projection and Analysis*
  Based on actual statistics on vessel Evaluation of the operator's monthly performance
- *Cargo Handling Equipment*
  The equipment requirement sufficient to handle the cargoes, procured and made available for the duration of the contract.
- *Productivity Commitment*
  The productivity commitment to handle cargoes efficiency and passengers of the port.
- *Capital Structure*
  Investment or capitalization requirements sufficient to attain its objectives as stated in the Business Plan.
- *Safety and Security Program*
  A commitment of action plan and projects to ensure safety and security of the port, cargoes and its facilities.
- *Marketing Strategy*
  A set of activities that will show how the services will be marketed, make such services conveniently available, offer a positive image of the company, make the service affordable and reflect the value of the services rendered.
- *Manual of Systems and Procedure*
  Prepared systems and procedures manual for port operations and finance transactions, and other activities of the terminal operator with its clients and port users.
- *People Development*
  A program for the improvement of the worker's and employee's welfare to include, among others, training, financial amelioration, etc.

Most of the remarkable item is "Cargo Handling Equipment" in which the equipment installation and upgrading program is stated. The contents of the program are connecting directly to the "Productivity Commitment". And the business plan including future plan on cargo handling will be published, evaluated and discussed with shipping company, consignee

though the public hearing before finalizing the contract. .
However the scope of terminal operators for renewal (probationary) contract by PPA A.O. 01-2001 is applied only for existing operators, and opportunities for new applicants chance to join in the contracts is limited except for in case of the probationary contract is terminated because of existing operator's failure.

Under the PPA's cargo handling contract system, the section on "Cargo Handling Equipment", in which the equipment installation and upgrading program is stated, is particularly noteworthy. The contents of the program are connecting directly to the "Productivity Commitment". And the business plan including future plan on cargo handling is published, evaluated and discussed with shipping company, consignee though the public hearing before finalizing the contract.
However, the renewal (probationary) contract by PPA A.O. 01-2001 is applied only for existing operators. Opportunities for new applicants are limited. The only chance for new applicants is for the probationary contract of an existing operator is terminated due to failure on his part to carry out the obligations described in the contract.

(2) Cargo Handling Contract in CPA Port

In the contract of CPA, there is no statement about "Business plan". In the CPA contract, 10 - 12% of gross income on domestic cargo will be remitted to the Authority as a privilege fee. And other conditions are almost as same as PPA's one.
However by CPA's contract policy mentioned in Appendix 14.2.3 (1) - 1), only domestic companies can join the bidding of cargo handling contracts, although the bidding may be dispensed if the cargo volume is low or handling activity is primarily manual operation at the port.
Detailed information on CPA cargo handling contract is described in Appendix 14.2.3.

14.2.3 Problems on Existing Cargo Handling

The following problems issues needed to be examined;

(1) Lack of Monitoring Function on Cargo Handling Efficiency Rate

To secure efficient cargo handling operation, a "minimum efficiency" clause is included in the PPA / CPA's contract. However, it is necessary to ensure that efficiency rate stated in the contract is appropriate or not. Unrealistic high "minimum efficiency" rate can often be seen in the contract of a port (In the contract, minimum efficiency for container by boom/winch is stated as 26 boxes/hour, as high rate as by quayside container crane.) and the terminal operator cannot achieve the efficiency.

(2) Lack of Equipment / Maintenance for Equipment Affects Efficiency

A terminal operator is obliged to supply sufficient equipment to achieve the "minimum efficiency" stipulated in its contract. However, there are cases where the "minimum efficiency" is lower than that required by shipping lines, not the cargo handling company, shipping company has to procure additional equipment if it desires greater efficiency. This kind of case is actually occurred in a major port. Furthermore, existing equipments are generally secondhand ones in government ports and there are so many equipments in poor conditions.

(3) Mix Use of Berth Cause Various Negative Effects

In case of cargo handling volume is larger, because of insufficient berthing facilities, practice of mix use of berths for break-bulk, bulk, RO/RO and containers are observed. which cause various negative effects. Priority berthing and operations for RO/RO interferes and interrupt bulk cargo handling. And RO/RO vessel berthing perpendicular to the wharf with diagonal mooring lines restricts other vessels' mooring. In case of cargo handling volume is small, this problem doesn't exist.

(4) Lack of Labor Qualification (Lack of Safety / Security Matters)

Due to inexistence of labor qualification and license system for special equipment handling, many tools, equipments and cargoes are damaged and also causing accidents. Many domestic containers cannot fit for "twist lock" because the boxes are deformed by bad handling.
Some operators prefer to hire unskilled labors because of their lower wage. Efficient and safety operation require qualified labors.

(5) Operator is Reluctant to Invest in the Equipment

Because contract period is shorter than life span of the equipment (depreciation term), investment cost cannot be recovered. With cargo handling contract system, an operator has little incentive to improve productivity because additional revenue is also subject to the contribution to the authority. And operators have no rights to set handling tariff or bargain to the customers. Furthermore, some of operators / workers are lazy to replace for proper equipments because of lack of equipments.

(6) Necessity of much Coordination among Terminal Operator and Shipping Company

Shipping companies are obliged to contact to the different terminal operators in each PPA port. As the cargo handling equipment may be different from port to port, it could be difficult to achieve efficient operations.

14.2.4 Proposal on Cargo Handling Efficiency and Contract

Mechanization requires incentives. Introduction of cargo handling equipment must have sufficient incentives for both ships and cargo operators. Ships prefer to use own gear if berthing tariff is low, since there is no incentive to speed up operation by port equipment which requires additional payment. Operator will not invest in equipment unless he is convinced that his investment can be recovered. Extremely low tariff level in ports is weakening the financial position of ports and operators.

(1) Longer Cargo Handling Contract Period for Operator

- Contract period should be extended at least more than 15 years
  The basic depreciation period of cargo handling equipment is 15 years. Operators cannot procure enough funds to purchase proper equipment in the existing contract system, 2-year probationary contract and 10-year long-term contract. Meanwhile it is also important to ensure that only qualified terminal operators are given a longer term contract.
- The qualifications of terminal operators need to be strictly checked
  A system to ensure whether the operator has proper a license certificate or not needs to be adopted.
- The scope of the PPA's contract should be opened to the new entries
  Under existing policy, only existing operators can apply for the renewal contract. To promote competition between the operators, the scope should be expanded.

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

Most terminal operators do not have the financial means to procure and to install new/extra equipment. To expedite mechanization, some of the following measures to assist operators should be examined;

- Financial assistance from port authority / public port development body
- Provision (or lease) of equipment by the authority / public port development body
- Provision of bank loan with preferential interest rates guaranteed by the authority / public port development body
- Direct loan from the authority to the operator
- Creation of fund to purchase cargo handling equipment (Modernization fund)

Examples of "Modernization fund" in foreign countries are shown in Appendix 14.2.4.
Furthermore, it should be stated in the contract that operator can get some incentives against the provision of new equipment to increase the efficiency. (e.g. reducing government share)

(3) Strict Monitoring of Terminal Operator's Productivity

Although monitoring efficiency is stipulated in the cargo handling contract, it cannot be said that the monitoring function is effectively working. In the port traffic statistics in each port, the data related to port charge are stated correctly, however the data on the service time of laborers and equipment are incorrect and incomplete at almost all ports. At present, cargo handling companies report their efficiency to the Authority in a semi-annual productivity report, however the contents of the reports are sometimes inadequate.

Especially in major ports, the Authority should monitor the terminal operator's productivity twice a year against their semi-annual productivity report, and the Authority should suspend, cancel or terminate the contract of a terminal operator if he is unable to meet the required level of efficiency.

(4) Installation of Proper Equipment

Following conditions are required to achieve effective and safe operations;

- Utilizing proper equipment by cargo handling type
- Employing qualified laborers to operate equipment properly
- Establishment of training system for developing qualified laborers
- Obligating laborers to get licenses or certificate
- Discipline for laborers / Strict application of IMO code (for handling dangerous cargo)
- Ensuring that licensed laborers are arranged in each shift (for efficient operation with safety and security)

(5) Implementation of Business Plan

In PPA's cargo handling contract system, evaluation of new cargo handling contract including "Business plan" is implemented through public hearing with port related companies, therefore discussion on the future investment program to the port by the operator is possible. Port authority can also examine its own investment plan such as construction of facilities, assistance it may offer to the operator for installing new equipment etc. Shipping company also can examine whether the port is attractive as a port of call or not through the business plan. Thus the "Business plan" can help to further port promotion.

However, the guideline for making the "Business plan" is the same in every contract. It should be possible to change the “Business plan” according to the conditions of each port and its hinterland

14.3 Port Tariff

14.3.1 Present Situation

Tariff is classified into "Port tariff" and "Cargo handling tariff" by PPA, while other government agencies such as CPA and SBMA regulate their own tariff systems. The draft of port tariffs is prepared by PPA itself and approved by the President. PPA's port tariff is applied not only to PPA ports but also to most ports under other agencies such as CPA, LGU and private companies. Although SBMA applies a lower tariff than PPA's, they utilize the same items as PPA's. Therefore it can be considered that the port tariff system in each port is the same.

Meanwhile, the draft of cargo handling tariff is prepared in each port by respective private cargo handling companies. The draft is brought to PPA-PMO and submitted to the related organizations such as NEDA regional development office and cargo suppliers which consider the proposed cargo handling tariffs from the viewpoint of those in neighboring ports and economic activities in their hinterland. Then, the draft of cargo handling tariffs will be brought to PPA head office for final approval by the PPA board. Other authorities such as CPA, SBMA and so on, apply similar procedures in deciding their own cargo handling tariff.

Present situation and problems on PPA tariff system is mainly described in this section. Detailed information on PPA / CPA / SBMA port tariff and cargo handling tariff are shown in Appendix 14.3.

(1) PPA Port Tariffs

PPA port tariffs consist of "Charge on Vessel", "Charge on Cargoes" and "Charge on Storage". Same port tariff structure is seen in CPA and SBMA port tariffs. The amount of CPA port tariff rates are as same as PPA while SBMA port tariff rates are set lower. Outline of these port tariff items are as follows;

1) Charge on Vessels

Port dues

It is a charge against vessels engaged in foreign trade When a vessel enter any port whether private or government, on each call based on its GRT at US$0.081/GRT in all ports in Philippines.

Dockage

It is a charge against vessels engaged in foreign trade that berth at any port of call based on GRT per calendar day or a fraction thereof.

Usage fee

It is a charge on vessels engaged in domestic trade in accordance with their GRT.

2) Charge on Cargoes

Wharfage

It is the amount assessed against cargoes for the use of the sea, wharves/piers or any other port facility and is paid by the shipper or consignee, as the case may be.

3) Charge on Storage

Charge on storage differs by cargo transportation modes.

Detailed information of PPA port tariffs are shown in Table AP14.3.1 to 14.3.8 in Appendix 14.3.

(2) Cargo Handling Tariff

Cargo handling tariffs are different in each PPA port. Cargo handling tariffs in all PPA base ports (22 ports) are shown in Appendix 14.3.3. As can be seen in those tables, the tariff system lacks uniformity. In fact, different units, classification of commodities and classification of items (i.e. "Terminal Operations Charge" at Davao port) are basically applied.
PPA has a plan to improve their tariff system. Same unit will be applied to the tariff system, and the system will be classified in the port classification shown in Table A14.3.9. Furthermore, in line with "Presidential Commitments and Directives issued during the 11th Mindanao Business Conference in Surigao City on Aug 30 2002", PPA adopted a universal rate for collecting the government share from the revenues of cargo handlers pegging the rate at 10% for domestic and 20% for international cargo. CPA also adopted new fixed rates as same as PPA.

14.3.2 Comparison of Port Tariff with Other Factors

Comparison of PPA port tariffs with Port of Kaohsiung (Taiwan), Port of Bangkok (Thailand) , Port of Tokyo and Chiba (Japan) is made in the following section. Container handling volume rankings of the above ports and those of the Philippines are shown in Table 14.3.1. Comparison with vessel operation expenses, social factors such as minimum wage and consumer index prices are also mentioned in the following.

(1) Comparison of Port Tariffs with Other Major Ports

Comparison of tariff in each item is difficult because the unit, way of computing, commodity price and value of money are different in each country, although, examination of tariff comparison in specific conditions is implemented in the following section. (Tariffs of foreign country are converted into Philippine pesos or US dollars).

Table 14.3.1 World Container Port Traffic League

Rank 2001	Port name	TEU 2001	TEU 2000	Rank 2000	Country
4	Kaohsiung	7,540,000	7,425,832	4	Taiwan
19	Tokyo	2,535,841	2,899,452	15	Japan
23	Manila	2,296,151	2,291,704	21	Philippines
60	Bangkok	1,069,180	1,973,517	53	Thailand
-	Cebu	-	(404,262)	(116)	Philippines
183	Cagayan De Oro	158,607	148,482	193	Philippines
185	Davao	154,580	145,372	196	Philippines
208	General Santos	120,959	115,363	219	Philippines
230	Iloilo	98,471	75,124	254	Philippines
281	Zamboanga	56,680	56,934	284	Philippines
284	Chiba	52,412	57,535	282	Japan

Source: Containerization International Yearbook 2003

* Cebu is not listed in this data. Rank 2000 is estimated by its container volume in 2000

When examining port due for vessels more than 2,250 GRT, the tariff in the Philippines (US$0.081/GRT) is higher than in Tokyo (US$0.023GRT) but less than in Bangkok (US$ 0.240 / GRT). There is no setting in Kaohsiung port's tariff structure for port dues, however, Tonnage tax is collected instead. Tonnage tax is also collected at Tokyo port.

Next, the case of a 10,000 GRT foreign / domestic container vessel with 12-hour berthing term, calculation of dockage, usage on this vessel is as follows.

Port Name	Dockage	Usage
Philippines:	**USD 0.039 x 1 day x 10,000 GRT = USD 390**	**PHP 0.50 x 1 day x 10,000 GRT = PHP 5,000**
Kaohsiung:	USD 54.43 x 12 hours = USD 654	PHP 2,910 x 12 hours = PHP 34,920
Bangkok:	USD 0.002 x 12 hours x 10,000 GRT= USD 240	PHP 0.115 x 12 hours x 10,000 GRT = PHP 13,800
Tokyo:	USD 0.085 x 10,000 = USD 850	PHP 4.59 x 10,000 = PHP 459,100
Chiba:	USD 0.026 x 10,000 = USD 260	PHP 6.90 x 10,000 = PHP 69,000

Most of foreign ports have hourly basis tariff structure. Dockage and usage in Japanese ports are also classified by berthing hour while tariff structure in the Philippines is daily basis. Based on the port tariff in each port shown in Table 14.3.2, the comparison of whole port tariffs are shown in Table 14.3.3.

Dockage in the Philippines is less than other major port except for Bangkok. Meanwhile, usage in the Philippines is quite lower compared to other ports despite the tariff structure is daily basis. Wharfage on foreign container cargo in the Philippines is lower than the tariff in Kaohsiung but not significant different from the tariff in Bangkok.

Table 14.3.3 Comparison of Port Tariffs with Major Foreign Ports

Port Tariffs on Container Vessel	Unit	Philippines	Kaohsiung	Bangkok	Tokyo
Port Dues (USD)	USD	810	n/a *1	2,400	230 *1
Dockage (USD) for foreign vessel	USD	390	653	259	854
Usage (PHP) for domestic vessel	PHP	5,000	34,927	13,824	45,890
Wharfage on Container Cargo	/box				
Foreign 20 ft Import	PHP	519.35	1,284.36	473.60	n/a *2
Foreign 20 ft Export	PHP	259.70	1,735.58	473.60	n/a *2
Domestic 20 ft	PHP	69.00	546.70	473.60	n/a *2

* In case of 10,000 GRT container vessel with foreign / domestic containers, 12hours berthing time.

*1 Tonnage tax is collected instead of port dues. Tokyo port also collects tonnage tax.

*2 There is no wharfage in Japanese ports.

Source: JICA Study Team based on Port Tariff in each port.

Furthermore, as shown in Table 14.3.2, wharfage on non-containerized cargo of Philippine ports is higher than in Bangkok, but almost 50% lower than in Kaohsiung. However, there is no wharfage on export cargo in Kaohsiung (this tariff is levied on the shipper, not the shipping company), therefore when considering import and export cargo collectively, low wharfage in the Philippines is not a big advantage. Detailed information on port tariff in Bangkok, Kaohsiung and Japanese ports are shown in Appendix 14.3.5.

(2) Comparison with Vessel Operation Cost

As shown in Figure 14.3.1, share of port tariffs against the domestic vessel operation expense in the Philippines is only 1%. Major expenses of vessel operation are fuel, maintenance and personnel cost, and port tariffs are quite little cost to the domestic shipping company. However, wharfage is included in the port tariff calculated by the Philippine domestic shipping companies' data. Shipping company will tariff the cost of wharfage to shippers as a part of freight. For reference, the operation expense of a 499 GRT vessel is shown in Table 14.3.4. It should be noted that only port due and usage fee are used in this cost calculation. Detailed calculation is shown in Appendix 14.3.6.

Ratio of port tariffs against the total transportation cost is only 1% including wharfage, and a modest 0.11% when the wharfage is excluded. The usage fee were increasing by 5 times, putting same at the same level as in Japan, it would only increased the total transportation const by 1.5%, and the cost against each cargo transported by the vessel would be minimal.

Table 14.3.4 Port Tariffs and Domestic Vessel Operation Expense for a 499 GRT Vessel

(Unit: Japanese Yen)	Vessel Type: 499 GRT cargo vessel		
	Philippine	Japan	Indonesia
Operation Expense (without fuel)	**248,200**	1,183,200	268,600
Fuel Cost	**205,000**	223,000	183,000
Total of Operation Expense	**453,200**	1,406,200	451,600
Port Tariffs *1	**499.0**	20,634.5	335.3
Port Tariffs *2 (except Line handling)	**499.0**	7,734.5	335.3
Rate of Port Tariffs / Operation Expense	**0.110%**	1.467%	0.074%
Rate of Port Tariffs without Line handling	**0.110%**	0.550%	0.074%

*1 Port tariffs are consist of "Port due", "Usage" and "Line handling" for domestic vessels.

*2 Line handling tariff is included only in Japan.

Source: JICA Study Team

(3) Comparison with PHP-USD Exchange Rate

Regarding the collection of PPA port tariffs, most of port tariffs are collected in pesos, although port dues, dockage and wharfage on foreign transship cargo are collected in US dollars. However, real value of port tariffs in pesos has been declining against dollar as the peso has become weaker. For example, real value of latest usage fee in dollars is still low compared with the real value as of January 1996, in spite of the fact that the usage fee has been raised as shown in Table A14.3.2. Figure 14.3.2 shows the record of real value of usage and wharfage on foreign cargoes in dollars.

(4) Comparison with Social Factors

The relationship between usage, consumer price index and minimum wage is shown in Figure 14.3.3. Raising usage fee has been still less appropriate against the changing of consumer price index (whole). Compared to the labor's minimum wage which is 1.72 times its value in January 1996 and consumer price index (fuel), which is 1.88 times its value and the most expensive item among vessel operation expenses, the latest usage fee is only 1.33 times its value in January 1996. Therefore, it can be said that the real value of usage fee in social factors are also declined.

Table 14.3.2 Comparison of Port Tariffs with Other Major Foreign Ports - 1/4

Comparison Port tariff		(Jun 2003)	1 JPY =		1 THB =	1 NTD =	
with other foreign major ports			0.46 PHP		1.28 PHP	1.54 PHP	
			0.0085 USD		0.0240 USD	0.0288 USD	
1. Charge on Foreign Vessels							
Type of Charge	unit / comment	Philippine latest	Tokyo (Japan) Major ports	Chiba (Japan) Minor ports	Bangkok (Thailand)	Kaohsiung (Taiwan)	Kaohsiung *container
PORT DUES	Unit:	USD/GRT	USD/GRT	USD/GRT	USD/GRT	USD/GRT	USD/GRT
	port entry fee	0.081	0.012	0.011	-	n/a	n/a
	750 ~ 2,250 GRT	-	-	-	0.240	-	-
	2,250 GRT ~	-	-	-	0.240	-	-
DOCKAGE at Berth	Unit:	USD/GRT	USD/GRT	USD/GRT	USD/GRT/h	USD/vessel/h	USD/vessel/h
at Gov. port	per day	0.039	-	-	-	-	-
at Private port	per day	0.020	-	-	-	-	-
	less than 1 hours	-	0.031	-	-	-	-
	less than 2 hours	-	0.062	-	-	-	-
	less than 3 hours	-	-	0.017	-	-	-
	2(3) to 12 hours	-	0.085	0.026	-	-	-
	12 to 24 hours	-	0.142	0.034	-	-	-
	over 24 hours, every 12 hours +	-	0.057	0.034	-	-	-
	Container berth	-	-	-	0.002	-	-
	Conventional berth	-	-	-	0.002	-	-
	less than 500 GRT (per hour)	-	-	-	-	0.78	23.67
	500 GRT to 1,000 GRT	-	-	-	-	1.56	23.67
	1,000 GRT to 3,000 GRT	-	-	-	-	3.08	26.04
	3,000 GRT to 5,000 GRT	-	-	-	-	5.39	30.79
	5,000 GRT to 10,000 GRT	-	-	-	-	9.24	40.23
	10,000 GRT to 20,000 GRT	-	-	-	-	14.63	54.43
	20,000 GRT to 40,000 GRT	-	-	-	-	21.54	85.19
	40,000 GRT to 60,000 GRT	-	-	-	-	30.01	113.59
	more than 60,000 GRT	-	-	-	-	40.00	170.38
DOCKAGE at Anchorage	Unit:	USD/GRT					
	anchorage fee	0.02					
2. Charge on Domestic Vessels							
Type of Charge	unit / comment	Philippine latest	Tokyo (Japan) Major ports	Chiba (Japan) Minor ports	Bangkok (Thailand)	Kaohsiung (Taiwan)	Kaohsiung *container
PORT DUES	Unit:		USD/GRT	USD/GRT	same as		
	port entry fee	n/a	0.012	0.011	foreign vessels	n/a	n/a

Source: JICA Study Team

Table 14.3.2 Comparison of Port Tariffs with Other Major Foreign Ports - 2/4

2. Charge on Domestic Vessels							
Type of Charge	unit / comment	Philippine latest	Tokyo (Japan) Major ports	Chiba (Japan) Minor ports	Bangkok (Thailand)	Kaohsiung (Taiwan)	Kaohsiung *container
USAGE FEE at Gov. berth/anchorage		PHP	PHP/GRT	PHP/GRT	PHP/GRT/h	PHP/Vessel/h	PHP/Vessel/h
< 6 GRT		No charge	-	-	-	-	-
6 GRT to 100 GRT	per day/fraction	40.00	-	-	-	-	-
> 100 GRT	per GRT per day/fraction	0.40	-	-	-	-	-
	less than 1 hours	-	1.23	-	-	-	-
	less than 2 hours	-	3.33	-	-	-	-
	less than 3 hours	-	-	0.96	-	-	-
	2(3) to 12 hours	-	4.59	1.44	-	-	-
	12 to 24 hours	-	7.65	1.92	-	-	-
	over 24 hours, every 12 hours +	-	3.06	0.04	-	-	-
	Container berth	-	-	-	0.115	-	-
	Conventional berth	-	-	-	0.102	-	-
	less than 500 GRT (per hour)	-	-	-	-	41.58	1,265.88
	500 GRT to 1,000 GRT	-	-	-	-	83.16	1,265.88
	1,000 GRT to 3,000 GRT	-	-	-	-	164.78	1,392.16
	3,000 GRT to 5,000 GRT	-	-	-	-	287.98	1,646.26
	5,000 GRT to 10,000 GRT	-	-	-	-	494.34	2,151.38
	10,000 GRT to 20,000 GRT	-	-	-	-	782.32	2,910.60
	20,000 GRT to 40,000 GRT	-	-	-	-	1,151.92	4,555.32
	40,000 GRT to 60,000 GRT	-	-	-	-	1,604.68	6,073.76
	more than 60,000 GRT	-	-	-	-	2,139.06	9,110.64
USAGE FEE at Private berth/anchorage, USAGE FEE on bay/river trade vessels *1							
	Unit:	PHP					
< 6 GRT		No charge	n/a	n/a	n/a	n/a	n/a
6 GRT to 100 GRT	per day/fraction	20.00	-	-	-	-	-
> 100 GRT	per GRT per day/fraction	0.20		-	-	-	-
*1: Usage fee on bay/river trade vessels are not less than and not more than the following charges in total.							
Not less than (Minimum)	per day/fraction	40.00	-	-	-	-	-
Not more than (Maximum)	per day/fraction	203.00	-	-	-	-	-
LAY UP FEE for vessels on tempolarily lay/anchor at any port.							
	Unit:	PHP					
6 GRT to 100 GRT	per day/fraction	20.00					
> 100 GRT	per GRT per day/fraction	0.20					

Source: JICA Study Team

Table 14.3.2 Comparison of Port Tariffs with Other Major Foreign Ports - 3/4

3. Wharfage on Non-containerized Foreign Cargoes (Imported / Exported / Transhipment)

Type of Charge	unit / comment	Philippine latest	Tokyo (Japan) Major ports	Chiba (Japan) Minor ports	Bangkok (Thailand)	Kaohsiung (Taiwan)	Kaohsiung * container
Imported Cargoes in	Unit:	PHP			PHP	PHP	PHP
Sacks/Backs/Bulk/ Uncrated Live Animals/ Steel Products, Log&Lumber/Heavy Lift	per Metric Ton	36.65	n/a	n/a	5.12	62.99	n/a
Others	per Revenue Ton	30.55	n/a	n/a	5.12	62.99	
Exported Cargoes in							
Sacks/Backs/Bulk/ Uncrated Live Animals/ Steel Products, Log&Lumber/Heavy Lift	per Metric Ton	18.35	n/a	n/a	6.40	-	n/a
Others	per Revenue Ton	15.25	n/a	n/a	6.40	-	
Transhipment Cargoes in	Unit:	USD			USD	USD	
Sacks/Backs/Bulk/ Uncrated Live Animals/ Steel Products, Log&Lumber/Heavy Lift	per Metric Ton	0.833	n/a	n/a	Transit (1 day) 0.600 more than 1 day 1.080	1.178 * will be applied only discharging	n/a
Others	per Revenue Ton	0.694	n/a	n/a	same as abov	1.178	

4. Wharfage on Foreign Container Cargo

Type of Charge	unit / comment	Philippine latest	Tokyo (Japan) Major ports	Chiba (Japan) Minor ports	Bangkok (Thailand)	Kaohsiung (Taiwan)	Kaohsiung * container
FCL/LCL singles*	Unit:	PHP			PHP	PHP	PHP
					FCL	n/a	
20 ft import	per box	519.35	n/a	n/a	473.60	- 20 ft class 1	1,284.36
20 ft export	per box	259.70	n/a	n/a	473.60	- 20 ft class 2	1,735.58
35 ft import	per box	656.85	n/a	n/a	-		
35 ft export	per box	329.95	n/a	n/a	-		
40 ft import	per box	779.05	n/a	n/a	806.40	- over 20 ft class 1	2,025.10
40 ft export	per box	391.05	n/a	n/a	806.40	- over 20 ft class 2	2,642.64
45 ft import	per box	916.50	n/a	n/a	947.20		
45 ft export	per box	458.25	n/a	n/a	947.20		

* LCL is larger than these.

	Unit:	USD			USD		USD
Foreign Transhipment	per TEU	1.000	n/a	n/a	-	n/a	-
20 ft	per box	-	-	-	-	-	10.224
over 20 ft	per box	-	-	-	-	-	20.448
not exceeding 1 day	per 20 ft box	-	-	-	13.200	-	-
not exceeding 1 day	per 40 ft box	-	-	-	19.800	-	-
exceeding 1 day	per 20 ft box	-	-	-	26.400	-	-
exceeding 1 day	per 40 ft box	-	-	-	39.600	-	-

* LCL cargoes owned by more than one shipper/consignee, wharfage on these cargoes will be charged as non-containerized cargoes.

* There are no charge on empty containers in the Philippines.

Table 14.3.2 Comparison of Port Tariffs with Other Major Foreign Ports - 4/4

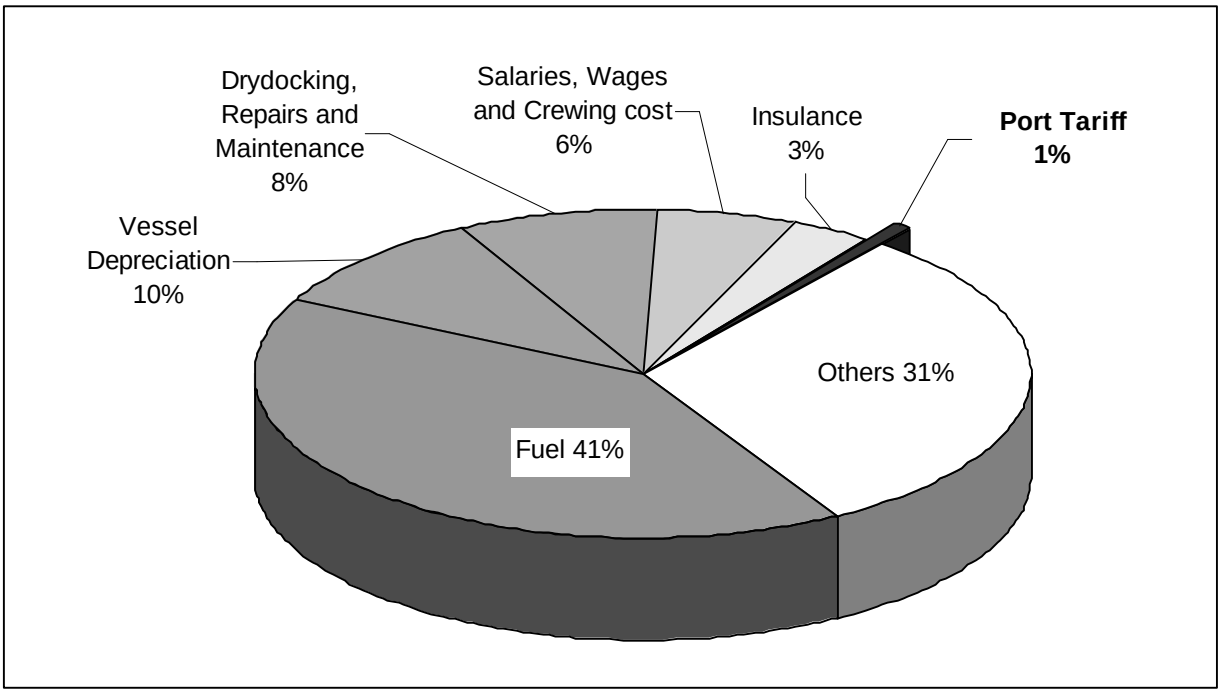
6. Wharfage on Domestic Container Cargo

Type of Charge	unit / comment	Philippine latest	Tokyo (Japan) Major ports	Chiba (Japan) Minor ports	Bangkok (Thailand)	Kaohsiung (Taiwan)	Kaohsiung * container
FCL/LCL singles*	Unit:	PHP				n/a	
10 ft or shorter	per box	34.00	n/a	n/a	-	-	-
20 ft	per box	69.00	n/a	n/a	473.60	-	546.70
35 ft	per box	86.00	n/a	n/a	-	-	1,093.40
40 ft	per box	104.00	n/a	n/a	806.40	-	1,093.40
45 ft	per box	121.00	n/a	n/a	947.20	-	1,093.40

* LCL cargoes owned by more than one shipper/consignee, wharfage on these cargoes will be charged as non-containerized cargoes.

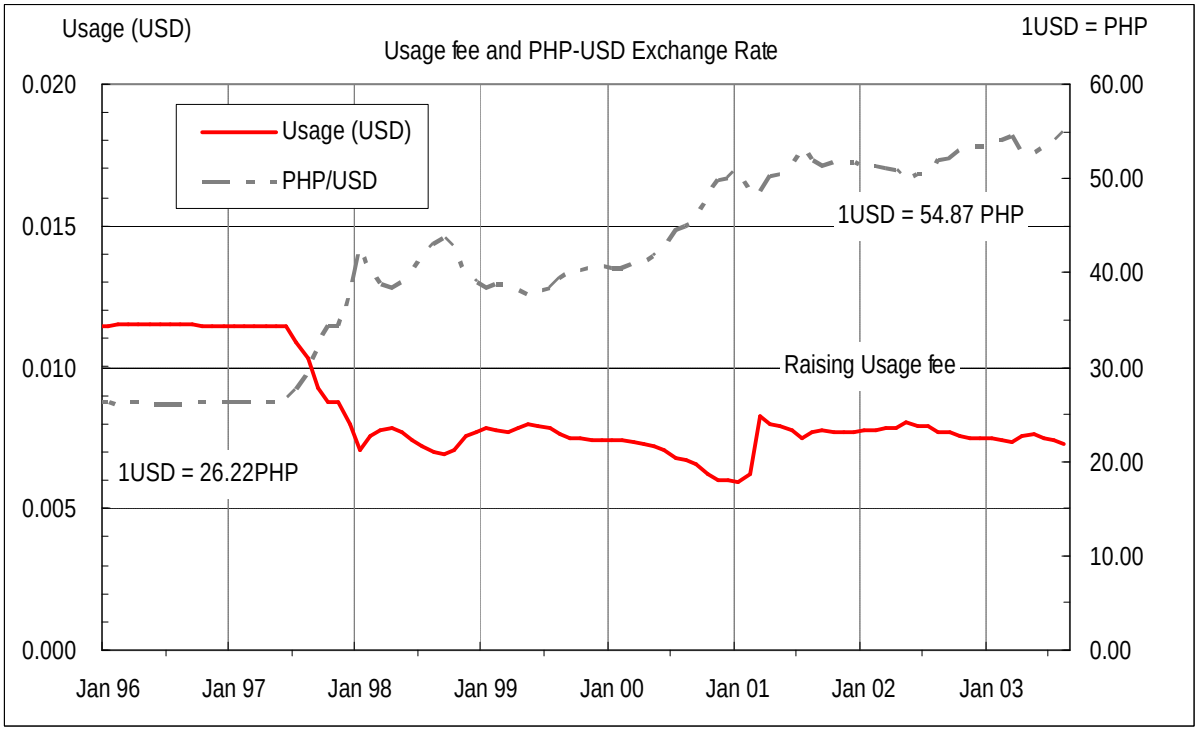
* There are no charge on empty containers.

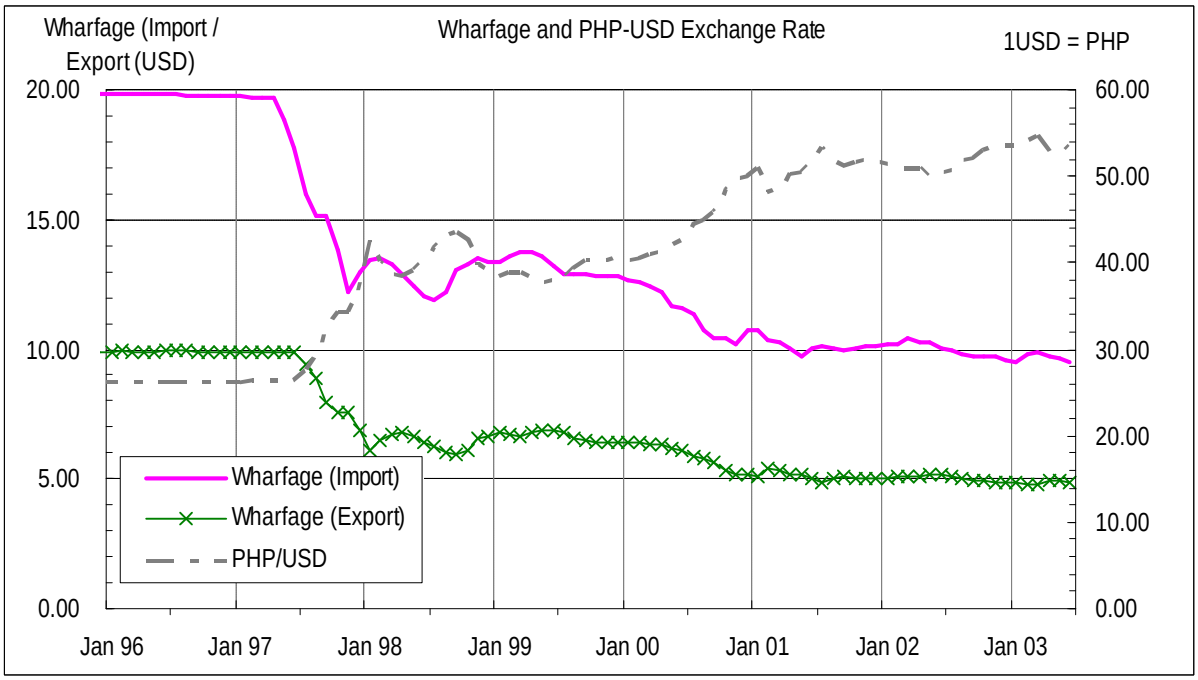
Source: JICA Study Team



Source: Data Book 2001, Domestic Shipping Industry in the Philippines, MARINA / JICA

Figure 14.3.1 Share of Domestic Shipping Companies' Operating Expenses 2000

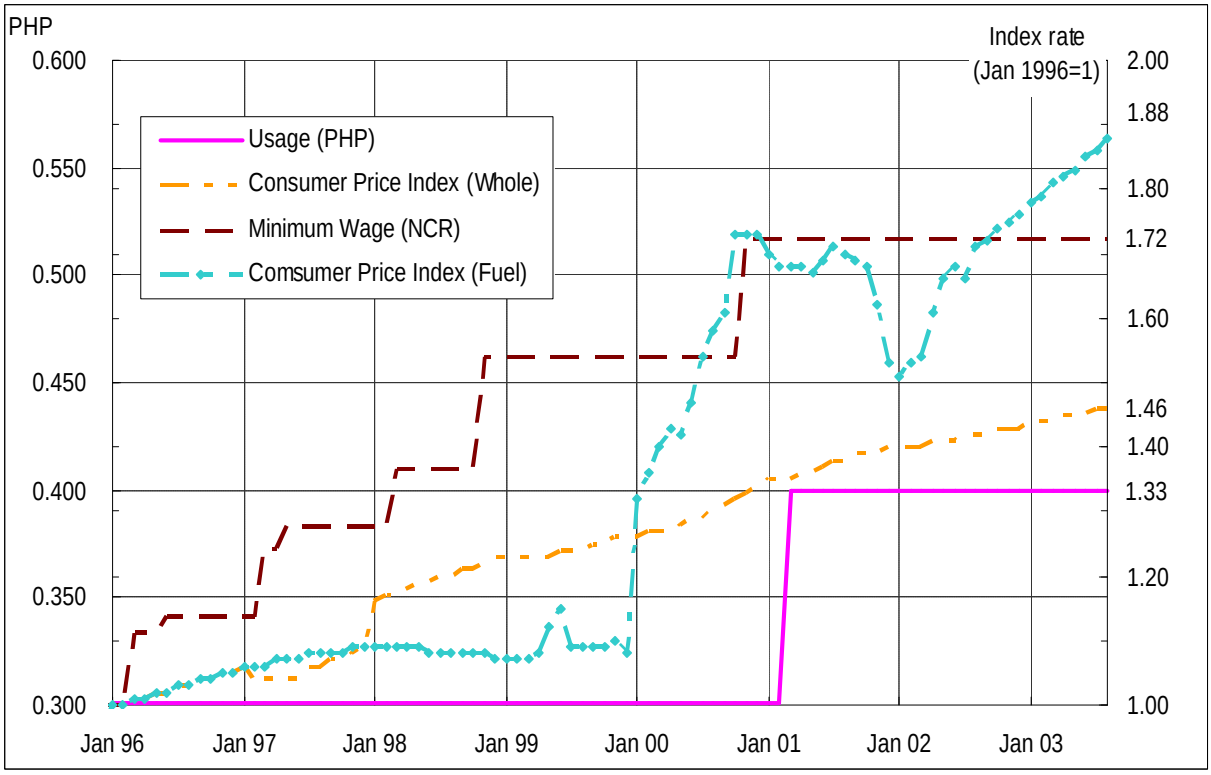




*The amount of usage fee, wharfage are converted into USD.

Source: JICA Study Team based on PPA Port Tariff (Exchange rate: The University of British Columbia)

Figure 14.3.2 Real Value of Usage, Wharfage in US Dollars and PHP-USD Exchange Rate



Source: JICA Study Team based on PPA Port Tariff (Usage), Philippine Statistical Yearbook 2002 by NSO (Consumer Price Index) and NWPC (National Wages and Productivity Commission), and RTWPBs (Regional Tripartite Wages and Productivity Boards) of NCR under DOLE (Minimum Wage)

Figure 14.3.3 Relationship between Usage, Consumer Price Index and Minimum Wage

14.3.3 Proposal on Port Tariff

In setting the strategic port tariff, it is important to consider not only the economic activities in the hinterland but also how best to control the cargo handling operations in the port. Compared with the tariffs of major foreign ports, Port tariff in the Philippines is daily base and the usage fee for domestic vessels is extremely low. For that reason, some domestic vessels occupy a berth / anchorage for an excessive length of time to carry out repairs or perform maintenance. In a "first come - first serve" policy, vessels should move out after completing loading / unloading operations so that other vessels may utilize the berth.

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

- Shortening unit of the port tariff (from daily basis to hourly basis)

  Especially dockage at berth / anchorage and usage fee, unit of these tariffs should be changed from daily basis to hourly basis. Shipping company will reduce the berthing cost as an incentive to leave the berth in minimum time.

- Introducing lease contract with terminal operator
  (Fixed and variable tariff for lease agreement)

  If a port has plural facilities and sufficient cargo volume, introducing "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. Variable fee should be set lower than the existing cargo handling tariff that cargo handlers can earn more income when they can handle more cargoes. In such a case, cargo handling companies can also have an incentive to increase the efficiency such as arranging new equipment, hiring skilled workers and so on. Although generally a port has only one multi-purpose berth, lease agreement which allows operators to utilize the berth for multi-purpose use (not to handle only one specific type of cargo) should be also introduced.

- Necessity of appropriate port tariffs

  As mentioned above, some port tariffs are set lower compared with social factors. With the weakened Peso against the US dollar, real value of port tariffs has declined. Furthermore, as shown in the domestic tariff comparison with foreign ports, domestic port tariff in the Philippines, especially usage fee, is set extremely low, therefore minor ports which handle only domestic cargoes cannot be financially independent. It often happens that a port authority / public port development body cannot repair / maintenance its own port facilities immediately. Therefore, these ports cannot attract any private investors.
  Appropriate tariff setting (increasing domestic port tariffs) and liberalization of cargo handling tariff should be implemented so that those ports can be independent financially, at least to the extent that they could maintain their facilities and possibly attract private operators.

14.4 Port Procedures

Port procedures are very complicated and often take much time. In particular, when cargo is exported or imported through a port, many documents must be submitted to various organizations. 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. The present situation and problems concerning port procedures in the Philippines as well as future directions are discussed below.

14.4.1 Present Situation

Flow of port procedures for a foreign trade vessel entering a PPA port is shown in Figure 14.4.1. As shown in this figure, all procedures involve paper documentation. Related authorities including the port authority / public port development body require that application forms be submitted at almost simultaneously.

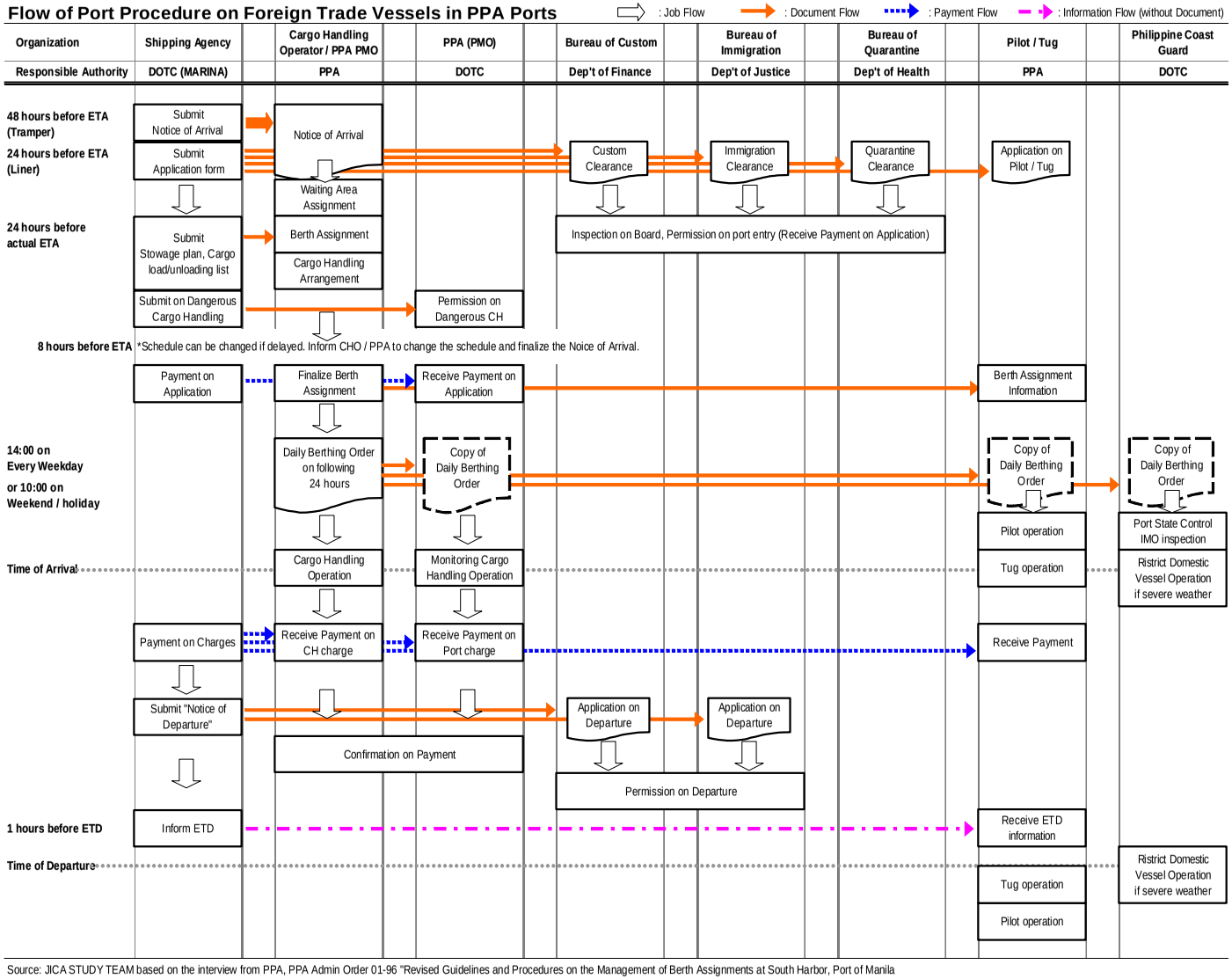
Generally in government ports in the Philippines, port procedures on vessel entry and berth allocation are based on a "first come-first serve policy", and each port authority / public port development body has own "Harbor master". PPA ports are under the harbor master in each PPA-PMO. PPA Harbor master also has responsibility for private ports under its PPA-PMO. PPA is also responsible for assigning waiting area / berth for the vessel. In case of MICT and Manila South Harbor, the respective terminal operators, ICTST for MICT and ATI for South Harbor, are responsible for this task.

In other port authorities / public port development bodies such as CPA / SBMA and so on, these procedures are almost same although a few of the application documents differ. Detailed information on port procedures in the Philippines and Japan are shown in Appendix 14.4.

14.4.2 Proposal on Port Procedure

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. In case of ports with relatively small volume of cargo, effectiveness on introducing EDI system is limited.

Proposal on port procedures for major ports is mentioned in the next chapter.



Source: JICA STUDY TEAM based on the interview from PPA, PPA Admin Order 01-96 "Revised Guidelines and Procedures on the Management of Berth Assignments at South Harbor, Port of Manila

Figure 14.4.1 Flow of Port Procedure on Foreign Trade Vessels in PPA Ports

14.5 Port EDI System

14.5.1 Present Situation

(1) Outline of Port EDI System

In recent years, more and more procedures involved in harbor entry and departure are being processed electronically at major overseas ports, including those in other Asian countries. Great efforts are being made by many port authorities / public port development bodies to improve the efficiency of port administration and to promote the use of the port by rationalizing various application procedures by port users, reflecting obtained data from the applicant into port services such as billing for the service rendered

Basically, port EDI (Electric Data Interchange) system includes the following subsystems.

a) Electric Application Subsystem
   Accepting various application procedures by electric data through diskette or internet.
b) Facility Management Subsystem
   Recording logs / Schedule arranging system for the utilization of port facilities
c) Ship Management Subsystem
   Determination / Preparation for the vessels' arrival and departure.
d) Dues and Charges Management Subsystem
   Settlement / collection of various charges based on the utilization of facilities.
e) Statistics Management Subsystem
   Processing of various statistics datasheet including periodical reports.
f) Information Providing Subsystem
   Provision of information on port services.

(2) Outline of Single Window System

Port users are often required to submit the same information to various organizations. Since each organization has its own forms, it is a time-consuming process.

The concept of "Single Window" or "One-stop service" system is to unify all documents into one integrated application form. EDI system allows each organization to collect and exchange data each other through the network. Port users can thus enjoy the convenience of a Single Window System.

In Japan, the Government introduced a single window system for import / export and port harbor related procedures from July 2003.

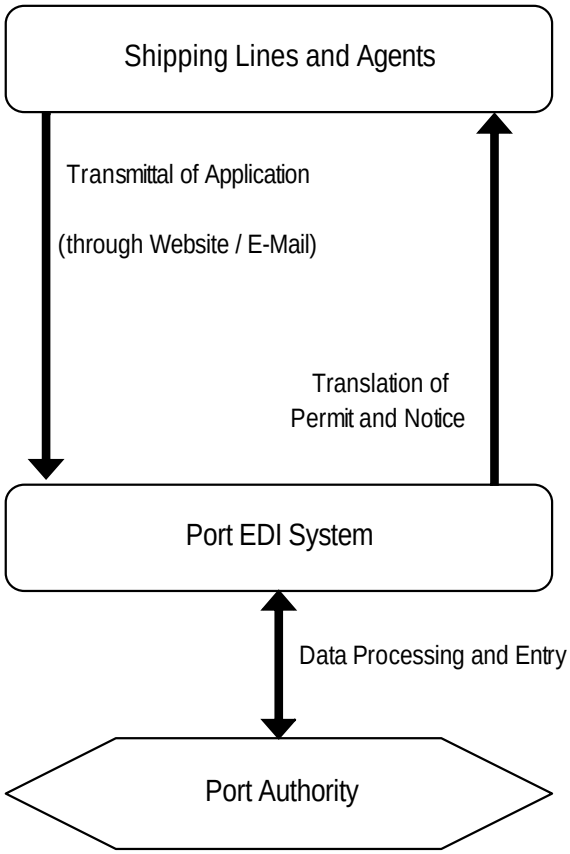


Figure 14.5.1 Image of Port EDI System (Electric Application Subsystem)

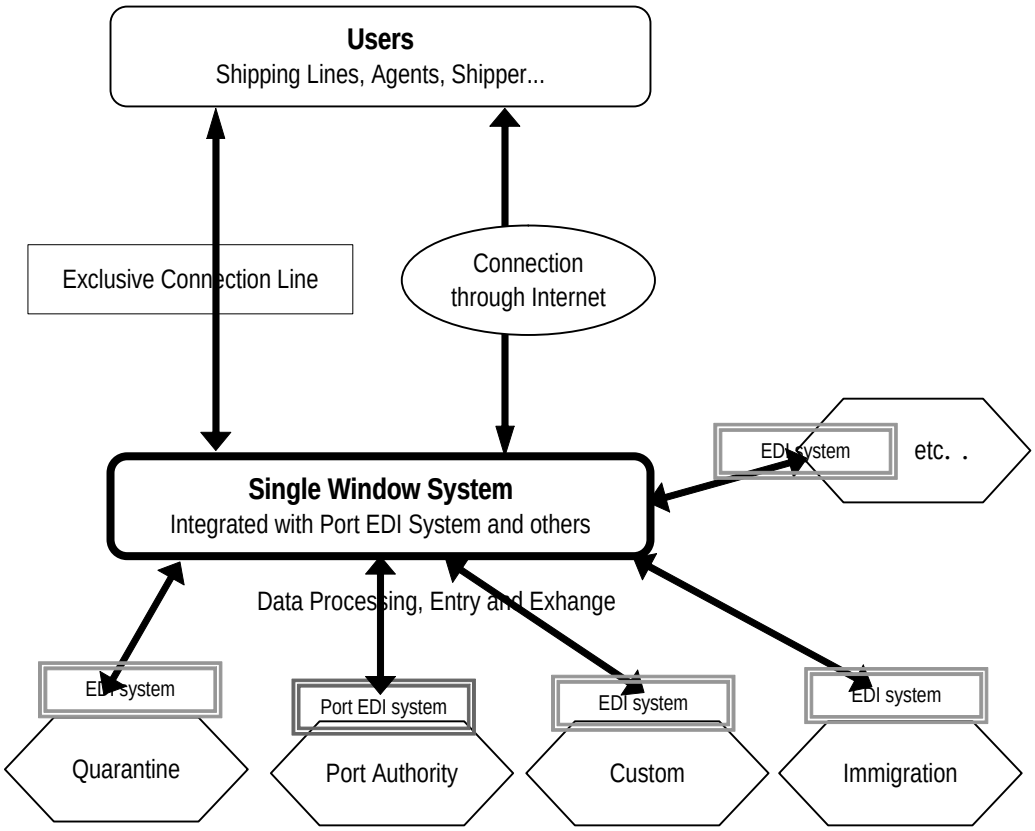


Figure 14.5.2 Image of Single Window System

(3) Port Information System in the Philippines

At present, there is no port EDI system in Philippine ports. However, PPA Management and Information Services Computerization project has just begun in 2000 and PPA will connect the computer system in each PPA organization such as PDO, PMO and other major private companies like ICTSI (MICT), ATI (South Harbor), and Bureau of Custom. (MICT has already connected their system to the Customs' system).

14.5.2 PPA MIS Project (PROMPT)

(1) Outline

The United States Trade and Development Agency (USTDA) awarded a grant to PPA for the conduct of a feasibility study for the computerization of the latter's Management Information System. The feasibility study, which was carried out during the period 10 July 2000 to 15 September 2000 was intended to cover mission-critical information systems in the fields of port operations, engineering, finance and administration. It covered the review of information requirement and existing systems, formulation of an information systems strategy and implementation plan, organization and personnel development, preparation of specifications upon which shall be based hardware and software evaluation and selection, and preparation of tender specifications for software and equipment bidding. After several procedures with PPA board, the implementing project, which is sourced from corporate funds, has just started after approval by DOTC Secretary on the end of November 2002.
In this project, the requirement and feature of the E-Commerce Law (Republic Act No. 8792) will be incorporated in the strategy and implementation of the systems. In the implementation, there will be three (3) different computing schemes for port as following;

- Ports managed by terminal operations with computerized operations
- PPA-managed ports which will be computerized
- PPA-managed ports that may not initially warrant computerization

(2) Objectives

The main objectives of PPA MIS Computerization Project are to acquire and implement integrated information systems that will enable PPA to the following items;

- Support revenue enhancement
- Improve services to PPA Stakeholders
- Enhance financial, operational and engineering controls
- Provide more timely and accurate information for analysis and reporting

- Reduce the amount of manual effort required to collect, process and analyze information
- Provide for continued business growth

Taking into account these items, PPA named their computerization project as "PROMPT (Providing Reliable Operation and Management of Port through Technology)" and they desire to improve service delivery in accordance with the PPA corporate vision and mission, which are not only for the information requirements of business operations but also for the existing difficulty in processing organizational information related to all aspects of port operations, services and statistics.
For the formulation and implementation of policy decision and direction, PPA organized Project Steering Committee for PROMT with the support of the Project Coordinating Committees, which consists of PPA, system integrator and project management consultants. PROMPT focuses on six (6) mission-critical systems as shown in Table 14.5.1.

Table 14.5.1 Computer-Based Application Systems Installed by PPA PROMPT

Port Operations and Management Systems (POMS) Cargo Management (including Port Safety) Vessel Information Management Billing Receipting Port Statistics	**Inventory and Engineering Management Systems (IEMS)** Project / Job Management System Engineering Records System Document Management System Geographic Information System
Accounting and Financial Management Systems (AFMS) Accounts Receivable / Revenue General Ledger Loan / Fund / Cash / Tax Management Budgeting Property Management	**Legal Support System (LSS)** Legal queries Contract reviews Status Monitoring
Real Estate Management System (REMS) Monitoring of lease application Operation / Utilization of leased area Expiration / Management of (lease) contract Extraction of Port Map	**Executive Information Systems (EIS)** Alert System Top Management

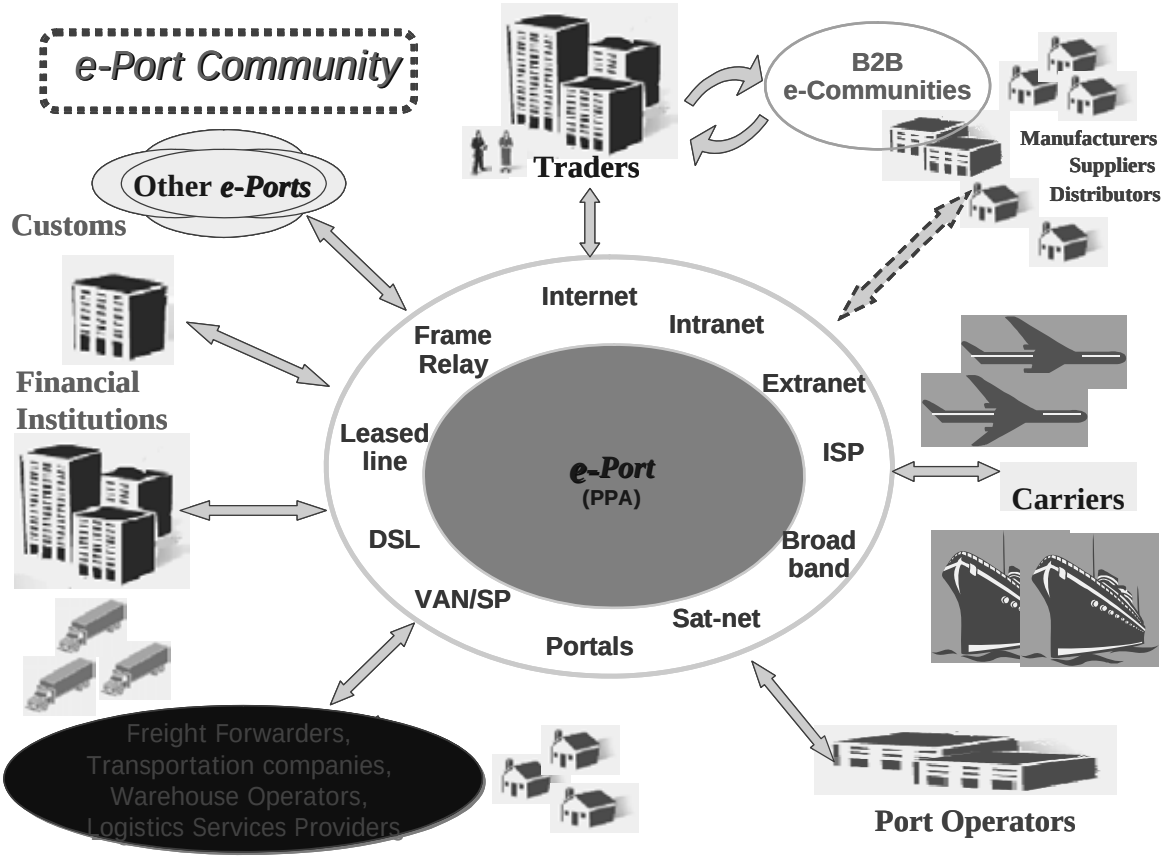
Source: PROMPT External Primer Version 2.0 - July 2003, PPA

(3) Schedule of the Implementation

The project is expected to provide a total solution for the mission-critical computerization requirements of the PPA head office and each PDO and PMO office. The whole project was intended to be conducted within a period of forty eight (48) months. However, the implementation phase is expected to be completed in 31 months.
Detailed schedule of the implementation is shown in Table 14.5.2.

(4) Outline of E-Port Community

A significant feature of the project is the establishment of an "e-Port Community", which provides for interfaces among the various port stakeholders such as traders, customs, financial institutions, freight forwarders / transport companies / warehouse operators / logistics services providers, port operators and shipping companies.
The image of the e-Port Community is shown in Figure 14.5.3.



Source: PPA

Figure 14.5.3 Image of e-Port Community

Table 14.5.2 Implementation Schedule of PPA MIS project

Activity / Location	Month
Application System Customization and Implementation Preparation	
PPA Head Office - Pilot (Connect to Computer Systems in Pilot)	1 to 6
PDO Manila / Northern Luzon / PDO Southern Luzon / Batangas - Pilot	7 to 12
PDOs and PMOs Implementation / Roll-out	
PPA Head Office / PDO Manila / Northern Luzon	13 to 21
PDO Southern Luzon	16 to 18
PDO Visayas	19 to 24
PDO Northern Mindanao	21 to 27
PDO Southern Mindanao	23 to 30
Close out	31

Source: PPA MIS Computerization Project Implementation Phase, TERMS OF REFERENCE, February 07 2002

14.5.3 Proposal on Port EDI System (for Major Ports)

(1) Future Plan for Port EDI System and Single Window System in the Philippines

With the installation of PPA MIS computerization (PROMPT) project, port related documents will be integrated and reduced. And computerization of port procedures will be installed either. Port procedures will be improved step by step, and PPA should also have training system for port users. At present, most of port authorities / public port development bodies don't have their own EDI system, while EDI system provided by PPA will be satisfied for general utilization on port procedure in near future.

To achieve more efficient operation, port procedures in major Philippine ports which has rank of AA are desired to be integrated and computerized, and PPA should engage to spread PPA's EDI system to other port authorities / public port development bodies which has rank AA ports to introduce unified EDI system for establishment of "e-Port Community" (as it were, "Single Window System").

(2) Role of DOTC

DOTC is the responsible authority on e-Commerce in the Philippines. DOTC should aim the establishment of unified network system (e-Port Community) in future by promoting EDI in other port authorities / public port development bodies.

14.6 Security Measures for Port Facilities

After the terrorist attacks in the US, port authorities in the world have been strengthening countermeasures against terrorism, and also working with related organizations such as the International Maritime Organization (IMO) to establish a global-scale maritime security framework.
Security problems in port area can be divided into three types;

- Case-1: Problems whose the aim is to destroy port facilities / interrupt port functions
- Case-2: Problems whose the aim is to highjack vessels as a mean to commit terrorist acts
- Case-3: Problems whose the aim is to transport criminals, firearms, or bioweapons from a port

The US government is giving priority to case-1 over case-2 and 3. From a global standpoint, however, the countermeasures for case-3 should be prepared quickly.
Furthermore, it is required to prepare the comprehensive port security based on a global-scale framework at international ports which have foreign trade shipping route.

14.6.1 Port Facility Security under International Maritime Organization (IMO) Scheme

At the IMO conference in November 2001, the United Nations (UN) called on all countries to formulate comprehensive antiterrorism measures, and to examine new methods to fight port related terrorism. The Conference of Contracting Governments to the International Convention for the Safety of Life at Sea (SOLAS), 1974 convened for the purpose of enhancing maritime security, was held from 9 to 13 December 2002 at the Headquarter of International Maritime Organization. This diplomatic conference adopted the amendment to SOLAS and the International Ship and Port Facility Security (ISPS) Code. Contracting Governments shall implement all of the requirements of SOLAS and ISPS Code from 1 July 2004.

(1) Outline of the Requirements for Contracting Governments on Port Facility Security

Based on the SOLAS conventions, antiterrorism measures should be prepared for "passenger ships and cargo ships of 500 GRT and upwards engaged on international voyages, and port facilities serving such ships engaged on international voyages". The outline of the requirements is as follows:

Contracting Governments shall:

1) set security levels and ensure the provision of security-level information to port facilities within their territory, and to ships prior to entering a port or whilst in a port within their territory;
2) ensure that port facility security assessments are carried out, reviewed and approved in accordance with the provisions of part A of the ISPS Code;

3) approve a port facility security assessment and subsequent amendments to an approved assessment;
4) determine the port facilities which will be required to designate a port facility security officer;
5) ensure that port facility security plans are developed, reviewed, approved and implemented in accordance with the provisions of part A of the ISPS Code;
6) approve a port facility security plan and subsequent amendments to an approved plan;
7) communicate, not later than 1 July 2004, to IMO the names and contact details of their national authority, etc. and the locations covered by approved port facility security plans;
8) exercise control and compliance measures pursuant to regulation XI-2/9;
9) establish the requirements for a Declaration of Security; and
10) test the effectiveness of the port facility security plans or of amendments to such plans they have approved

Provisions of SOLAS regulation and Part A of the ISPS Code on port facility security are attached in the Appendix 14.6.1.

(2) Measures to Address the New Requirements

Within the limited timeframe, the national authority/authorities responsible for the port facility security should take action immediately to address the new requirements. The followings are some of the example for taking action.

1) To determine the Department(s) responsible for the Designated Authority of the Contracting Government;
2) To identify the authorities and responsibilities for the appointed Department(s);
3) To determine whether the Recognized Security Organization (RSO) will be employed for the port facility;
4) To allocate the resources for taking action including funding; and
5) To select a few ports to implement the requirements as pilot model

14.6.2 Other Port Facility Security Scheme

(1) ILO/IMO Joint Working for Port Security

International Labor Organization (ILO) prepared a draft guideline for the port facility security, however, the scope of the objective is much wider than the IMO regulations and Code. This will be reviewed by ILO/IMO joint committee. The Philippine Government is one of the participants of this joint committee.

(2) US Coast Guard Guideline for Port Facility Security

United States Coast Guard is now preparing the guidelines for their port facility security, which is based on the SOLAS regulations and ISPS Code, however, it may be severer than the IMO regulations and Code.

(3) Us Customs Container Security Initiative (CSI)

United States Customs are introducing the Container Security Initiative, the ports having container trade with United States may come under the influence of CSI.
The Container Security Initiative consists of four core elements. These are:

(a) establishing security criteria to identify high-risk containers;
(b) pre-screening containers before they arrive at U.S. ports;
(c) using technology to pre-screen high-risk containers; and
(d) developing and using smart and secure containers.

The fundamental objective of the CSI is to first engage at the top 20 foreign ports ([*1]) that send highest volumes of container traffic into the United States, as well as the governments in these locations, in a way that will facilitate detection of potential problems at their earliest possible opportunity.
At present, US customs have reached an agreement with the governments of the 20 ports. The countries which have decided to participate in CIS are Canada, Holland, Germany, Belgium, France, England, Italy, Spain, Singapore, China, Hong Kong, Taiwan, Korea, Japan and Thailand. In addition, Sweden and Malaysia have committed to participate in CSI. In the second stage, the objectives of CSI will be expanded to include Islamic countries.

(4) 24-Hour Rule

Effective December 2, 2002, shipping companies and/or NVOCCs must submit a cargo declaration 24 hours before export cargo for the US is laden aboard the vessel at a foreign port. It is called "24-Hour Advanced Manifest Rule (24 -Hour Rule)" and US customs has started to apply of since February 2 2003. Different from CSI, this rule applies to all ports which export containers to the US

[*1] "Top 20 foreign ports" consists of (1) Hong Kong, China (2) Shanghai, China (3) Singapore, Singapore (4) Kaosihung, Taiwan (5) Rotterdam, Holland (6) Pusan, Korea (7) Bremenhaven, Germany (8) Tokyo, Japan (9) Genova, Itary (10) Yantian, China, (11) Antwerp, Belgium (12) Nagoya, Japan (13) Le Harve, France (14) Hamburg, Germany (15) La Spezia, Itary (16) Felixstowe, England (17) Algeciras, Spain (18) Kobe, Japan (19) Yokohama, Japan (20) Laem Chabang, Thailand

without exception.
Detailed information on CSI and 24-Hour Rule are stated in Appendix 14.6.2.

14.6.3 Present Situation on Security Measures in the Philippines

At present, port security programs in the Philippines are ongoing. At MICT and Manila South Harbor, terminal operators of these ports, ICTSI and ATI, are implementing security programs. The Philippine Coast Guard (PCG) is in charge of port security at other ports, while Maritime Industry Authority (MARINA) is in charge of shipping security. They are also planning to establish other security measures to conform with the revised SOLAS regulations and ISPS code though discussions with IMO. ICTSI and ATI, in cooperation with their respective holding companies, Hutchison and P&O, are working towards the establishment of a international security network.

14.6.4 Proposal on Security Measures for Port Facilities

Based on cargo handling volumes in 2001, following eight public ports are subject to the SOLAS convention;

- PPA: MICT , Manila South, Batangas, Davao, General Santos, Cagayan De Oro, Zamboanga
- CPA: Cebu

In the near future, following two ports will also be included.

- SBMA: Subic
- PIA: Phividec

Following items are proposed for the public ports listed above, excluding MICT and South Harbor which have separate port security programs.

(1) Secure the Port Security Standard Based on the Provisions of the SOLAS Convention

Revised provisions of SOLAS conventions will come into effect on July 1 2004, if it is approved by 2/3 (two-third) of contracting countries. Although the timeframe for implementation is short (18 months), public ports which are listed above should prepare the port security measures based on the revised provisions of SOLAS conventions.
In addition, greater connection and cooperation among domestic ports as well as with foreign ports is needed. It is important to communicate with them relevant parties in port and harbor circles through IMO in order to establish a global-scale port security framework.

(2) Coping with the United States' CSI and 24-Hour Rule

At present, there is no international container port in the Philippines which is included in the scope of the US CSI. However, the competitiveness in US container trade may be decrease if a port has no CSI regulations. In addition, all of international container ports which export containers to the US should follow the 24-Hour Rule by February 2004.
How to meet the requirements of the 24-Hour Rule by the deadline need to be examined. CSI requirements should also be followed as soon as possible.

(3) Risk Management System in Port Security

It can be said that the port security measures of the revised provisions of SOLAS conventions by IMO mainly focus on preventing terrorism. It is necessary to take into account comprehensive risk management, which includes prediction of accidents such as terrorist acts, prevention measures and countermeasures to limit the damages caused by the accidents.
For example, U.S. Maritime Transportation Security Act 2002 requires the development of a maritime intelligence system to collect and analyze information on vessels operating in US waters, it also provides that vessels and facilities on or near water will be subjected to risk assessment. Plans will also be produced to encompass contingency response to potential terrorist attacks.

In near future, it is desired to establish a risk management system including various prevention and countermeasures by referring to the U.S. Maritime Transportation Act 2002.
And to ensure that security measures, while establishment of cooperation between governmental organizations such as police, custom, immigration, and private companies such as shipping companies, shippers and terminal operators, is also important. Measures to increase cooperation (exchange information) or security issues should also be examined.

14.7 Port Statistics

14.7.1 Present Situation

Port statistics are indispensable for port planning, administration, operation and maintenance and should be made without delay in a reliable manner.
There are two kinds of port statistics in the Philippines. One of them is made by port authorities / public port development bodies such as PPA, CPA and other government agencies. The other one is made by the National Statistics Office (NSO) based on the data submitted by port authorities / public port development bodies. NSO is responsible for making national statistics including ports, roads, airports and other transport means. On the other hand, National Statistical Coordination Board

(NSCB) is the organization which has function of policy-making and coordination on Philippine Statistical System (PSS). Detailed information on NSO and NSCB is given in Appendix 14.7.1.
There is a discrepancy in the cargo volume between these two port statistics. The problem is discussed in 14.7.3 (2) but it can be said here that one of the reasons for the difference is lack of standard port classification. In addition, creation of various port authorities / public port development bodies other than PPA makes the problem more complicated.

14.7.2 Task Force of Ports Inventory Statistics

(1) Technical Working Group on Port Inventory Statistics (TWG on Port Inventory)

A number of government agencies are involved in port planning, regulation and operations. Each of these agencies maintains its own list of ports, which sometimes overlaps with other agency listings. Moreover, agencies depending on their mandates would differ in the classification of ports.
To address the abovementioned issues, a Technical Working Group (TWG) on Ports Inventory Statistics under the Inter-Agency Committee on Transportation and Communication Statistics was created. The TWG on Ports Inventory Statistics was composed of the then Ministry of Public Works & Highways (MPWH), Ministry of Transportation & Communications (MOTC), Philippine Ports Authority (PPA), Philippine Fisheries Development Authority (PFDA), Bureau of Customs (BC), National Census & Statistics Office (NCSO) and the NEDA. A comparative tabulation of ports regulated and maintained by the member agencies was established. This was not validated, however, due to the on-going government reorganization during that period.

(2) Task Force on Ports Inventory Statistics (TFPIS)

Cognizant of the existing issues by the TWG on Ports Inventory, NSCB created the Task Force on Ports Inventory Statistics (TFPIS) under NSCB Memorandum Order No. 1, Series of 1992, with the following specific objectives:

- To study the listings of ports of concerned government agencies and determine discrepancies and duplications;
- To reconcile the concepts used by these agencies and come up with a standard classification of ports for adoption by all agencies concerned; and
- To recommend the appropriate organizational arrangements and scheme for the generation of a uniform set of ports data.

TFPIS is composed of the PPA, DPWH, DOTC-PMO-Ports, PFDA, NSO, and NSCB.
The Concept and methodology of Port Inventory Statistics are shown in Appendix 14.7.3.

14.7.3 Proposal on Port Statistics

(1) Port Inventory

The data of the Inventory is considered to be reliable because it is based on the direct site surveys done by DPWH officers in their regional offices. However, the direct site survey should be done by the DOTC, which has jurisdiction of ports rather than the DPWH.
The accomplishment of Ports Inventory is achieved in certain level, however, name of the port management body is not included nor are the number of ports managed by LGU identified in this list. In addition, the ports which are owned and operated by the government port accommodates less than 30 tons are not listed in "Commercial Public Port", therefore it is considered that many small ports are not listed.

In a port system with many port authorities / public port development bodies as in the Philippines, identifying the port authority / public port development body of each port is important for formulating efficient port plan. Therefore data on port authorities / public port development bodies needs to be listed clearly in the Ports Inventory. Furthermore, cargo handling volume in each port / port authority / public port development body should be computed and listed in this Port Inventory for effective port planning.

(2) Port Statistics

For effective national port system planning, cargo volumes from all ports (including other port authorities / public port development bodies) need to be compiled and properly classified. Thus, DOTC should consult and coordinate NSO which is responsible to put together these data.

14.8 Port Promotion

14.8.1 Present Situation

In general, the objectives of port promotion activities are to increase more cargo, calling vessels and passengers which will generate more income at the ports and employment opportunities for residents. And if industry can be attracted to the port's hinterland, a further increase in port activities can be expected and this will benefit the economy of the region and that of the nation.
Basically, major port authorities / public port development bodies such as PPA, CPA, SBMA, other government agencies and big private sector such as ICTSI, ATI have promotion section and prepare several promotion / marketing activities as shown in Appendix 14.8. However, most of LGU doesn't have sufficient section for promotion, there are some provincial promotion activities with some related organization's cooperation such as provincial, city and port authority office. In such a case, port promotion activities should be liaised with local promotion programs.

14.8.2 Proposal on Port Promotion for Major Ports

For major port such as International hub / gateway ports to achieve as more "attractive port", port promotion divisions of each port authority / public port development body need to consider the following.

(1) A Container Vessel Operator Considers the Following when Selecting which Port to Call:

- If the calling port can keep large amount of cargoes, various costs accrued by shipping companies in the port (e.g. port due) will be reduced, thus enabling shipping companies to earn more profits.
- The time and days necessary to call at the port must come within the scope of one trip in order to maintain the weekly service of the service lines.
- If the port can offer attractive transit time for shipper and consignees
- If the port can maintain the standard of service though competing with other shipping companies
- If the port can offer safe container (cargo) handling operation
- If the port can offer prevention of cargo pilferage
- If the port can enhance the efficiency of its operation in arrival and departure of vessels and reduce the waste time in placing vessels on a waiting list such as waiting off shore (24 hours service for arrival and departure at port).

(2) Condition of Selection of Port (Point of Accumulation of Cargoes) on Shipper and Consignees Side:

- Superiority over other ports in terms of standard shipping cost and the number of delivery days for final destination.
- Superior standard of various facilities and service of the port.
- High frequency of vessels operation on each service
- Route among shipment port and discharging port.
- The characteristics of the cargoes (characteristics from the viewpoint of account of time and cost).
- Provision of certain sites for specific cargoes.

(3) Specific Promotion Material Items and Method:

1) Port Brochure

Printed brochure is an effective means of promotion. A well conceived brochure can give prospective customers a solid understanding of a port’s sales points as well as an outline of its facilities. Each brochure should be updated and published every / every two years for use in

assist promotion activities.

2) Video and Presentation Materials

A video or presentation materials can also be very useful and sometimes more effective than a brochure. It can be used in port sales seminars and shown to port visitors. It can also be used as an initiation tool for new employees and vocational trainees.

3) Provision of Information Through Website

The internet has become one of the defining symbols of our era and many people from all over the world use it daily to exchange information. To provide latest and relevant data through internet to the customers all over the world is required, especially in international ports. Therefore, establishment of a website is an essential means for modern port promotion activity.

4) Meeting with Port Users

Meeting the key personnel of the industries related to ports and trade, such as trading firms, shipping lines and their agents, shippers, consignees, forwarding agents, NVOCC and waterfront companies is a good way to promote the port.

5) Setting up Port Promotion Office in Major Foreign Countries

Major areas on the economic activities in Southeast Asia are Singapore, Kaoshiung, Hong Kong, Shanghai and Japan. Promotion activities in these countries are needed to attract more cargo and foreign investment to the ports. Setting up promotion office in these countries is a common practice of major port authorities / public port development bodies in the world for further growth of international ports.

6) Advertisements on Newspapers / Magazines

Advertisements should be placed in the International Maritime Newspapers or International Logistics Magazines, and World Trade Magazines etc.

14.8.3 Proposal on Port Promotion for Minor Ports

Promotion activities at minor ports which support local areas around their hinterland should be different from those at international hub / gateway ports support socio-economic activities of the whole Philippines. To increase cargo volumes and contribute to higher living standards in local area, a

port authority / public port development body must understand and take advantage of a port's characteristic (i.e. major cargo commodities, passenger traffic, potential for economic growth in the hinterland, etc).

(1) Public Relations Activities to Local Residents in the Hinterland

Local residents need to be aware of the important roles that ports play in their lives. A port which is isolated from local residents cannot contribute to local society, furthermore, cargo handling operations and connection with the traffic system in the hinterland will be hindered.
To gain the understandings of local society, public presentations on port activities should be made. In addition, newspapers and other local media should be used periodically to introduce port activities.

(2) Public Relations Activities at the Provincial, Regional and National Levels.

A port functions as a logistical connection point. Especially in the Philippines, connection of small scale ports with major ports in the Philippines (i.e. Manila, Cebu) is the key to enhancing the economic and cultural activities in local areas. To secure sufficient budget for maintaining present port facilities or expanding facilities to cope with increasing port activities, public relations activities highlighting on the importance of ports should be implemented not only at the local level but also at the provincial, regional and national levels.

Chapter 15 Private Sector Participation

15.1 General Philosophy for Promoting Private Sector Participation (PSP)

(1) General

Introduction of private fund to infrastructure development and operation is quite attractive solution for those public sectors suffering from shortage of public fund. Many governments in the world have opted introduction of private sector participation to the port sector.

1) Objectives of the PSP in Public Infrastructure can be summarized as follows:

- to relieve government from high investment burden
- to increase capacity of the facilities
- to introduce higher standards of efficiency through fair competition
- to provide high quality of service with cheaper price to users
- to transfer technology and know-how
- to facilitate fast-track implementation

2) Facilities Suitable for Private Sector Finance

Generally speaking, financial source for the infrastructure development can be obtained from wide range of sources from public sector to private sector, including tax, bond, loan and equity finances. The Figure 15.1 displays simplified relations of this concept. Facilities, which generate sufficient revenues by operation such as electricity and telecommunication are generally considered to be suitable for private finance.

On the other hand, those facilities, which are not highly profitable nonetheless important are more suitable for public finance. Financing for infrastructures such as for ports is not always black or white, or all or nothing as is commonly thought as in the Figure 15.2.

The same principle may be applied within the port sector as demonstrated in the following figure. Generally, a larger port can recover its investment by collection of charges from the users, but a smaller port at less populated rural area cannot expect immediate investment recovery.

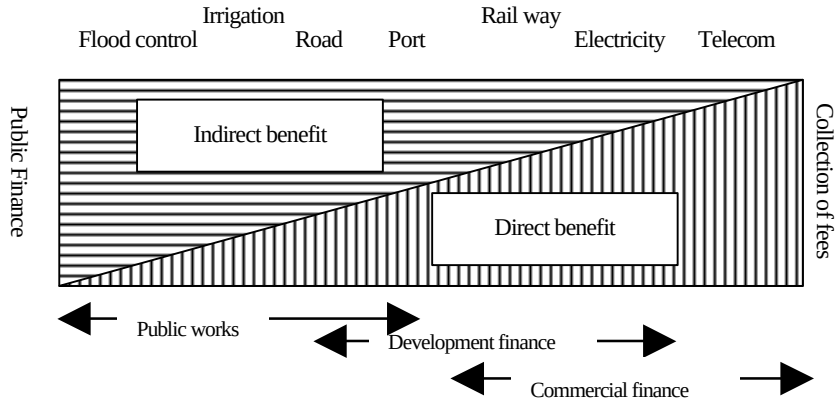


Figure 15.1 Infrastructures and Financial Source

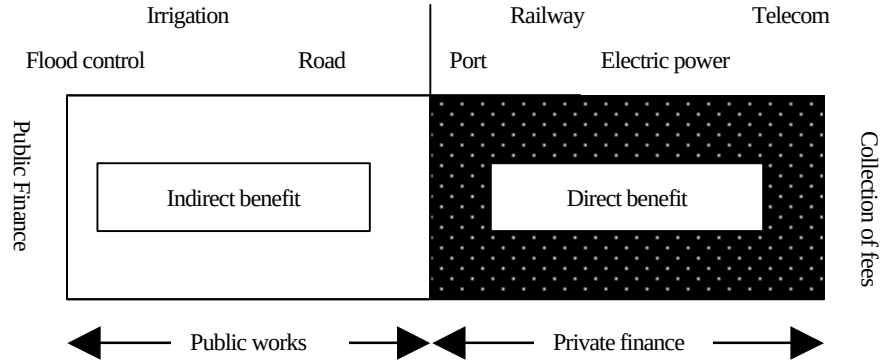


Figure 15.2 Erroneous Demarcation of Infrastructure and Financial Source

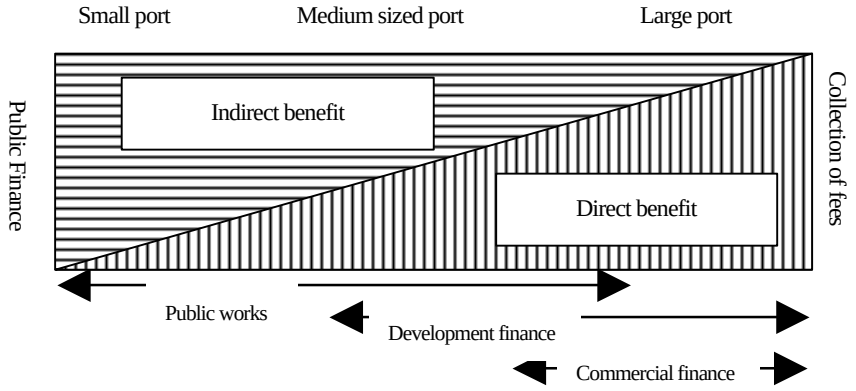


Figure 15.3 Effects of Port Size

15.2 Present Condition Of Public Partnership/Private Sector Participation

(1) Legal Base of Private Sector Participation

The government of the Philippines introduced the Republic Act (RA) No.6957 to make use of private sector skills for the national privatization policy in 1990. In 1994, the government further introduced RA7718 (an amendment to RA 6957) entitled "An act authorizing the financing constructor operation and maintenance of infrastructure projects by the private sector, and for other purposes".

(2) Public Private Partnership / Private Sector Participation Policy in the Port Sector

Public Private Partnership (PPP) / Private Sector Participation (PSP) of the operation works of some public ports is one of the key elements of the PPA's and the CPA's program.

Under this privatization program, Manila International Container Terminal (MICT) has been leased to the International Container Terminal Service Inc. (ICTSI). ICTSI develops, manages and operates MICT and collects port charges for twenty-five (25) years, and in turn pays a fixed fee and variable fee against the income based on the contract. (MICT collects port charges for PPA.)

Manila South Harbor has been also leased to Asian Terminals Incorporated (ATI). Operation, expansion and upgrading of the container terminal is carried out by the private operator. ATI is also responsible for developing, managing and operating the general cargo terminal and passenger terminal as well as the container terminal in the Manila South Harbor for twenty-five (25) years. However, based on the lease contract with ATI, the collection of the port charges at the South Harbor is carried out by PPA itself.

(3) Private Commercial Port

A privately owned pure commercial port has not been developed in the Philippines. Few exceptional private commercial ports have been developed as the part of industrial estate development projects.

1) BREDCO

At BREDCO port in Negros Island, a private developer started land reclamation in 1961 under a contract with the municipal government of Bacorod. A part of the reclaimed land became cargo handling terminals for small vessels. Later this terminal was expanded the size and the water depth and attracted general cargoes and passengers from nearby PPA ports with its strategic location and service.

2) Harbor Center

In 1996, a multi-purpose terminal was created at the reclaimed land in front of Smoky Mountain, Manila by a private sector. The developer has created 79ha land and 10ha of the land is used for port terminals.

3) Specialized Terminals

Many terminals, which handle large quantities of specific liquid bulk or dry bulk cargo are developed and operated by private enterprises. This category may be expanded as the growth of respective industries.

In the Philippines, many public ports handle bulk cargo at multi-purpose terminals. As the growth of specific bulk cargo at a terminal, the cargo owner or the operator for this cargo may have due motivation to have their own berth by their own initiative. This principle can also be applicable to a RO/RO terminal where sufficient traffic volume is expected.

15.3 General Principles and Basic Requirements for PSP

(1) General Principles

At the introduction of Private Sector Participation, the public sector has to understand the possible gap between expectation of the private party and the public sector.

A private enterprise pursue always profit. Without guaranteed profit, a private sector would not invest. At the initial stage of application for the project participation, various factors are not clearly identified. Therefore the private applicant is extremely cautious not to be involved with high risks with the project eventually demands higher return by the contract and it will result in less return to the public side than expectation. Therefore, the government side should not expect an easy return by the project.

It is important the government to establish general principles and basic requirements in order to promote the PSP for port projects.

General principles

+ “Fairness” and “Neutrality”
+ “Certainty”, “Transparency” and “Predictability”
+ “Competitiveness” and “Credibility”

These principles are further elaborated as follows.

+ Political, social and economic stability
+ Administrative framework for PSP
+ Legal framework for PSP
+ Guideline for PSP

(2) Classification of PSP Types

There are many types and forms of PSP in the port sector. The classification of PSP types for port projects is shown in the following Table 15.1. In addition, many variations exist in the conditions and rules on the relations and contracts between the port owner and the operator.

Table 15.1 Classification of PSP Types

Degree of Private participation	Type of PSP	Role of each sector		
		Ownership	Management/ Operation	Financial Risk
Weak	Management Contract	Public	Public/Private	Public
↕	Lease	Public/Private	Private/Public	Private/Public
	Concession/Joint Operation	Public	Private	Private
	BOT	Private → Public	Private	Private
	Joint Venture	Public/Private	Private	Private
Strong	BOO (Privatization)	Private	Private	Private

Source: JICA Study Team

A lease system as a contract type has been common in many ports in the world. A BOT system is the most attractive means to replace government funds with private funds for development and operation of public port infrastructures. Many countries in the world have been trying to induce the private sector into BOT-based port projects one way or another.

(3) Necessity of Appropriate Control by the Government

With respect to PSP, there is a tendency to emphasize only the merit side. However, the negative aspects also need attention. Some potential problems are as follows:

- Unlimited PSP tends to ignore the public interests including environmental consideration and living conditions of the people. Moreover, it sometimes results in monopolization,

which leads to high-costs of service.

- Generally, the private sector tends to put emphasis on what is connected with a direct profit. As a result, a bottleneck may occur to the non-revenue generating infrastructure and the whole efficiency of an infrastructure may fall.
- The incentive of doing maintenance work required in the long operating period is lacking. This tendency is remarkable before the transfer of the infrastructure concerned.

In this sense, appropriate control through "Port Master Plan" and carefully prepared conditions of contract in compliance to the relating laws and regulations by the government for the private sector is strongly required. And, the most important point is to realize infrastructure development and to make operations more effective and efficient through healthy competition and technology and know-how of the private sector.

The government must recognize that PSP does not eliminate entire financial responsibility or burden of the public sector. A successful PFP project is only achievable by prudent preparation by the port (government or public landlord).

(4) Specific Features of Various Port Management Types

The following Table15.2 shows the merits and demerits of each pattern of port management and operation.

Among these, the "Land-lord Port" type is popular in major ports of the world including Japan and neighboring Asian ports. The port management bodies of these ports play the role only of the "Land-lord". It is desirable to shift the port management system gradually from the "Service Port" to the "Landlord Port".

Table 15.2 Merits and Demerits of Each Pattern of Port Management and Operation

Type	Merits	Demerits
Service Port (Public sector operates port)	Since public sector owns berths, public sector can improve facilities or equipment easily in case of need according to a master plan in the future.	Cargo handling efficiency of public sector is lower compared with the private sector due to the absence of competition in the market.
Landlord Port (public sector provide facilities and private sector operates)	In the case of need in the future, public sector can improve facilities and equipments according to the master plan since it owns the land, although the berths are occupied by a private sector.	Since the public sector is responsible for construction work, public sector needs to provide funds.
Private Initiative Port (BOT or BTO)	- In case of need according in the future, public sector can improve facilities and equipments according to the master plan since it owns land, although the private company occupies the berths. - Since a private company reclaims land from the sea and builds the berth, public sector does not need to provide funds.	- In the case that a private company performs reclamation, inappropriate development of public property cannot be prevented. Therefore the master plan should be drawn by the public sector.
Private Initiative Port (BOO)	- Since a private company reclaims land from the sea and builds the berth, public sector does not need to provide funds.	- Because the berth are owned by a private company for a long period, public sector can not improve port facilities and equipments easily in case of need for the implementation of own development plan in the future. In particular, in the case that main berths of the port are occupied by specific shipping companies, there is a risk that public sector cannot control the port.

Source: JICA Study Team

15.4 Examples of Port Privatization in Other Countries

Port development projects by PSP in neighboring Asian ports are shown in Table 14.3.

Table 15.3 Examples of Port PSP Projects in Neighboring Asian Ports

Name of Country	Name of Port	Outline of Project	Type of PSP	Contract Period	Progress Situation	Contractor (Developer/Operator)
Indonesia	Tg. Priok	Container Terminal 3 450m(-14m)	JO	-	Full open on 1998.2	PT. HUMUPUSS TERMINAL PETI KEMAS
	Kota Baru	Coal Terminal	BOT	30 years	Full open	PT. Indonesia Bulk Terminal
Thailand	Laem Chabang	Container Terminal 400m Container Yard 18ha	BOT	30 years *1)	Full open	Laem Chabang Inter-national Terminal Co.Ltd. (LCIT)
	Laem Chabang	Container Terminal	Lease	12 years	Full open	Laem Chabang container Terminal (LCB)
Malaysia	Port Klang	Development of West Port	BOT	30 years	Full open	Kelang Multi Terminal Sdn Bhd (KMT)
Myanmer	Yangon	Container Terminal 4 berths 1,000m, Yard 75 ha	BOT	25 years	Full open	Myanmer International Terminals Thilawa, C&R
People's Republic of China	Hong kong	Container Terminal No.9 4 berths 1,280m, Yard 60ha	JV and BOT	50 years	Full open	Modern Terminal Ltd., Jardine Matheson Ltd., Hong kong International Terminal Ltd.
	Yantian	Container Terminal 6 berths, Yard 118 ha	JV	50 years	Full open	Yantian International Container Terminals (YICT)
	Dalian	Consulting for redevelopment of Donggang	JV	-	Signed in Nov. 1998	Dalian Marina Centre Development Co. (DMCDC)
Korea	Pusan	Container Terminal	Lease	25 Years	Full open	4 shipping companies

Note: *1) with a further 5 year renewable option

Source: JICA Study Team

(1) Laem Chabang in Thailand

At the first satage of Laem Chabang Port in Thailand, the government of Thailand initiated the project by creating basic infrastructures such as the breakwater, navigation channel and basin as well as access road to the trunk highway. Initial berths were also developed by the public sector using ODA and the berths were leased to private operators except for the first berth, which was operated directly by the Port Authority of Thailand.
Construction and operation of the following container terminal at Laem Chabang Port was left to a tender, based on a BOT style in 1996. The terminal started part of its operation in December 1997, and begun full-scale operation in 1998. Under the BOT-based contract, the operator had to build infrastructures such as quay wall and all necessary facilities. The operator was required to pay construction costs as well as the rent.

(2) Manzanillo Terminal at Panama

At the Atlantic side of the Panama canal, a local automobile importer and an American stevedoring company jointly invested for a new container terminal development. The site was situated in the protected basin of Panama Canal system, but the new terminal had to build quay walls, a turning basin and a independent channel to connect the terminal to the sea in order not to disturb operation of the Canal traffic. The cost spent for modification of the breakwater, dredging of the channel, the basin and the access road were considered as parts of the public works but developed by the operator. The Government later reimbursed the cost to the operator by adjustment with concession fee payment.

The project attracted large container transshipment business because of its strategic location as the cross road connecting the two big ocean sea-lanes. Later, the stevedoring company, the original partner, bought the local share of the terminal. With the success of this terminal, Evergreen followed the suit at the neighboring site called Coco-Solo. Then Hutchison took Balboa and Christobal. Although those terminals handle a large number of containers, financial contribution to the local government is still very limited, partly due to the contract conditions and system of management by the government.

15.5 Risks Involved with Private Sector Participation for Port Development and Operation

(1) Risks for the Private Sector

In a PFI project, both the public and private entities have to take various risks. The risks faced by the private sector are listed in the Table 15.4.

In principle, PFI system is well designed and the government and the private sector are in a win-win situation. However, there are often many hitches to be overcome over the course of an actual project. For example, in a highway project in a certain country, the project could not be completed at the final moment of the construction because the government did not agree the toll rate proposed by the private contractor. Accordingly, the contractor abandoned the project and failed to recover the majority of the investment.

Table 15.4 Risks of PSP Projects

Possible Risks	Contents of Risks
1. Funding	- Private sector must take all risks from funding to recovery of the investment. - Investors tend to be obliged in non-profitable infrastructure developments such as a channel dredging and land acquisition. - Construction costs tend to increase. - Extra insurance and interest payments may be required by delay of the project even caused by other than the responsibility of the contractor.
2. Administrative procedure	- Time consuming procedure to obtain approval of investment, including EIA, relevant registration, relocation and compensation of people and/or other rights etc. - Government policy may change according to the social and political environment.
3. Financial risks	- Long-term period of payment often brings financial risks such as a foreign exchange risk and inflation.
4. Tariff	- Government often exclusively and uniformly regulates tariff system. - The private sector has no discretion to amend the tariff in line with inflation rates.
5. Cargo volume	- There is always a danger that “cargo volume” will be less than the original projection.

Source: JICA Study Team

In an electric power plant project in another country, sudden drop in the local currency value caused a problem for the project. The private investor tried to recover its investment by raising power price, or rather maintaining in terms of foreign currency, but the government rejected this in order to keep utility price unchanged.

Although those cases are extreme examples, there are many risks for the project contractor because the success of the scheme depends greatly on the demand forecast and financial projection. Consequently, the success of a project often depends on accurate initial projections and a sufficient risk margin.

(2) Risks for the Public Sector

Due to the high risk involved in the BOT business, the number of players has been reduced to five

big operators, which collectively manage more than 60 % of the world's major container terminals. Under these circumstances, a port authority usually has less information on the worldwide container terminal market. Those mega-operators always have more information and vast experiences in the terminal contract negotiations.

Many of those mega-operators manage ports through nominal subsidiary companies registered at tax-haven countries. They normally do not put their stock on the market and are not obliged to disclose their business information. This often results in an unfavorable contract for the port.
According to an article of a container journal, one terminal operator in a country has obtained permission from the government to discontinue its concession fee payment to the authority because of its financial burden for an additional expansion project. This permission was obtained by earlier threatening to cancel the contract if its concession contract was not revised and its annual payment annulled. Other operators in the neighboring ports then followed suit. The case is still unsettled in the court.

Time required for the negotiation is another problem for the concession negotiation. Usually the applicant (operator) has a large terminal network in the international container system and has no need to hastily conclude contract with a port unless the operator can obtain very favorable conditions. The port authority, however, desires to reach an agreement as soon as possible. Therefore, the more time spent on the negotiations, the more likely it is that the operator will obtain advantageous conditions.

Sometimes, an operator will promise a terminal construction but by various excuses postpone implementation. By so doing, the operator hopes to thwart potential development of the site by a competitor. The concession contract frequently accompanies a clause that restricts similar terminal development within the vicinity (5 to 30 km radius) of the terminal without the consent of the operator. This kills not only the opportunity for further development of the port but also discourage competition.

15.6 Establishment of Transparent Procedure for PSP

It is desirable that the government should establish a strict and concrete "selection criteria" of PSP applicants. Arbitrary selection criteria will certainly create distrust among the investors. In order to attract foreign investors, the preparation of a guideline, which plainly explains the framework of PSP of the country, is also very useful. Furthermore, the government should make every effort to open the PSP-related information to the public as much as possible in order to upgrade the quality of the PSP system.

(1) Keys to Successful Privatization

- The government should not expect easy money from private investors.
- Private investors never invest for unprofitable project

15.7 Recommendation

Successful introduction of PSP depends on various factors. Interests and expectation of the public and the private sector have to be compromised.

(1) The public sector expects reduction of financial burden by PSP. The government tends to expect not only reduction of saving of budget deficit, but also expects larger revenue from the private operator/concessionaire.
(2) A private sector always pursues profit. Without prospect of enough profitability, a private investor will never invest.
(3) Estimated profit must have sufficient safety margin to compensate possible risks, which includes government interference, political, economic and social stabilities.

Consequently, the public sector should not have excessive expectation over the PSP. The government must recognize that PSP does not eliminate entire financial responsibility or burden of the public sector. A successful PSP project is only achievable by prudent preparation by the port (government or public landlord).

Chapter 16 Port Administration

16.1 General

16.1.1 Present Situation

At present, there are more than 2,000 ports and about 420 fishing ports in the Philippines. The former Ports in the Philippines are classified into two categories. One is 1,607 public ports which are built and managed by public sector and the other is 423 private ports built and managed by the private sector. Private ports are divided into two categories; one is private-private ports for exclusive private use, and the other is private-commercial ports for public use.

Most ports are under the control of the PPA or CPA. These Port Authorities are qualified legally to check and control all the ports including private ports from the viewpoint of efficient port operation and regional development. PPA and CPA are under the supervision of DOTC for the purposes of policy coordination. However, there are other public port development bodies (PPDBs) such as RPMA, SBMA, BCDA, PIA and CEZA. Ports of these organizations seem to be actually planned, constructed, managed, and operated independently from the control of PPA. In addition, there are a lot of small fishing ports managed by the Philippine Fishery Development Authority (PFDA) and LGUs (Local Government Units). Table 16.1.1 and 16.1.2 show the number of ports and the classification of port management/operation bodies in the Philippines respectively.

Apart from Public Port Development Bodies (hereinafter referred to as PPDBs, i.e., PIA, BCDA, SBMA, CEZA and RPMA) that control their specific ports, the supreme organization on port administration is the DOTC in the Philippines. DOTC has several attached corporations including PPA and CPA. Both Port Authorities have the legal power to plan, design, construct, manage and operate almost all the major ports in the Philippines. DOTC is in charge of the promotion, development and regulation of a dependable and coordinated network transportation system in which port network system is one of the most important elements. In addition, DOTC is in charge of port development of small ports.
There are lots of small LGU ports and several hundred private ports. The LGU ports include "government ports" which have been constructed by the central government, and "municipal ports" that are planned, constructed and managed by the municipal governments (This definition is by PPA). Some of government ports are transferred to municipal governments, The private ports are planned, constructed, managed and operated with the private company’s own finance.

Although fishing ports are basically used for fishing activities, many fishing ports are also used for transporting commercial goods other than fishery product as well as passengers living in isolated islands. In 1995, PPA and PFDA reached an agreement whereby commercial cargo or non-fish commodities could be handled at fishing ports. The memorandum is shown in the Appendix. The

memorandum allows fishing ports under PFDA to handle commercial cargo under specific conditions; namely, the fishing port obtains permission from PPA or PPA asks fishing ports to handle commercial cargoes under emergency situations.

Table 16.1.1 Number of Ports in the Philippines

Body / Region	Base Port	Terminal Port *1	Local Port	PPDBs' Ports excluding Ports under RPMA	Private Port	Total	Fishing Port
	PPA / CPA /RPMA	PPA / CPA / RPMA	LGUs				
NCR	2	2	-		49	53	3
I	0	2	45	1 (BCDA)	11	59	17
II	0	1	38	1 (CEZA)	4	44	22
III	1	2	34	1 (SBMA)	17	55	16
IV-A	1	6	130	-	33	170	72
IV-B	2	10	134	-	19	165	
V	1	8	128	-	17	154	58
VI	2	12	114	-	41	169	49
VII	2	9	57	-	17	85	38
VII (CPA*1)	1	41	23	-	71	136	
VIII	1	13	214	-	21	249	35
IX	1	5	64	-	16	86	21
X	3	8	59	1 (PIA)	33	104	16
XI	1	1	35	-	21	58	17
XII	1	2	19	-	13	35	8
XIII	2	10	201	-	29	242	31
ARMM *2	3	79	70	-	7	159	18
ARMM (PPA)	1	2	-	-	4	7	
Others *3	-	1	4	-	-	5	-
Total	25	214	1,369	4	423	2,035	421

Source: PPA, CPA, DOTC and Other Public Port Development Bodies.

2000 Quinquennial Inventory of Ports in December 1999 (NSCB) [Number of Fishing Ports]

Note: PPA & CPA Ports are listed as of January 2003. LGUs Ports are as of March 2000.

Note: *1 indicates CPA Port. Terminal ports are called Out ports in CPA.

Note: *2 indicates port(s) under Regional Ports Management Authority in ARMM.

Terminal Ports are called Sub ports in RPMA. Some of the ports are still under PPA's jurisdiction..

Note *3 Others refers to ports which cannot be classified due to the lack of detailed data.

Note: Other Public Ports are under the jurisdiction of SBMA / BCDA/ CEZ/ PIA.

Table16.1.2 Classification of Port Authority / PPBB and Number of Ports

(As of November 2003)

Public or Private	Classification (Port Authority / PPDB)		Number of Ports
	Port Authority / PPDB	Ports	
Public Ports	PPA	Base Port	21
		Terminal Port	93
		PPA-Total	114
	CPA	Base Port	1
		Out ports	41
		CPA-Total	42
	Municipality (LGUs), PPA, CPA	LGUs Ports	1,365
	RPMA (ARMM Region)	Base Port	3
		Sub ports	79
		RPMA-Total	82
		Sub-Total (a)	**1,603**
	SBMA	Subic Port	1
	BCDA(JPDC)	San Fernando Port	1
	P I A	Port (Northern Mindanao Port)	1
	CEZA	Irene Port	1
		Sub-Total (b)	**4**
	Total (1) = Sub total (a) + (b)		**1,607**
Private Ports	Private company	Commercial (Public)	30
		Non-Commercial (Private)	393
	Total (2)		**423**
Others	* There are no detailed data		**5**
	Total (3) = (1)+(2)+Others		**2,035**
Fishing ports (Dec 1999)	PFDA	Major Fishing Ports	*8
	PFDA+LGU, LGU	Other Fishing Ports	413

Note: ARMM: Autonomous Region in Muslim Mindanao
RPMA: Regional Ports Management Authority (ARMM)
SBMA: Subic Bay Metropolitan Authority
BCDA: Base Conversion Development Authority
JPDC: John Hay Poro Point Development Corporation
PIA: PHIVIDEC Industrial Authority
CEZA: Cagayan Economic Zone Authority

Source: JICA STUDY TEAM based on the analysis of DOTC, DA, PPA, CPA and other public port development bodies' data.

16.1.2 History

When MOTC, the predecessor of DOTC, was born in 1979, design and actual construction works of port development had been undertaken by MPW (at present DPWH). In 1987, PPA became an attached corporation of DOTC, and was responsible for undertaking all stages of port development from planning through management & operation of major ports under its port system. However, DOTC did not play a significant role in port development because engineering design and construction works of ports other than those under the so called PPA port system were still undertaken by DPWH. After that, feeder ports and fishing ports projects were transferred to DOTC in 1991. DOTC began to start design and construction works of feeder ports projects as well as LGU port projects in 1993. However, foreign assisted feeder ports development projects that account for a large part of port development by DOTC have been undertaken so far by a detached Project Management Office for Ports that moved from DPWH to DOTC in 1991.

At present, the head office of DOTC is in charge of budgeting for development of small ports such as LGU ports including appropriation for domestic cost of the foreign assisted ports development projects.
A chronology of events related to port development in the Philippines is shown in the following table.

Table 16.1.3 Port Development in the Philippines (1/2)

Year	Events, Institutional Changes and others
～74	● Implementation of maintenance and repair of existing port facilities by Bureau of Public Works
1974	● Philippine Ports Authority (hereinafter referred to as PPA) is set up as an affiliate of the Ministry of Public Works, Transportation and Communications (hereinafter referred to as MPWTC). ● Phividec Industrial Authority (hereinafter referred to as PIA) is created by Presidential Decree (hereinafter referred to as P.D.) No. 538
1975	● PPA is legally created by P.D. No. 857, responsible for planning, developing, financing, operation and maintenance of ports facilities in the entire Philippines. However design and construction works continue to be undertaken by MPWTC.
1979	● MPWTC is split off into two ministries : the Ministry of Transportation and Communications (hereinafter referred to as MOTC) and the Ministry of Public Works. PPA belongs to the Ministry of Public Works. Design and construction works continue to be undertaken by the Ministry of Public Works (hereinafter referred to as MPW).
1980	● Project Executive Committee and Project Management Office (hereinafter referred to as PMO) are created in the MPW to undertake the detailed engineering design and construction/supervision of five(5) fishing ports. ● Fishing Ports Package I is extended by OECF to the Government of the Philippines.

Table16.1.3 Port Development in the Philippines (2/2)

Year	Events, Institutional Changes and others
1981	● MPW expands its functions to MPWH by absorbing the Ministry of Public Highways. ● PPA moves from MPWH to MOTC, however design and construction works continue to be undertaken by the Ministry of Public Works & Highways.
1987	● "Ministry" is replaced by "Department" ● PPA becomes an attached corporation of DOTC, responsible for planning, detailed engineering, construction, expansion, rehabilitation and capital dredging of all ports under its port system. ● However, other port development works including design and construction of feeder ports, fishing port and municipal ports continue to be undertaken by DPWH
1989	● Autonomous Region in Muslim Mindanao is created by Republic Act (hereinafter referred to as R.A.) No. 6734
1990	● NEDA Board approves the delineation of institutional responsibilities in the administration of municipal/tertiary/feeder ports wherein DOTC shall take the programming and implementation of these projects.
1991	● DPWH transfers all feeder ports and fishing ports project under DPWH to DOTC
1992	● Cebu Port Authority is created by R.A. No. 7621 ● Bases Conversion and Development Authority (hereinafter referred to as BCDA) and Subic Bay Metropolitan Authority (hereinafter referred to as SBMA) are created by R.A. No. 7227
1993	● Start of construction for the feeder port project under DOTC
1995	● Cagayan Economic Zone Authority is created by R.A. No. 7922
1998	● Interim Regional Ports Authority (IRPA), the predecessor of the RPMA, was organized through E.O. No. 11 Series of 1998. (ARMM)
2002	● RPMA was organized by the E.O. No.2 Series of 2002. (ARMM)
2002	● Start of the study on the Master Plan for the Strategic Development of the National Port System in the Republic of the Philippines

16.2 Port Related Organizations

At present, port development is conducted by DOTC including PPA and CPA as its attached corporations, PPDBs not under the DOTC as well as private companies. An outline of each organization is given below.

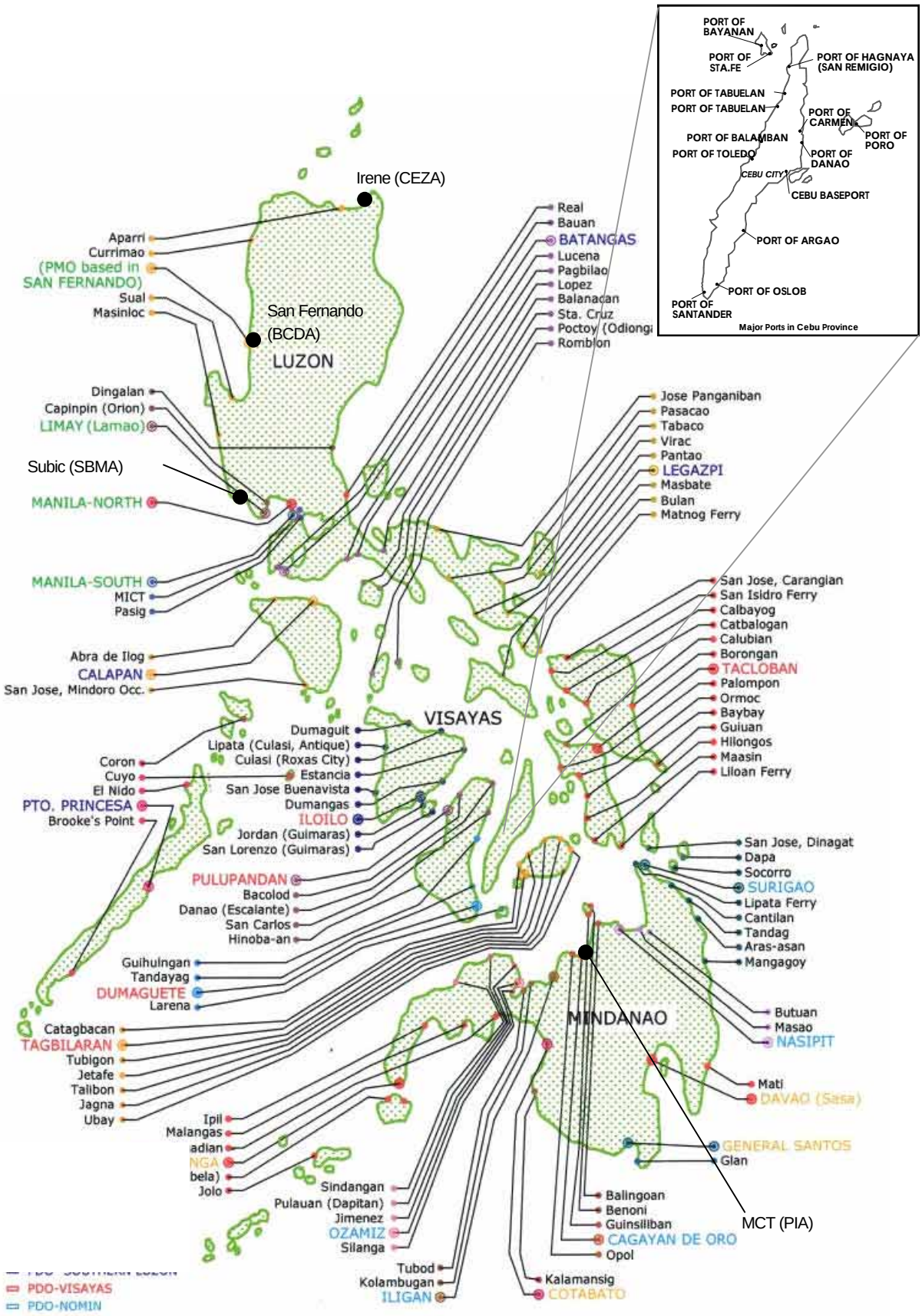


Figure 16.2.1 Location of Major Ports in the Philippines

16.2.1 Department of Transportation and Communications(DOTC)

Prior to 1979, matters pertaining to the country's transportation and communications networks were under the control of the Ministry of Public Works Transportation and Communications (MPWTC). At the end of the 1970's, in order to meet the needs of the times, MPWTC was divided into two Ministries: the Ministry of Transportation and Communications (MOTC) and the Ministry of Public Works.

In February 1987, former Ministry of Transportation and Communications become the Department of Transportation and Communications (DOTC). The DOTC has assumed the mandate of the MOTC as enunciated in Executive Order No. 125 entitled "Reorganization Act of the Ministry of Transportation and Communications".

DOTC is the primary policy, planning, programming, coordinating, implementing, regulating, and administrative entity of the Executive Branch of the government in the promotion, development, and regulation of a dependable and coordinated network transportation system. DOTC is also responsible for coordinating with the Department of Public Works and Highways in the design, location, development, rehabilitation, improvement, construction, maintenance and repair of all infrastructure projects and facilities including ports. (See Appendix Table A. Section 4 and Section 5 of E.O. No. 125)

On the other hand, DOTC is in charge of development of LGU ports using not only Philippine government's budget but also foreign loans. When PPA became an attached corporation of DOTC in 1987, feeder-port projects, fishing port projects and port development of LGUs were undertaken by DPWH. In 1990 NEDA approved the delineation of institutional responsibility in port administration. In 1991, a Memorandum of Agreement by and between the two Departments was exchanged, and port related projects moved from DPWH to DOTC. Since then, DOTC has been budgeting for LGU ports development including application of foreign loans. PMO-Ports is responsible for design and supervision of construction works.

After completion of small ports for LGUs, DOTC turns them over to PPA. Some ports constructed with foreign loans are transferred to LGUs directly. PPA insists that these ports should be turned over to PPA once and then transferred to LGUs based on the agreement between PPA and LGUs. According to PPA, this procedure is a must because LGU may stop managing a port if the mayor or governor changes. This problem has not been settled.

At present DOTC has five sectoral/line offices, nine attached corporations and six attached agencies to carry out its mandate. The organization chart of the office of the Secretary of the DOTC, and the names of the attached corporations and agencies are shown in Appendix Figure A.16.2.1 and A.16.2.2 respectively.

Among these organizations, those that are related to port development are Water Transport Planning Division of Transportation Planning Service, PMO-Ports and Project Management Service. These three belong to the Office of the Secretary. Both PPA (Philippine Ports Authority) and CPA (Cebu Port Authority) are also in charge of port development. The function and policies of these five organizations are mentioned below.

(1) Water Transport Planning Division (WTPD)

Water Transport Planning Division of Transportation Planning Service is in charge of the following port related activities. Main functions of the Water Transport Planning Division are as follows:

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

The Water Transport Planning Division carries out the following specific tasks for small ports.

a) Formulation of policies on port development;
b) Undertaking of feasibility study to look into the viability of proposals;
c) Preparatory work for ODA Project;
d) Work for maritime safety closely coordinated with Philippine Coast Guard (PCG)

The purpose of b) regarding port development at LGU ports is to judge whether or not the proposal from the local municipality has a clear social need. Request for port development from local governments through the office of the President, Congressman, Secretary and Director are gathered in this division. These requests are prioritized taking into account all elements in this division. After taking into consideration the budget, a decision on which ports will be developed is made.

(2) Project Management Office for Ports (PMO-Ports)

In 1980, Ministry Order No.80-45 was signed creating a Project Executive Committee (EXECOM) and a Project Management Office (PMO) under the supervision and management of MPW mandated to undertake the detailed engineering design and constructive/supervision of 5 fishing ports**:** namely Iloilo, Lucena, Zamboanga, Bicol and Pangasinan Fishing Ports.

A Task Force was organized with the assistance of the Japan International Cooperation Agency (JICA) and a Nationwide Feeder Port Development Program was formulated. OECF Loan Agreement was signed for the implementation of 27 Nationwide Feeder Ports Development Program. In 1989 consultancy service for the Nationwide Feeder Ports Development Project commenced.

In 1990, NEDA Board approved the delineation of institutional responsibility in the administration of municipal/tertiary/feeder ports wherein DOTC was given responsibility for the programming and implementation of these projects. In 1991 based on a Memorandum of Agreement, all feeder ports and fishing port projects under DPWH were transferred to DOTC. At the same time PMO was also transferred to DOTC. In 1993 construction for the feeder port project under DOTC started, and OECF Loan Agreement was signed for the implementation of the Social Reform Related Feeder Ports Development Project (SRRFPDP) involving the construction/rehabilitation of 36 feeder ports in 1997.

The function and duties of the PMO include but are not limited to the following.

a) Preparation of annual capital and operating budgets and programs of the projects for the approval of the department, and arranging for funding support.
b) Act as secretariat of DOTC Pre-qualification, Bid and Award Committee (PBAC) for the pre-qualification and selection of Consultants and Contractors.
c) Ensuring consistency of construction activities with the approved plans and specifications.
d) Recommendation on the approval of plans, specifications, estimates, program of works, tender proposals, awards of contract and contract documents for the projects.
e) Monitoring and supervision of the overall project execution.
f) Undertake such other function as maybe assigned by the Department.

PMO-Ports is in charge of ODA-related projects. At present, this office is undertaking JBIC financed Feeder Ports Development project. This project is to construct/rehabilitate 36 feeder ports in region II, IV, VI, VII, VIII, XII and XIII and is scheduled to be completed in April 2006. Organization Chart is shown in Appendix Figure A.

(3) Project Management Service (PMS)

Project Management Service (PMS) of DOTC was created under Executive Order No.125-A in 1992. (See Appendix 7.1) It is the implementing arm of the DOTC, which performs the task of infrastructure project management to ensure the completion of locally-funded airports, municipal ports, LTO (Land Transportation Office) and LTFRB (Land Transportation Franchising Regulatory Boabd) office building projects.
Project Management Service (PMS) is responsible for monitoring the progress of the projects, ensuring its compliance with the conditions of the contract, and ensuring that the projects conform to all applicable policies, directives, laws and regulations. PMS provides expertise in design, construction and project management

16.2.2 Philippine Ports Authority (PPA)

(1) Outline

The Philippine Ports Authority (PPA) is the main government agency concerned with the planning and development of the country's seaports, a vital link in both domestic and international trade. Established in 1974, the PPA's charter was amended by Executive Order 857 to expand its functions to cover the integration and coordination of port development nationwide.

PPA has more than 4,300 staff including casual and contractual laborers, and many of them have a lot of knowledge and experience related to ports and harbors. Therefore PPA plays a very important role in port development, administration and management. However, PPA has been criticized because it has the power to control all port activities.

PPA is a financially autonomous organization and is not permitted to fall into deficit. On the other hand, PPA is forced to be responsible for all ports under the PPA port system.

Aside from its traditional function of harbor development and cargo handling operations, the PPA has gone into total port district development, including the full use of the ports' hinterland and tributary areas. Its tasks also include ensuring the smooth flow of waterborne commerce passing through the country's ports, especially in the conduct of domestic and international trade.

The PPA is governed by a Board of Directors, while its management is exercised by its general manager. The general manager is assisted by three assistant general managers for engineering, operations, and finance-legal-administrative and management services. All port district regions--such as those in Luzon, Visayas, Northern and Southern Mindanao-- are under the supervision of the assistant general manager for operation.

(2) Objectives

The objectives of PPA are as follows:

a) To coordinate, streamline, improve and optimize the planning, development, financing, construction, maintenance and operation of ports, port facilities, port physical plants, and all equipment used in connection with the operation of a port.
b) To ensure the smooth flow of water borne commerce passing through the country's ports whether public or private, in the conduct of international and domestic trade.
c) To promote regional development through the dispersal of industries and commercial activities throughout the different regions.
d) To foster inter-island sea borne commerce and foreign trade
e) To redirect and reorganize port administration beyond its specific and traditional function of harbor development and cargo handling operation to the broader function of total port district development, including encouraging the full and efficient utilization of the port's hinterland and tributary areas.
f) To ensure that all income and revenue accruing out of dues, rates, and charges for the use of facilities and services provided by the Authority are properly collected and accounted for by the Authority, that such income and service (inclusive of operating and maintenance cost of, administration and overhead) of the Port District, and ensure that a reasonable return on the asset employed shall be realized.

(3) Functions

PPA has the following functions to realize the above objectives. They are stated in the PPA Charter.

Firstly, PPA is to formulate in coordination with the National Economic and Development Authority a comprehensive and practical Port Development Plan for the State and to program its implementation, renew and update the same annually in coordination with other national agencies. PPA had played this role in name and in reality until CPA and other government organizations responsible for a port/ports were created in the 1990's. At present, PPA formulates a comprehensive and practical port development plan for ports under the PPA port system. This plan is quite important because ports under the PPA system handle most of the cargo in the Philippines.
PPA has the following duties and power as the port authority.

a) To supervise, control, regulate, construct, maintain, operate, and provide such facilities or services as are necessary in the ports vested in, or belonging to the Authority
b) To prescribe rules and regulations, procedures, and guidelines governing the establishment, construction, maintenance, and operation of all ports, including private ports in the country
c) To license, control, regulate, supervise any construction or structure within any Port District

d) To provide services (whether on its own, by contract, or otherwise) within the Port District and approaches thereof, including but not limited to- berthing, towing, mooring, moving, slipping, or docking any vessel; loading or discharging any vessel; sorting, weighing, measuring, warehousing, or otherwise, handling goods
e) To make or enter contract of any kind or nature to enable it to discharge its function under this Decree
f) To acquire, purchase, own, lease, mortgage, sell, or otherwise dispose of any land, port facility, wharf, quay, or property of any kind, whether movable or immovable
g) To exercise the right of eminent domain, by expropriating the land or area surrounding the port of harbor, which in the opinion of the Authority, are vital or necessary for the total development of the Port District
h) To levy dues, rates or charge for the use of the premises, works, appliances, facilities, or for services provided by or belonging to the Authority or any other organization concerned with port operations

Notwithstanding the above duties and powers PPA had been responsible for the planning, detailed engineering, construction, expansion, rehabilitation and capital dredging of all ports under its port system. However, this year PPA changed this policy and is now able to use its own funds for development of ports outside its port system.

(4) Administration Transfer of Government Ports

In principle, government ports are administered by PPA. However the following ports may be transferred from PPA to LGUs / government corporations in receipt of application from the LGU or government corporation for the transfer, and they may be managed, operated, maintained and developed by LGUs / government corporations. This is stipulated in a guideline entitled "Guideline on the transfer of the administration of government ports by local government units and government corporations."

1) Government ports which, under the provisions of P.D. 857 as amended are under the jurisdiction of the PPA but which are outside the updated PPA Port System and with an average annual cargo throughput of not more than 50,000 metric tons over a 3-year period.
2) Only ports within the municipality and jurisdiction of the LGU may be managed, operated, maintained, and developed by said LGU.

The PPA is obliged to act on any application from the LGU / government corporation within ninety (90) days from receipt hereof, provided that the application is approved and supported by a Sangguniang Resolution for such purpose.

(5) Port District Office (PDO)

1) PPA has five PDOs and their functions are as follows.

a) Supervises the operation of ports and ensures the implementation of all operating and management policies, systems and procedure as well as performance standards
b) Directs and controls the activities to ensure safe and efficient management and operation of ports within the district
c) Provides legal services and handles the recruitment of port personnel within the port district
d) Develops a port facilities and equipment maintenance program and undertakes the implementation of the same
e) Enhances usage of port facilities and services
f) Ensures the proper implementation of rules and regulations in the development and operation of private ports under PDO jurisdiction
g) Establishes and maintains harmonious relationship with relevant government agencies and private sectors under PDO jurisdiction
h) Performs related functions

2) Location and PMOs (Port Management Offices) of Five PDO offices are mentioned below.

a) PDO Manila and Northern Luzon
The Port District Office of Manila and Northern Luzon, situated at the head of the Manila Bay on the west coast of Luzon Island, is where the country's premier port of entry is located and is, therefore, a main link to the major ports of the world. Under PDO Manila are the Port Management Offices of North Harbor, South Harbor, San Fernando, Limay and the Manila International Container Terminal Office.
b) PDO Southern Luzon
All ports in the Luzon Island, other than of PDO Manila and Northern Luzon, from the northern to the southern part of Luzon including the island of Palawn, are under the jurisdiction of PDO Southern Luzon. The PMOs under it are Batangas, Legazpi, Puerto Princesa, Masbate and Calapan. The office is located in Manila.
c) PDO Visayas
Under PDO Visayas are the five (5) PMOs of Dumaguete, Iloilo, Pulupandan, Tecloban and Tagbilaran. The office is situated in Cebu city
d) PDO Northern Mindanao
Under PDO Northern Mindanao are the five (5) PMOs of Cagayan de Oro, Iligan, Nasipit, Ozamis and Surigao.The office is located in Cagayan De Oro City
e) PDO Southern Mindanao
Under PDO Southern Mindanao are the four (4) PMOs of Davao, General Santos, Cotabato and Zamboanga. The office is located in Davao city.

16.2.3 Cebu Port Authority (CPA)

(1) Outline

CPA spun off from PPA in 1992 as part of the government policy of decentralization. The territorial jurisdiction of the Authority (CPA) includes all seas, lakes, rivers and all other navigable inland waterways within the Province of Cebu, including the City of Cebu and all highly urbanized cities which may hereafter be created therein.

CPA serves to integrate and coordinate the planning, development, construction and operation of ports and port facilities within its territorial jurisdiction, consistent with the needs and requirements of the region. It enhances the flow of international and domestic commerce passing through or utilizing the regional ports. It promotes regional development by providing support service to sustain the growth of export and other priority industry in the region.

The power and function of the Authority is vested in and exercised by a Cebu Port Commission composed of a Chairman, a vice Chairman and five (5) other Commissioners. The Chairman is the Secretary of DOTC or his duly designated undersecretary. The Vice Chairman is designated as the Cebu Port General Manager elected by the Commissioners from among themselves. Five commissioners are appointed by the President of the Philippines.

(2) Objectives

CPA has the following purpose and objectives:

a) To integrate and coordinate the planning, development, construction and operation of all ports and ports facilities within its territorial jurisdiction consistent with the needs and requirement of the region;
b) To enhance the flow of international and domestic commerce passing through or utilizing the regional ports; and
c) To promote regional development by providing support service to sustain the growth of export and other priority industries in the region.

(3) Functions

CPA has the following powers and functions to realize its objectives. They are prescribed in the CPA charter. The powers and functions of the Commission, which is the supreme decision-making organization, are:

a) To investigate, prepare, adopt, implement and execute a comprehensive and orderly plan for the

overall development of all ports within its territorial jurisdiction, and to update such plans, as may be warranted from time to time;

b) To manage, administer, operate, maintain, improve and develop, coordinate and otherwise govern the activities of all the ports within its territorial jurisdiction.

In addition, CPA has the power to levy dues and impose rates and charges for the use of the premises, works, appliances, facilities, or for services provided by or belonging to CPA, or any other organization concerned with port operations.

According to CPA Administrative Order No. 01 - 2000, the relationship between municipal ports and CPA is as follows. CPA has the power of supervision, regulation and jurisdiction over the administration, development and operation of municipal ports for the purpose of implementing an integrated program of port planning, maintenance, development and operation of all ports throughout the territorial jurisdiction of CPA. No municipal port can be constructed without permission from the Authority.

The municipality or city that owns a pier or wharf may operate the same directly or award its operation and administration to a private contractor who secures a permit from CPA to operate cargo handling services thereat, subject to the payment of privilege fee to CPA which determines the same, and to such other conditions which CPA may deem proper to impose.

16.2.4 Bases Conversion and Development Authority (BCDA) and Poro Point Management Corporation (PPMC)

(1) BCDA

1) Outline

BCDA is created based on the Bases Conversion and Development Act in March 1992 by the Republic Act No. 7227 as a regional development authority for accelerating the conversion of military reservations into other productive uses. BCDA has the power to construct, own, lease, operate and maintain public utilities as well as infrastructure facilities.
With regard to port development, the San Fernando Seaport was turned over from PPA to BCDA on February 1, 1997.

2) Functions

According to the Republic Act No. 7227, BCDA has the following functions.

a) To own, hold and/or administer the military reservations of John Hay Air Station, Wallace air

Station, O'Donnel Transmitter Station, San Miguel Naval Communication Station, Mt. Sta. Rita Station (Hermosa,, Bataan) and those portions of Metro Manila military camps which may be transferred to it by the President;

b) To adopt, prepare and implement a comprehensive and detailed development plan embodying a list of projects including but not limited to those provided in the Legistative-Executive Bases Council (LEBC) framework plan for the sound and balanced conversion of the Clark and Subic military reservations and their extensions consistent with ecological and environmental standards, into other productive uses to promote the economic and social development of Central Luzon in particular and the country in general:
c) To encourage the active participation of the private sector in transforming the Clark and Subic military reservations and their extension into other productive uses;
d) To serve as the holding company of subsidiary companies created pursuant to Section 16 of this Act and to invest in Special Economic Zones declared under Sections 12 and 15 of this Act;
e) To manage and operate through private sector companies development projects outside the jurisdiction of subsidiary companies and Special Economic Zones declared by presidential proclamations and established under this Act;
f) To establish a mechanism in coordination regarding the plans, programs and projects within the regions where such plans, programs and /or project development are part of the conversion of the Clark and Subic military reservations and their extensions and the surrounding communities as envisioned in this Act; and
g) To plan, program and undertake the readjustment, relocation, or resettlement of population within the Clark and Subic military reservations and their extensions as may be deemed necessary and beneficial by the Conversion Authority, in coordination with the appropriate government agencies and local government units.

(2) PPMC

1) Outline

President Proclamation No.216 created the Poro Special Economic and Freeport Zone (PPSEFZ) on 27, July 1993. The PPSEFZ was placed under the ownership, control and jurisdiction of the BCDA, the primary government entity tasked to implement the national bases conversion program. In 1993, Executive Order No. 103 was issued, creating the JPDC to manage the implementation of BCDA's plans and projects for Poro Point and John Hay in Baguio City.
On October 3, 2002, Executive Order No. 132 was issued, creating the Poro Point management Corporation as the implementing arm of the BCDA over the Poro Point Special Economic and Freeport Development Zone.

2) Functions

PPMC operates in two geographical locations namely Poro Point in San Fernando, La Union and Camp John Hay in Baguio City.
The functions of PPMC are stated as follows

a) Management and Administration of the Poro Point Special Economic and Freeport Zone
b) Facilitation and Monitoring of the Development of Seaport, Airport, Agro-Industrial Park, Reclamation Area and Eco-Tourism.
c) Airport Operations
d) Development and implementation of relevant socio-cultural, environmental and community programs
e) Strengthening inter-agency and business linkages
f) Strengthening organizational capability and team work

16.2.5 Subic Bay Metropolitan Authority(SBMA)

(1) Outline

The Subic Bay Freeport and Special (Economic) Zone was created through the Bases Conversion and Development Act in March 1992 by the Republic Act No. 7227. SBMA was designated as an operation and implementing agency to establish the Freeport and to ensure the promotion and development of various kinds of social projects. Organization chart of SBMA is shown in Appendix Figure A. 7.3.6.1. Workforce of the Authority is about 5,100 comprised of 1,570 people from SBSEZ and 3,530 of Freeport Service Cooperation (FSC) respectively. The Seaport Department of SBMA has four divisions: Port Management Division (PMD), Port Operations Division (POD), Terminal Operations Division (TOD), and Port Engineering Division(PED). A total of 234 persons are deployed in its four major divisions.

(2) Functions

SBMA has the following powers and functions:

1) To operate, administer, manage and develop the ship repair and ship building facilities, container port, oil storage and refueling facilities and Cubi Air Base within the Subic Special Economic and Free-port Zone as a free market in accordance with the policies set force in Section 12 of this Act;
2) To undertake and regulate the establishment, operation and maintenance of utilities, other services and infrastructure in the Subic Special Economic Zone including shipping and shipping related business, stevedoring and port terminal service or concessions, incidental thereto and airport operation

The SBMA is developing the 67,000 (55,102 land area, 12,350 water area) hectare area of Subic Bay Freeport(SBF) zone into a self-sustaining industrial, commercial, financial, and investment center to generate, among others things, job opportunities in and around the zone as an operating and implementing arm of the government of the Philippines. The Seaport Department is the implementing arm of the SBMA in the management of the harbor and all the port facilities within the Freeport.

SBMA is now undertaking a container terminal development project using JBIC loan. The bidding procedure is currently under way. The construction work is expected to commence at the beginning of next year (2004)

16.2.6 Phividec Industrial Authority (PIA)

(1) Outline

The Phividec Industrial Authority (PIA) is a corporation which is fully-owned and controlled by the government of the Republic of the Philippines. It was established on August 13, 1974 by Presidential Decree No. 538, as amended by Presidential Decree No. 1491. Although the Phividec is an independent entity by virtue of its organization and financial character, the PIA is a subsidiary of the PHIVIDEC, or the Philippine Veterans Investment Development Corporation by law.

(2) Functions

PIA has the following powers and functions, which are mandated in the Charter, PD 538.

1) To operate, administer and manage the PHIVIDEC Industrial Area and other areas which shall hereafter be proclaimed, designated and specified in subsequent Presidential Proclamation, and to construct, acquire, own, lease, operate, and maintain infrastructure facilities, factory buildings, warehouses, dams reservoirs, water distribution, electric light and power system, telecommunications and transportation networks, or such other facilities and services necessary or useful in the conduct of industry and commerce or in the attainment of the purpose and objectives of the Presidential Decree.
2) To construct, operate and maintain, or otherwise to grant the use of or to rent, lease, or let, for a consideration and under such terms arrangements and conditions it may deem reasonable and proper any and all port facilities including stevedoring and port terminal services, or any concession properly incident thereto or in connection with the receipt, delivery, shipment and transfer in transit, weighing, marking, tagging, fumigating, refrigerating, icing, storing, and handling of goods ware and merchandise.

The development of these sites is in accordance with the Philippine Government's policy to disperse industries to the countryside as a means of equitably distributing resources, and as a vehicle to catalyze and sustain social and economic development in the Philippines. PIA is empowered to assess and collect real property taxes and port fee; collect businesses, such as subsidiaries and joint ventures.

Phividec's container terminal at northern Mindanao is going to be completed by the end of March in 2004.

16.2.7 Cagayan Economic Zone Authority(CEZA)

(1) Outline

The Cagayan Special Economic Zone and Freeport (Cagayan Freeport) is located at the northeastern tip of the Philippines surrounded by the waters of Balintang Channel, China Sea and the Pacific Ocean. It covers the entire Municipality of Sta. Ana and the islands of Fuga, Barit, Mabbag in the province of Cagayan-with approximately 54,000 hectares of urban, suburban and agro-industrial lands for prime development. It is strategically located between the Pacific Ocean and China Sea and enjoys proximity to lucrative overseas markets such as Taiwan, Hong Kong, Japan, Korea, and the People's Republic of China. It is in fact situated at the crossroads of international shipping routes between the West Coast of North America, Far East and Southeast Asia. The Cagayan Freeport was established through Republic Act No. 7822, otherwise known as the Cagayan Economic Zone Act of 1995.

(2) Functions

CEZA is mandated to supervise and manage the development of the Cagayan Special Economic Zone and Freeport (Cagayan Freeport) into a self-sustaining industrial, commercial, financial, and tourism / recreational center and Freeport with suitable retirement/residential areas, in order to create employment opportunities in and around the Cagayan Freeport, and to effectively encourage and attract legitimate and productive local and foreign investments.

16.2.8 Regional Ports Management Authority (RPMA)

(1) Outline

RPMA was established in 2002 replacing the Interim Regional Ports Management Authority, which

was created before the turn-over all ports within the territorial jurisdiction of the ARMM to the Autonomous Regional Government (ARG) primary aimed at strengthening its management and operational capability. The only Government-Owned and Controlled Corporation (GOCC) of the ARMM, RPMA exercises certain power and function of PPA devolved to the ARMM pursuant to E.O. 435 and DOTC D.O. 97-1113. RPMA Main Office is located at the Regional Seat in Cotabato City.

(2) Functions

RPMA is mandated to formulate a comprehensive port development plan, to supervise, control, regulate, construct, maintain, operate, and provide the necessary facilities and services, to prescribe rules and regulations, procedures and guidelines governing the establishment, construction, maintenance and operation of additional both public and private ports, to license, control, regulate and supervise any construction, to provide services including berthing. loading, discharging and so forth, to control and regulate and supervise pilotage, to provide or assist in the provision of training programs and facilities, to exercise corporate power and police authority and to perform such other functions or provide such services as may be deemed proper and necessary to carry out and implement the provisions of the Executive Order.

16.2.9 Philippine Fisheries Development Authority (PFDA)

(1) Outline

PFDA is the government agency entrusted with the promotion of fishing development through harmonization among production activities, port facilities and processing facilities. Created on August 11, 1976, PFDA is vested with powers and responsibilities of promoting the growth of the fishing industry and improving efficiency in the handling, preserving, marketing and distribution of fishery products through the establishment and administration of fishing ports, fish markets and other infrastructure. PFDA has six (6) departments in its head office and has eight (8) local offices which manage main fishing ports. PFDA has 821 personnel in total.

(2) Objectives

In carrying out its duty, the PFDA commits itself to carrying out the following objectives:

1) To construct fishing ports, market building, ice plants and cold storages and other supportive facilities necessary for the efficient handling and distribution of fish and fishery products;
2) To provide fishery-related processing services that improve the quality of fish products to compete in the global market;

3) To encourage development of new products and make necessary arrangements for the growth of private business enterprises;
4) Increase employment opportunities through establishment of new fishery infrastructures and related industries;
5) Promote activities for exporting traditional and non-traditional fishery;
6) Assist small fishermen, fish farmers and other workers in the fishing industry through the provision of services and facilities for raising the value of their production.

(3) Functions

As a government institution, PFDA provides the fishing industry with integrated infrastructures for fishery. Main functions of PFDA are as follows:

1) To manage, operate and develop regional commercial fishing port complexes located in strategic areas of fishing ports in the Philippines;
2) To establish ice plants and cold storage, warehouses, factory buildings and other structures necessary for the development of the fishing industry;
3) To lease commercial and industrial areas in a fishing port;
4) To provide training on the operation and management of inshore fishing ports;
5) To collect, compile, and distribute statistics and information on fishery needed for business activities and policy formulation;
6) To establish and operate quality control laboratories in regional fishing port complexes.

16.2.10 Private Company

Development, construction, and operation of private ports is undertaken by private companies. On the occasion of development of a port, the private company must first get approval from PPA. To obtain approval from PPA, the private company has to conclude a contract with regard to construction, development and operation of the port with PPA. The contract contains a provision that the port will be transferred to the PPA after the contract term (for example, 25 years) expires. During the contract term, the private company as well as shipping company using the port has to contribute 10 % of their income to PPA as a port charge.

16.2.11 Relationship between PPDB and PPA

As mentioned above, other than DOTC and its attached corporations, there are some regional development authorities that develop specific ports at designated areas. According to the various documents given to the study team, there were negotiations and arguments between PPA and each

regional authority over the jurisdiction of specific ports. In most cases, PPA eventually lost jurisdiction over important ports which were once part of the PPA port system. Important revenue sources were thus also lost.

(1) Relationship between PIA and PPA

PIA has gone ahead with a plan to construct a state-of-the-art container terminal in northern Mindanao near the existing Cagayan De Oro port. Although this container berth will adversely affect not only the volume of cargo handled at Cagayan De Oro port but also the revenues earned at the port, the plan was approved by NEDA. The terminal has already been constructed, and the first container ship is scheduled to make a port call this autumn. The memorandum between PIA and PPA is attached in Appendix.

(2) Relationship Between BCDA and PPA

BCDA and PPA were at odds over which authority had jurisdiction over the Port of San Fernando, the base port of PPA port system located inside the designated area of BCDA.

The Land of Poro Point Special Economic and Free Port Zone created by Proclamation No.216 was transferred to the BCDA pursuant to R.A. No. 7227. This Land of Poro Point Special Economic and Free Port Zone was composed of a land area and sea water area, and included the area of the port of San Fernando. Accordingly, BCDA claimed jurisdiction over San Fernando Port. But PPA alleged that Proclamation No. 216 violated PPA's statutory powers to supervise, control, develop, and manage public port facilities within the country and that in the pursuit of State policy stipulated in the Charter, all existing and completed public port facilities and all powers, rights and duties vested in any government agency or instrumentality pertaining to every matter concerning port facilities, port works, and port operation are transferred to PPA under Section 30 and 40 of P.D. No. 857as amended.

In the end, PPA lost not only rights of development and management of San Fernando port, but also the right to collect the government share of port charge, cargo handling charge and whafage at two private ports in BCDA's designated area. The details are mentioned in the Memorandum of Agreement executed by PPA and BCDA on 31 January 1997.

(3) Relationship between SBMA and PPA

SBMA is a special autonomous creation under R.A.7227, the Base Conversion and Development Act of March 1992. It reports directly to the Office of the President. Its port development is only one aspect of its creation as Freeport and Special Economic Zone.
It is said that close coordination is existing between PPA and SBMA as far as port development is

concerned. Port training of SBMA personnel has been sought from PPA who has willingly obliged and supported this activity. Port tariffs are also patterned after the existing PPA Tariffs and PPA-sponsored seminars have been actively participated by SBMA together with other autonomous ports in the Philippines.

(4) Relationship between CEZA and PPA

Republic Act No. 7922, creating Cagayan Special Economic Zone, has effectively transferred the functions of planning, development, management, operation, repair, and maintenance of the port of Irene in Sts. Ana, Cagayan from the PPA to the CEZA. However, at that time, CEZA was still in the organizational stage and did not have the personnel to perform the above- stated function.
Section 6 (d) of R.A. No. 7922 allows CEZA to undertake the aforesaid port planning, development, management, operation, repair, and maintenance through an appropriate government agency. There is a need to continue the performance of the above-stated functions by the PPA to prevent a hiatus.
PPA and CEZA entered into agreement in July in 1996. Contents of this agreement are as follows.

1) The PPA shall perform, on behalf of CEZA the responsibility and functions, prior to the passage of RA No. 7922, over Port Irene in Sta. Ana, Cagayan.
2) In the performance of the port planning and development function, the PPA shall undertake all necessary action to update and finalize the Master Plan for the Port of Irene including the securing of any necessary official development assistance from the external sector or investments from the private sector. Concomitantly, the PPA shall initially earmark the amount of One Million Pesos from its Project Feasibility Studies Fund for the Port of Irene.
3) In the performance of the port management and operation functions, the PPA will man the Port of Irene with the appropriate port organization to manage and operate the port, including but not limited to the assignment of berths to vessels, undertaking of cargo handling and terminal operations and storage of cargo.
4) In the performance of the repair and maintenance functions, the PPA shall prepare all programs of work and execute engineering projects as may be necessary to keep the Port in operational condition.
5) For the duration of this Agreement, the PPA shall continue to receive all monies derived from revenues of the operation of the Port and shall continue to allocate and fund all expenditures in the performance of the above functions. At the termination of this Agreement, PPA shall transfer any surplus to the CEZA, or CEZA shall reimburse PPA for any deficit.
6) The PPA and the CEZA shall form a Committee to oversee the proper implementation of this Agreement.
7) This Agreement shall retroact from the date of effectivity of Republic Act No. 7922 and shall remain in full force and effect until such time as the CEZA declares it is ready to assume its functions over Port or as mutually agreed upon by both parties.

16.3 Current Problems on Port Administration

16.3.1 Port Development by Many Organizations

Prior to the early 1990's, Philippine Ports Authority (PPA) had jurisdiction over almost all ports and was thus able to make consistent national port development plans. However, in 1992, CPA spun off from PPA, and PPDBs, which are not under the jurisdiction of DOTC, were created one after another on and after 1992, and each of them has the jurisdiction to plan, construct and manage ports within their designated areas.

Some organizations undertake a lot of port development while others undertake only one port development. Some organizations undertake foreign-assisted projects while others undertake projects using their own funds. These newly created government authorities are not under the direct jurisdiction of PPA/DOTC and there is no coordination or consultation among organizations regarding the investment and time schedule of individual development projects. It is necessary for proper port development to coordinate each project based on the cargo volume forecast, apportionment of function and alignment of ports nationwide through the single methodology. But in the Philippines this type of coordination is not undertaken. Port development in the Philippines is undertaken independently and separately.

Table 16.3.1 Outline of Port Development Organizations

Body	Act of Incorporation	Effectivity	Name of Ports	Remarks
DOTC	E.O. NO. 125A	30th, Jan, 1987		
PPA	P.D. NO. 857	23rd, Dec. 1975		
CPA	R.A. NO. 7621	26th, June, 1992		
PMO-Ports	M.A.NO. 80-45	4th, June, 1980		
PIA	P.D. NO. 538	13th, Aug, 1974	Northern Mindanao	JBIC Fund
BCDA	R.A. NO. 7227	13th, Mar, 1992	San Fernando Port	JICA Study
SBMA	R.A. NO. 7227	13th, Mar, 1992	Subic Port	JBIC Fund
CEZA	R.A. NO. 7922	24th, Feb, 1995	Irene Port	JICA Study
PRMA	E.O. NO.2, S. of 2002	11th, Mar, 2002		

Note：PPA was created by MPWTC in 1974. M.A refers to Memorandum of Agreement

Source：JICA Study Team

16.3.2 Inadequate Port Facilities

Most port facilities in the Philippines are not suitable for efficient port operation, partly because facilities are aged without proper maintenance, and partly due to mixed use of berths for various

types of cargo and passengers vessels. Port Authorities are responsible for maintenance of port facilities for natural wear and tear, and operators are responsible for efficient operation with suitable equipment and handling procedures as well as the repair of damages that occur during operation. However, both of these works have not been carried out in a proper manner.

Shortage of facilities can be attributed to the limited berthing space. However, this problem could be overcome to some extent by increasing cargo handling productivity and proper berth allocation. At present, break bulk or dry bulk cargo vessels are often forced to stop their operations and leave the berth since high priority is given to RO/RO vessels at multipurpose berths. This problem can be partially resolved by altering the berth assignment system and changing the tariff structure from a daily basis to an hourly basis.

Nevertheless, the problem of insufficient facilities can only be solved by capital investment in infrastructures and equipment. According to PPA, it does not have sufficient funds available for maintenance and development of facilities. Port operators are reluctant to invest in their own equipment partly because of the limited period of contract and partly because of the insufficient incentives for ships to use shore equipment under the present tariff structure.

16.3.3 Insufficient Budget for Port Development and Maintenance

Main source of PPA's earning comes from Manila area terminals. Manila area terminals generate a large part of their revenues from foreign trade, especially container trade at international container terminals under long-term concession contracts. Other ports, most of them for domestic trade, do not generate sufficient revenues to cover necessary management and maintenance costs due to low domestic port charges. Consequently, PPA has to use its revenue from Manila area on other ports. PPA has to administer all the remaining ports including very small ports. However, PPA, as a financially autonomous government entity, must produce a net profit. Moreover, it must contribute 50% of its net profit after deduction of management expense as well as loan repayment and corporate tax as a dividend to the government. Therefore, the degree to which PPA can support local ports is limited.

As alternative sources of funds, various kinds of loans and grants have been extended from foreign donor countries and international organizations. However, financing for port development from abroad including ODA from Japan is not expected to increase due to worsening economic or financial conditions of donor countries/organizations.

Introduction of private sector participation in the port operation and development may be a solution. As already introduced in Manila area terminals, PFI through concession and BOT is possible for the construction of foreign trade related facilities. However, with the present low domestic tariff level

and the with present operation contract system, investment in the local ports is not attractive for the private sector.

In case of small port development, it is impossible to use a private financing scheme because small port development projects are not financially viable, even if an economic benefit is expected. Small ports should be constructed using funds collected as tax/dues by central/regional authority. So it is important for central/local government to introduce reasonable tax/dues and an accurate tax collection system to secure funds for the construction of port facilities. In 2003, PPA changed its policy and be able to use its funds for development of ports outside the PPA Ports System. However, the budget is extremely limited therefore it can meet only a few requests from LGUs.

16.3.4 Lack of Integrated Port Development Plan

Infrastructures are indispensable for development of the national economy and the welfare of citizens and therefore the central/regional government is generally responsible for the development of infrastructures. A large amount of money and long time are necessary for the construction of infrastructures. To ensure that the limited fund are utilized effectively, sound planning that is not only consistent with regional development plans but also in harmony with national development plans is necessary. Port development needs to be approached in the same manner. However, at present, each port development body formulates its own port development plan independently. There is no integrated port development plan. Therefore the prompt formulation of an integrated port development plan is required

16.3.5 DOTC's Participation in Port Development

DOTC is the administrative entity of the Executive Branch of the government in the promotion and development of dependable transportation networks. DOTC head office, however, has played only a limited role in port development in the Philippines except for projects involving small ports.

This is mainly because PPA, an attached corporation of the DOTC, has historically played the lead role in port development, and because other port development authorities such as PPDB, which are outside of DOTC jurisdiction, develop their ports by their own resources.

There is no coordination on port development planning among PPDBs or among private ports. Even though PPA approves development projects for private ports, DOTC is not directly consulted. Recognizing these circumstances, the DOTC, as the policy making body of the government, has requested JICA to formulate an integrated port development master plan as a part of the national transportation network. With this procedure, all the port development plans of all port development bodies are going to be systematically incorporated in the plan. DOTC is expected to play the central role in formulating this plan, from beginning to end.

16.4 Proposals on National Port Plan

Among port development/management bodies, PPA is the largest organization in the Philippines. PPA plans, develops, manages, operates and maintains almost all the major ports in the Philippines. By modernizing the required cargo handling system as well as normalizing the port charge, the service level of PPA ports can be greatly improved. Therefore, the following measures should be taken up in order to achieve above-mentioned matters. However, the following sections focus on the roles of not only PPA but also other port development bodies in upgrading ports in the Philippines.

16.4.1 National Plan for Port Development

(1) Long/Short-term National Port Development Plan

In order to formulate the fundamental port development plan, in harmony with the basic policy direction of the National Government, JICA Study Team has conducted "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 to formulate a long-term master plan and a short-term development plan for the national port system. The Study shall be used as the prototype of the "National Plan for Port Development" (NPPD)

Fundamental policies for port development are proposed, considering the following items and aspects:

1) National Development Plan
2) Socio-economic situation
3) Foreign trade
4) Maritime transport in the World and Asia
5) Cargo and passenger transport demand
6) Maritime transport safety
7) Environment aspects

NPPD is composed of a long-term master plan and a short-term development plan. The duration of long-term plans is 20 years while that of short-term plans is five years.
The long-term master plan does not indicate detailed port plans but contains conceptual plans for all port development in the country. It contains target year, demand forecast of the target year, facilities needed to be developed, rough investment cost and rough time schedule of port development for consecutive five year periods. The short-term development plan describes more specific port plans and includes quantitative analysis.

For reference, the items to be described in the short-term development plan are as follows

1) Target year of planning or duration of plan
2) Forecasted demand in the target year
3) Facilities needed to be constructed by the target year
4) Investment cost for the facilities at individual ports based on the rough design
5) Time schedule for development of port facilities

The head office of the DOTC should be responsible for final formulation of NPPD in coordination with organizations including NEDA, DPWH and other related bodies (PPDBs) The long/short term plan prepared by the related port development organizations including PPA, CPA and PPDBs are incorporated in NPPD in view of development policies and priority of the projects.

(2) Formulation of Port Development Plan for Individual Ports

The NPPD is based on the port development plan of individual major ports. These plans are formulated by each port development organization. The port development plan of an individual port stipulates the port facilities specifically to be developed by the target year based on the estimated traffic volume.

16.4.2 Establishment of NPPD Council

In order to periodically review, update, and revise the NPPD as well as important/fundamental policies on port development, a council should be set up. All decisions or conclusions are reported to DOTC. After being authorized, the NPPD should be widely respected by all departments of government and related organizations. A model for such councils can be found in the Japanese Port Council.

Although PPA has a similar advisory body called "The National Port Advisory Council (NPAC)" for the formulation of the PPA's policies, PPA can exercise its power only over the ports under its jurisdiction.

However, it is extremely difficult to establish new governmental organization for coordination under present government policy of small government. Therefore, an existing coordination institution of the DOTC can be used as the council for coordination (hereinafter referred to as NPPD council). The Water Transport Cluster of DOTC is one of the proposed organizations.

The members of the NPPD Council are composed of not only governmental officials but also the representatives of private sector and PPBDs not under the jurisdiction of the DOTC.
In order for the NPPD Council to be sustainable in the long run, it should have a manageable number

of members. Therefore, the core members of the NPPD Council shall be composed of officials from all government agencies involved in maritime transport and independent port authorities / PPDBs engaged in port development. The issuance of new Administrative Order (A.O.) is necessary in order to appoint the officials of entities not under the DOTC administrative jurisdiction, as members to the NPPD Council. DOTC which is responsible for overseeing for the transportation sector can appoint/request, based on the new A.O., high-ranking officials from other government department, (in particular the DPWH, DA, DENR, DILG and NEDA) and representatives of other organizations as/to be members of the NPPD Council.

The NPPD Council can recommend policies for all Philippine ports including authorities' ports. At present each authority makes a request to NEDA for ODA loan for port development without consultation with DOTC. After the establishment of NPPD Council, these requests submitted to NEDA should be examined in advance based on the NPPD. The request for a new port development project, which is not included in the NPPD, should be examined in the Council.

From following reasons, the NPPD Council shall be an advisory body to DOTC

The function of the NPPD Council is to coordinate the port development plans of port development bodies, and formulate the long-term master plans as well as short-term development plans. Therefore, the NPPD Council needs to be a neutral organization.

One of the basic functions of DOTC is to formulate the nationwide transportation network plan. Planning of ports is an important part of nationwide transportation plans. In addition, as to development of individual ports, as DOTC is limited to carry on budgeting, planning and construction of a small number of LGU ports, DOTC is able to keep a neutral position in port development.

The Government of the Philippines nominated the DOTC as the counterpart of the JICA Study Team on this Master Plan Study, therefore, DOTC is the most suitable governmental department in the Philippines to oversee port development.

Moreover, there are many ports under PPA. PPA admits that these ports are often competing with other ports under the other port authorities / PPDBs. In the past, many disputes related to port planning have occurred such as the conflict between PPA and PIA over port development at and near Cagayan De Oro port. Therefore, it may be difficult for PPA to deliberate over many port development projects from neutral viewpoint. It is quite likely that decisions made under the control of PPA will not be accepted by other port development / management bodies

Therefore, the NPPD Council shall be an neutral advisory body

16.4.3 Members and Business of the Council

(1) Members

The Council shall consist of the following members.

Chairman : * Secretary/Undersecretary for Maritime and Special Concerns (DOTC)
Vice Chairman: Deputy Director General In-Charge of Transportation (NEDA)
Members : Undersecretary for Road Planning (DPWH)
Undersecretary for Policy, Planning and Legal Affairs, (DA)
Assistant Secretary, Plan andProgram (DILG)
Undersecretary, Policy and Planning (DENR)
* General Manager, Philippine Ports Authority (PPA)
* General Manager, Cebu Ports Authority (CPA)
* General Manager, Regional Ports Management Authority (ARMM)
* Administrator, Maritime Industry Authority (MARINA)
* Commandant, Philippine Coast Guard (PCG)
* Administrator, PHIVIDEC Industrial Authority (PIA)
* Administrator, Cagayan Economic Zone Authority (CEZA)
* President, Poro Point Management Corporation (PPMC)
* Sr. Deputy Administrator for Operations, (SBMA)
* General Manager Philippine fisheries Development Authority, (PFDA)
LGU Port Administrator for LGUs undertaking port development projects using their own funds
Five (5) members from relevant public and private sectors including academe, Philippine Chamber of Commerce & Industry, Association of International Shipping Lines/Agents

However, members denoted with an asterisk (*) shall comprise the core members of the Council, otherwise called the Water Transport Cluster (WTC). DOTC will invite members from other sectors or agencies (in particular the DPWH, DA, DENR, DILG, and NEDA) to the WTC on matters relevant to the agencies' specific mandate.

The Full Council (WTC will have the role of NPPD Council) will meet a few times a year to deliberate on major changes of basic policies on port development and to approve / revisions to the NPPD.

A representative of government entities other than the above organizations that will start management of ports can be a member of the NPPD Council under the approval of the Council.

(2) Function

Functions of NPPD Council are to formulate a report to DOTC through coordination with：

1) All government corporate entities that carry out port development projects (i.e. PPA, CPA, RPMA, PIA, CEZA, SBMA and BCDA),
2) The Department of Public Works and Highways in terms of formulating nationwide efficient transportation network and
3) Other relevant organizations.

(3) Business of the Council

The NPPD needs to be reviewed and revised periodically as the social and economic environments change. The council shall deliberate on the change of circumstances surrounding port development and shall undertake the following matters;

(a) Review and evaluation of progress of existing NPPD based on monitoring
(b) Preparation for specific proposal by NPPD
(c) Review of short-term development plan
(d) Formulation of new/revised short-term development plan
(e) Review of long-term master plan
(f) Formulation of revised long-term master plan
(g) Deliberation on the change of basic policies of port development

Usually review of the short-term development plan begins three years after start of the short-term plan, and formulation of a new plan follows the review, while review of the long-term master plan begins nine years after the start of the long-term master plan and formulation of revised plan follows the review. However, if the socio-economic situation changes drastically, review may start in a shorter period of time.

16.4.4 Establishment of Secretariat of NPPD Council

As mentioned above, the NPPD has to be reviewed and revised periodically as the social and economic environments change. Therefore, a permanent body as the secretariat should be built in DOTC to support the NPPD Council. The secretariat of the Water Transport Cluster committee is the WTPD and the NPPD Council is a part of the Water Transport Cluster committee. However, with a membership of only nine officials, the present WTPD is too small to function as the secretariat of the NPPD Council since it already has a significant workload. An independent secretariat for the NPPD Council should be set up outside the WTPD to deal with large amount of works that will be generated by the NPPD Council.

The independent secretariat shall be basically composed of the permanent staff of DOTC and the seconded staff from PPA, CPA, and PPDBs. The staff should have specialized knowledge and experience in the field of port administration and management as well as port planning and transportation network system. The secretariat is to be inaugurated with eleven (11) members including chief of the secretariat.

(1) Tasks of the Secretariat

The major specific tasks of the secretariat are as follows.

1) Evaluation of the Progress of theSshort-term/Long-term Development Plan of NPPD in Coordination with relevant Entities

a) Monitoring

- Monitoring of implementation of port development projects
- Monitoring the current situation of cargo and passengers at ports.
- Monitoring the current situation of port facilities.
- Reviewing the cargo/passenger forecast based on the current economic situation and actual cargo/passenger movement.

b) Evaluation

- Evaluation of the progress of the short-term/long-term development plan of NPPD based on the latest information.
- Re-examination of annual cargo/passenger forecast based on the latest information on cargo/passenger and socio-economic conditions such as GDP.

c) Revising of NPPD

- Basically, NPPD Council will revise NPPD every five years.
- According to the above-mentioned evaluation and re-examination, however, the Council shall revise the NPPD whenever new/revised major port developments including the foreign assisted port developments are planned.

2) Monitoring of Port Related Activities

- Progress of private participation (or public private partnership) in port development and management.
- Participation of LGUs in port development and management.
- Other major port related activities/movement including issuing new policies on Maritime transportation such as EO 170.

3) Preparation of Annual Report of NPPD Council

- The annual report of the Council will contain above mentioned issues.

(2) Characteristics of the Secretariat of NPPD Council

The characteristics of the secretariat are as follows.

1) Establishment of Secretariat of NPPD Council as A Permanent Organization in DOTC
   - The secretariat of NPPD council will be established inside DOTC as a permanent organization.
   - The secretariat will carry out the preparatory works of above-mentioned tasks as daily based work.
   - The secretariat will consist not only of DOTC staff but also staff from other port authorities / PPDBs such as PPA.
   - Detailed staff will be given the status of governmental official.

2) Staffing of the Secretariat of NPPD Council ([*1])

   a) Number of members:
      - 11 persons (Director, Assistant director, Legal advisor, 2 Economist/Financial analyst, 2-Port engineers, 2-Transport development officers and 2-Administrative assistants.)

   b) Role of each Member:
      - Director: Mainly responsible for organizing and directing the tasks of the secretariat and coordination of relevant entities
      - Assistant director: Mainly responsible for directing and managing the tasks of the
      - secretariat and coordination of relevant entities
      - Legal advisor: Mainly responsible for the coordination of relevant entities
      - Economist/Financial Analyst: Mainly responsible for the examination and evaluation of the socio-economic framework for port development plans
      - Engineer: Mainly responsible for the examination and evaluation of port development plans
      - Transport development officer: Responsible for the monitoring, review and examination of cargo and passenger situation and forecast.

[*1] *Note: The salaries of secretariat members from DOTC will be shouldered by DOTC while those of the detailed staff are shouldered by the original organizations.*

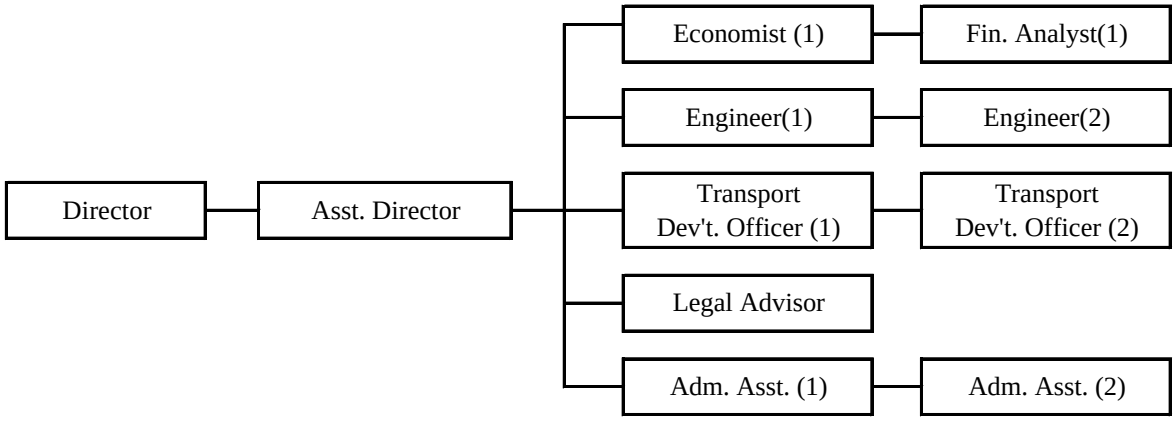


Figure 16.4.1 Organization Chart of Secretariat of the NPPD Council

3) Expected Source of Organizations Staff
   - Director： DOTC
   - Assistant director and other staff：DOTC or port authorities / PPDBs and the private sector

16.4.5 Procedure to Set up NPPD Council and its Secretariat

As mentioned above, NPPD is planned to be an advisory body to DOTC and its secretariat is planned to be one permanent section of DOTC. Therefore the legal basis for two organizations is needed. In order to utilize an existing coordinating committee as the NPPD Council, DOTC shall request the office of the president to issue the A.O. to expand the membership and power and function of the committee of DOTC.

Moreover, the draft A.O. has to stipulate the following matters:

a) The DOTC shall be the lead implementing agency for the implementation of NPPD and must be fully supported by all government departments, agencies, GOCC's (Government Owned and Control Corporations), LGU's, existing port authorities / PPDBs, and, those PPDBs which may be later on created shall embody in its charter or order creating them, pertinent provisions of the proposed A.O.
b) The DOTC shall prepare the implementing rules and regulations for the effective implementation of the order.
c) The DOTC shall appropriate the funds necessary to ensure the implementation of the order.
d) Other relevant items.

The following steps are most realistic approach;

1st Step: Issuing the Administrative Order directing all PPDBs to coordinate their plans and programs with DOTC for the efficient implementation of NPPD.

- The A.O. will give DOTC the authority to establish the NPPD Council or to rearrange its existing Water Transport Cluster to include members from PPDBs that are beyond its administrative jurisdiction.
- The A.O. will give DOTC the mandate to manage the NPPD Council or its equivalent as well as its secretariat.

Appointing/requesting, based on the new A.O., high-ranking officials from other government agencies (in particular the DPWH, DA, DENR, DILG and NEDA)and representatives of private sector, as/to be the members of the NPPD Council.

2nd Step: Issuing the Implementing rules and regulations (IRR) on the issued A.O.

-The IRR will indicate the details of NPPD Council and its secretariat including;

(a) the members of the secretariat of the Council and their roles ,
(b) the status of members of the secretariat as government official, and
(c) other relevant issues.

3rd Step: Issuing the Department Order on the scrap and build of organizations/plantilla positions

-The departmental committee of DOTC on the Scrap and Build of organizations/plantilla positions will approve the creation of NPPD Council Secretariat on the scrapping of existing organizations or plantilla positions.

-The recommendation of the committee will be submitted to the Department of Budget and Management for approval.

16.4.6 Process to Review/Revise NPPD

Upon the DOTC Secretary's request, port development bodies will submit information on the present situation of port, port development projects and their long/short-term master/development plans to the secretariat of the NPPD Council. Every year the Secretariat prepare a document for monitoring the progress of the existing NPPD based on submitted information and monitoring. The Secretariat will make another documents for deliberation at the NPPD Council official meeting. The secretariat will also prepare documents for reviewing the present long/short-term national port development plan and, if required, formulate a draft new/revised NPPD.

The tasks of the Secretariat are as follows：

1) Preparing for NPPD Council meeting
2) Preparing documents for NPPD Council
   - Progress of existing NPPD (Present situation of port, port development project)
   - Review of existing NPPD
   - Draft new/revised NPPD plan
3) Coordinating with port development organizations

16.5 Reform on Port Administration System

16. 5.1 Inadequate Port Service in the Philippines

(1) Inadequate Service

In the Philippines, many port users feel that port service is insufficient. Many people believe that PPA is responsible for port service, because the PPA Charter stipulates that PPA is not only responsible for regulation and development of the port, but also responsible for providing operation services in the port either by itself or by contract. However, there are various problems related to insufficient port service and their causes are complicated.
Major issues are as follows:

1) Users cannot receive swift and sound cargo handling service
2) Charges are imposed without any cargo handling service as in the case of RO/RO operation
3) Competition has not been introduced on cargo handling
4) Cargo handling charge is expensive

As for causes of insufficient service, many factors are closely intertwined. Major causes include port charge structure and level, labor problem, inappropriate cargo handling method, old cargo handling equipment, contract between PPA and cargo handling operator, etc. As far as cargo handling tariff level is concerned, tariff on domestic trade is quite cheap compared with other foreign trade ports and with international container handling tariff in the Philippines, although Philippine port users feel that it is expensive. Labor problems are composed of low quality of workers, continuously demanding higher salaries, and uncontrollable labor forces.

(2) Proposal in the Medium-Term Philippine Development Plan

To improve this situation, the Medium-Term Philippine Development Plan 2001-2004 compiled by NEDA states the following.

The government shall restructure port institutions to improve port service. Regulatory function shall be transferred to an independent regulator (or regulators), which shall have jurisdiction over all ports. Commercial decision-making, planning, and management of port operation shall progressively be decentralized to port District Office and Port Management Office in preparation for the privatization of individual ports or groups of ports. The government will pursue the amendment of the PPA charter to address, among other things the dual role of PPA as regulator and operator.

However, the problems on insufficient port service are complicated and profound as well, therefore it is necessary to deal with this problem in view of steady development of port in the Philippines.
In fact, only PPA has sufficient knowledge and experience in regulations of most ports. Therefore, it is impossible to separate regulatory functions from PPA and transfer them to other independent organizations.

In addition, PPA allocates the funds that are earned from Port of Manila to other PPA ports as fund for port development every year. This situation interrupts the functioning of principle of market mechanism among ports in the Philippines. But it is a fact that port charge of ports other than international container port would have to be raised to an extremely high level if the cross subsidy system would be stopped. Therefore, the cross subsidy system should be continued for the time being.

On the other hand, as to the operation function, PPA does not operate the ports directly；operations are contracted out to private terminal operators. The operators are selected from competitive bidding with fixed term contract. As far as the formality of this contract is concerned, it can be said that the port operation under PPA is privatized. Nevertheless, port users, particularly shipping companies, feel that PPA influences the port operation system and procedures of these private operators, because PPA collects 10 % of all revenues of the company as government share from private companies that undertake operations on behalf of PPA.

PPA also collects government share from non-PPA ports, including private ports. Although the collected fund is similar to a government tax, it is used mainly for PPA port development. This situation results in complaints from operators and service providers of private ports.

Therefore, PPA should stop collecting 10% of cargo handling tariff from port operators and instead lease port facilities to port operators. In other words, PPA should retain its regulatory function and divest itself of the operational function. This would generate competition among port operators and lead to the improvement of port services. This system must be applied to CPA and PPDBs

16.5.2 Contract System between Terminal Operator and Port Authorities / PPDBs

To make clear the division of port operational responsibility between the port authority / PPDB and terminal operator, present port operation contract system has to be revised. Under the present system, port authority / PPDB collects 10% of gross revenue generated by port operation. A port operator is selected through competitive bidding according to the evaluation of its business plan and the highest offer of gross revenue contribution to port authority / PPDB.

This system does not give the terminal operator enough incentive to improve efficiency or to invest in equipment because any marginal earning generated by the operator is also subject to the contribution to port authority / PPDB. And because of this system, many port users consider that port authority / PPDB is involved in the port operation.

Consequently, if present port operation contract system is altered to a terminal leasing contract instead of operational contract, the port authority's involvement in direct operation is eliminated. Under the proposed system, a terminal operator pays a fixed lease/rental fee and variable fee based on the cargo volume handled at the port, to port authority / PPDB. If a terminal operator deal with more than certain volume of cargoes, total money of a fixed lease/rental fee and variable fee is less than 10% of total revenue earned by the operator at the port.
At the same time, port authorities / PPDBs should deregulate tariff setting for cargo handling and allow the terminal operator to determine its own tariff without seeking the approval of port authorities / PPDBs.

16.5.3 Regional Port Authorities (RPA)

Ports are one of the most important infrastructures for supporting the social/economic development of the nation as well as regions. National port development policies on the distribution of foreign trade ports and national safety and security items must be formulated by the central government or a national organization. However, each port should be developed based on the regional characteristics as well as needs of the areas by regional organizations (RPAs).

At present, port development that supports regional growth and benefits the public is not sufficiently pursued in the Philippines. For example, in the Visayas area, PPA and CPA is port authority of Iloilo port and Cebu port respectively. They are primarily concerned with competition of the port for gaining ascendancy over competitions. Moreover, both port authorities / PPDBs cannot always pay sufficient attention to the other social infrastructure that needs to be developed in the areas surrounding the ports because port authorities are financially autonomous only in the field of ports.

Competition should be promoted even among ports that are managed by the same port authority. After completion of Subic international container terminal project, Subic port and Manila port will

be in competition. It is likely that port users will benefit from the competition between the two ports. In the case of Batangas port and Manila port, however, which are both managed by PPA, competition is not likely to be severe under the present system.

In general, government ports and private ports are basically in competition with each other. Private entities are given the opportunity to develop private ports, and in return must contribute a portion of their earnings to port authorities / PPDBs. From the view point of regional development, port development by private entities is welcome because port facilities can be developed without spending public funds and port development will stimulate of development of the area.

PPA is now carrying out nationwide port development projects using their own funds generated from Manila International Container Terminal. While this centralized system is contributing to regional port development, non-viable projects including those which may greatly contribute to the social needs of particular regions in the future may not be given sufficient priority.

Therefore, the study team considers that it is desirable for a group of ports to be converted to RPA as soon as the group is assessed to be able to achieve financial autonomy since RPA's approach to port development will be more in tune to the needs of each region.

This will first require normalization of the port charge since RPAs should be financially independent. In addition, there should be a scheme to allow local governments to participate in RPA management. Under this scheme, port development should have a closer relation with other social infrastructure and variety of port development measures including financial allocation can be adopted.

In Japan, prefectural/primary city government is the port management body, undertaking port development as a part of local administration. Therefore each port management body takes into account regional growth as well as competition with domestic and foreign neighboring ports. Port development by private entities is welcome and integrated into the port development plan of individual ports for the purpose of sound port development.

Deliberate consideration is necessary to decide the size of territory of RPAs. If the area is too small, it will be difficult for RPAs to achieve financial autonomy. On the other hand, if RPAs have a vast territory, competitive circumstance might not be realized. It is recommended to combine the areas of several port management offices.

To prevent the indiscriminate establishment without consideration of size of territory or fiscal scale, necessary measures should be taken. Additional port authorities / PPDBs should not be set up until the establishment of RPAs on the assumption that all existing port authorities / PPDBs will be converted to regional port authorities that cover all the entire area of the Philippines.

In the 1990's, the government of the Philippines approved the establishment of Cebu Port Authority and PPDBs, empowering them to plan, construct and manage ports within their areas for the purpose of decentralization and regional development.

In order to promote decentralization and enhance competitiveness among ports and to enable after-mentioned RPAs to develop their ports in their own ways, existing Port District/Management Offices of PPA should be converted to the Regional Port Authorities which manage the ports under respective territories. Provincial government and municipal governments may take part in the management of the regional port authorities (RPAs) individually or jointly to reflect the local development policies and transport needs.

CPA and existing regional port development authorities (PPDBs) shall have the same status as the newly established regional port authorities.

The role of port authorities is as follows:

- Plan, construct and manage port facilities
- Administer all ports in the district
- Lease the public owned port facilities to terminal operators
- Give concessions to private companies to develop and operate the terminal (BOT) at a port or a part of the port area.
- Collect port charges, leasing and concession fees.
- Manage port development and major maintenance and repair in the public port.

The RPAs should retain the status of landlord and should not be involved directly in port operations except in case of emergency or if no private operators are available.

RPAs should only be established when financial viability can be obtained, and this will require raising port charges to generate sufficient revenues. However, it may be difficult for all RPAs to be financially viable since some existing public corporations were created as a part of regional development agencies without considering financial autonomy. In addition, most ports in PPA have been developed through cross subsidy using the income from Manila port. The timing for the establishment of port needs to be carefully examined.

16.5.4 Philippine Ports Administration Agency (PPAA)

Concurrent with the establishment of RPAs, Philippine Ports Administration Agency (PPAA) should be established to formulate a basic policy for port development and to coordinate all the major port development plans as well as to deal with common issues of RPAs. PPAA will also formulate port development master plan in the Philippines. In this sense PPAA and NPPD Council secretariat have almost the same function; coordinating port development projects of various port development

bodies. When RPAs is established, the secretariat of NPPD Council shall be incorporated in PPAA

The NPPD Council secretariat is proposed to be inside DOTC. PPAA can also be an internal organ of DOTC or set up outside DOTC as an attached agency. If PPAA has to maintain a financially independent status from central government in order to coordinate cross-subsidy among RPAs which are converted from Port District/Management Office of PPA, it is suggested that PPAA be an attached agency.

As indicated in the previous section, PPA has sufficient knowledge and experience in enforcement of regulatory function throughout the country. Consequently, PPA's regulatory element should be reformed to PPAA which will have regulatory function covering not only ports under the present PPA port system but also all ports including those under CPA , LGUs and PPDBs.

The main function of PPAA shall be as follows

- To formulate basic policies for port development and management
- To make regulations and guidelines such as technical standard and safety standard
- To coordinate all the major port development plans including public and private ports.
- To draft the national Plan for Port Development (NPPD) .
- To cooperate with foreign countries on the port related issues
- To manage DOTC budget related to port development

PPAA shall not be directly involved with the selection of a port concessionaire, an operator or other managerial decisions.

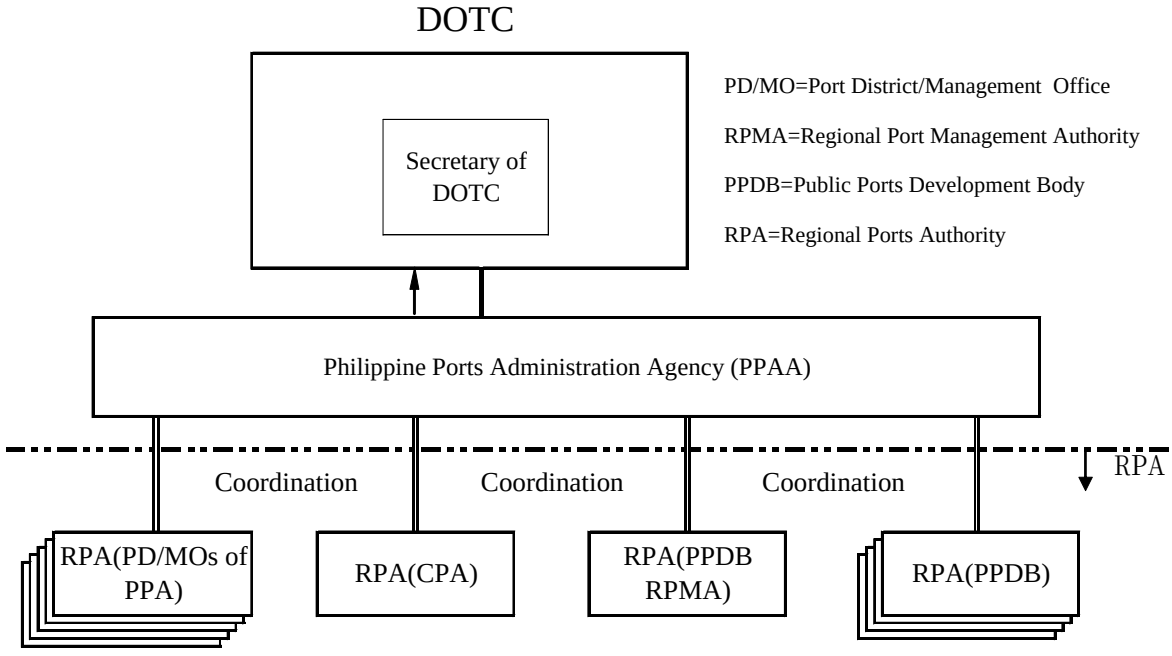


Figure 16.5.1 Relationship between RPAs, DOTC, Council Secretariat and PPAA

16.5.5 DOTC

At present, some LGU ports, which are not under PPA Port System, have been planned, financed and developed by DOTC. PPA is now able to use its funds for development of ports other than those in the PPA Port System. However, PPA is required to produce net profit, so PPA is able to use small amount of money for profitable ports. Therefore port development using DOTC budget should be continued for the time being. When RPAs are established, LGUs ports should be basically included in the jurisdiction of RPA.

16.6 Progressive Reorganization of the Philippines Ports Administration System

Because of various difficulties in implementing proposed reforms in the Philippine port administration system, gradual introduction or changes of existing system will be necessary. Following steps will be the most probable and pragmatic approach for reorganizing the port administration system.

- **First Step: (Start from 2004)**

1) Creation of NPPD Council
2) Creation of NPPD Council's Secretariat.
   The secretariat shall be set up in DOTC.
   The chief of the secretariat shall be appointed by the Secretary of DOTC, and key staff shall be detailed from PPA, CPA and DOTC.
   Functions of the NPPD Council Secretariat shall be limited to NPPD related matters at this stage.

- **Second Step: (Within five years)**

1) Separation of Operational Function of Port Authorities and PPDBs
   Change the contract system between port authority / PPDB and terminal operator from the present system to the lease contract.
   Liberalize / Normalize operational tariffs throughout the Country.

   Abolish operational functions of existing port authorities including PPA, CPA as well as other public authorities.
   Alter existing Charters of PPA, CPA and PPDBs by deleting clauses relating to the port operation and provision of service by the port authorities. By so doing, the issue on the dual function of port authority will be solved.

   All the port operations and services rendered to the port users are provided by private port operators. The port authority selects port/terminal operator(s) and contracts out all the cargo

handling operations and related services to the private operator(s). The port authority shall not operate cargo handling and related services in competition with private operator(s) unless a private operator is not available.

Contract period for the operators should be extended from the present 10 years to at least more than 15 years, so that the operator can invest in the equipment and recover the cost within the contract period. In addition to the present terminal operation system, terminal leasing system and BOT system should be introduced at the major ports.

- **Third Step:**

1) Decentralization of Port Authorities

Alter the status and jurisdictions of existing Port District/Management Offices of PPA into the Regional Port Authorities (RPAs) in order to enhance the competitive circumstances and consequently improve the efficiency of ports. In principle, RPAs should be established when RPAs will have sufficient basis by increasing cargo volume handled at their ports, raising port charge and generating sufficient revenues for financial autonomy.

The territory of each regional port authority shall not be larger than the existing District Office but larger than the Port Management Office so that the provincial governors and municipalities can participate in the management of the authority. At the first stage of transit period, existing Port District Offices of PPA is one of the option of the RPAs.

A Regional Port Authority shall have the same status as other non-PPA public port authorities such as CPA, PIA etc.

While fifty percent of net profit yielded by RPAs will be paid to the central government, this practice will be discontinued in order to promote port development initiated by RPAs particularly in terms of supporting regional development when the financial condition of the government improves in future.

2) Establishment of PPAA

Establish PPAA as administrative and regulating/coordinating organization among the RPAs. Thus, PPAA shall be established at the same time of the establishment of RPAs.

[In Case that RPAs are Established before RPAs' Financial Autonomy is Achieved]

Depending on the circumstances, in which the division of PPA will be carried out along with the national policy on decentralization, RPAs will be required to be established before the financial autonomy of RPAs can be achieved. In this case, PPAA has to retain a part of the cross subsidy

system among RPAs which are converted from Port District/Management Offices of PPA. PPAA will pay fifty (50) percent of net profit yielded from the above-mentioned RPAs.

This cross subsidy system by PPAA will be abandoned after RPAs become financially autonomous.

Chapter 17 Implementation of the Plan

17.1 General

A strategic approach is indispensable for realizing the projects proposed in the long-term master plan and the initial five-year development plan of the Study.

In the Philippines, port authorities including PPA and CPA now develop, manage and operate major ports using their own funds, while DOTC or municipalities develop small regional ports using taxes. To ensure the funds that are not necessarily sufficient for port development, these two systems should be maintained for the time being.

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 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 tariff 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, innovative ideas to attract greater private sector participation in port development are required.

In Japan, all the port facilities for public use are developed using tax revenue, except for a few cases. The rate of the national government subsidy for port facilities in remote islands is higher than that in other areas. This means that the national government guarantees the facilities that are vital to people's everyday life even if the viability of a project is low.

Table 17.1.1 The Rate of the National Government Subsidy in Japan

		Protective Facility		Mooring Facility	
		N. Government	Local	N. Government	Local
Local Port		4/10	6/10	4/10	6/10
Local Port in Remote Island	General Remote Island	8/10	2/10	6/10	4/10
	Amami Island	9/10	1/10	7.5/10	2.5/10
	Okinawa Island	9/10	1/10	9/10	1/10

ODA loans can be used for port development. However, the Philippine government still has to find pesos for the portion that is not covered by ODA loans and has to repay those loans over a period of many years. Therefore, proper screening is required to ensure that financially sound projects are selected.

17.2 Measures to attract Private Sector Participation

Given their profitable nature, concessions for private sector participation in the international container gateway ports proposed in the Study would be realized without any trouble.

On the other hand, special incentives have to be prepared for less profitable small port development and management because private companies are reluctant to invest in port development unless a certain level of profit is attainable. Deregulation and incentives should be combined effectively to increase private sector participation.

Based on experience in Japan, the following measures can be adopted to attract private sector participation in port development.

17.2.1 Tax incentives

When private companies develop ports, they acquire land for port facilities, access roads, etc., and construct sheds, warehouses and passenger terminals on it. Private companies have to pay taxes levied on these activities. Tax incentives can lower the financial burden on private companies, especially in the initial stage.

In Japan, taxes occupy a large portion of the total cost. Private companies may be eligible for tax breaks when constructing passenger terminals, office buildings etc. in a port area, if these facilities meet the conditions provided by law. One-third of the fixed property tax for a building is exempted for 5 years, and the entire special land possession tax is exempted. In addition, business income tax is lowered by one-third. However, such tax breaks are not applied to land acquisition.

It is not clear whether such tax incentives would be effective or not in the Philippines because a variety of tax-lowering measures have been tried with only mixed results. Therefore, a bolder approach to tax incentives may be required. For example, tax exemption could also be applied to land acquisition. In addition, the rate of tax exemption could be adjusted in line with a business profitability(a large exemption would be given initially when the profit margin is smaller but tax would gradually increase as the company's income grows).

When the private company acquires land for developing ports, the following taxes are imposed both on the private company and the seller. The private company pays property register tax, while the seller has to pay national taxes (documentary tax, transfer tax and VAT) and local government tax (business tax and property transfer tax).

(1) Tax imposed on the entrepreneur

1) Property register tax		Paid to Registry Office

(2) Tax imposed on the seller

1) Documentary tax	0.15%	(of the contract price or appraised value of land tax assessment, which is higher)
2) Corporation tax	32%	commercial property (of profit)
	6% for sale price	non-commercial property (of the sale price)
3) VAT	10%	(of the contract price)
4) Business tax	2%	(of the net receiving amount)
5) Property transfer tax	0.5%	(of the contract price or appraised value of land tax assessment, whichever is higher)

To make land acquisition easier, documentary tax and corporation tax should be cut in half and business tax and property transfer tax should be waived.

After acquiring land and starting a business, the entrepreneur has to pay a property tax, a corporation tax and a business tax for business activities.

1) Property tax	2%	(of land and building outside of Metro Manila)
2) Corporation tax	32%	(of profit)
3) Business tax	2%	(of profit)

As tax incentives, property tax, corporation tax and business tax should initially be reduced to half. Taxes can then be increased each year by 10% until reaching the fixed rates.

(1/2 in the first year after completion of port facilities and tax increases every year by 1/10 ・・・・. 1st year 5/10, 2nd year 6/10 ・・・・6th year 10/10)

These tax incentives shall be applied to small ports whose cargo handling volume is less than a fixed amount.

17.2.2 Lowering of Port Tariff

Private-commercial port owners pay half of the usage fee and wharfage fee to PPA. It is proposed that at the early stage of business when income and profit are small, port tariff paid to PPA be reduced. As income and profit increase, the tariff can be increased. This incentive is effective in the case where a shipping company owns and runs a private-commercial port.

For example	1st year after operation starts	1/10
	2nd year after operation starts	2/10
	••••	
	after 5th year	5/10 (1/2)

In Japan, this incentive is not adopted because usage fee and wharfage fee are not collected by a port authority. Instead port due is collected.

17.2.3 Joint-ventures

(1) Joint development by the national government (local government or port authority) and private sector

In this case, both the national government (local government or port authority) and a private company bear fixed portions of the cost of developing port facilities.

After completion of port facilities and start of operation, a private company pays the money corresponding to the depreciation and interest of the national government portion and the service charge to the national government. This is a kind of seed money system. (Seed Money)

In Japan, this kind of system is adopted in the case where a private company scraps an old or uneconomical vessel according to the direction of the national government and builds a modern vessel. A private company and Transport Facility Development Agency (the organization approved by the national government) jointly build a new vessel and then the private company pays a usage fee to the Agency.

It is proposed that this system be applied to the port development in the Philippines. In Japan, the national government bears 60 - 80% of the total cost. However it is suggested that the share of the national government be half of the total development cost because the financial situation of the national government is very severe.

In the case of Japan, repayment period is 10 to 15 years and the interest rate is 1.7 - 1.75% at present.

These conditions should be modified when applied to port development in the Philippines. It is proposed that the repayment period be prolonged to 20 years and that the interest rate be 2.5% (like that of a JBIC loan).

Under this system, a private company cannot cancel the contract on the way. (Lease - Irrevocable - Purchase Contract System)

In the Philippines, port facilities developed along a coastal line by a private company are transferred to a port authority after 25 years (this duration can be extended to 50 years), and then the private company must lease the facilities from the port authority if it still wants to use the facilities. Under the joint-venture port development system, port facilities are transferred 50 years after all loans are repaid. (Prolonged Possession Period)

(2) Establishment of a new organization by the central government, DBP, etc.

In case (1) above, the central government is burdened with a lot of extra tasks such as reviewing private companies, managing funds and so on. Therefore a new organization may be established jointly by the central government, DBP, etc. to develop port facilities with a private company.

Other conditions are the same as (1).

A private company is generally asked to give guarantee when borrowing money for running a business and the guarantee sometimes fetters a private company. In the case where a private company utilizes this system, a new organization can guarantee a private company. (Guarantee) In Japan the Transport Facility Development Agency gives guarantee for a private company when a private company builds a new vessel.

In addition, delayed payment can be incorporated into this system as an incentive for a private company to take part in a port development project with small demand. Delayed payment is realized through a longer grace period.

17.2.4 New Fund for Port Development

It is difficult for a cargo handling operator to borrow money at low interest to purchase cargo handling equipment. To overcome this latter problem, it was proposed in the previous chapter that the cargo handling charge be raised slightly and that a fund be started using the extra revenue. An independent organization can manage the collected money and subsidize the difference between the interest rate of city banks and lower standard rate (for example 2.5%) when a private operator buys cargo handling equipment.

This fund system is applied to port development by private companies. An independent organization subsidizes the difference between the interest rate of city banks and lower standard rate using the collected money when a private company develops port facilities.

17.2.5 Appropriate Port Tariff Structure

The quickest way for a private company to increase its income is to raise the port tariff. However, if a high tariff is applied, cargo demand often falls. Therefore an appropriate port tariff structure should be set. It can be an incentive for promoting private sector participation.

If the port tariff is kept low, private companies are reluctant to participate in port development. Many municipalities which need port development have to wait for the initiative of DOTC. On the other hand, if a higher port tariff could be set, port development would be accelerated. Careful consideration is needed.

An appropriate tariff structure and levels are described in the financial analysis.

Examples of other incentives are given below. However, it is judged to be difficult to apply them in the Philippines at this time.

17.2.6 Other Systems

(1) Subsidy

Subsidy is a useful measure to attract private companies. The central government or a port authority can pay a part of or all of the project cost provided that the project satisfies certain requirements.

At present the central government or a port authority bears all necessary cost for port development. If the subsidy system is adopted, the central government or a port authority can invite a private company to take part in port development by offering a subsidy. The subsidy for regional port development could be obtained by applying a part of the budget of DOTC.

However such a subsidy is not considered viable at present given the shortage of tax revenue in the Philippines. In Japan, the government subsidizes 5 to 7.5% of the total construction cost of projects satisfying the requirement set by the government (passenger terminal, building for port business).

(2) Low-interest Loan

There are several low interest loans in Japan which are given based on the respective laws. Applicable facilities are the same as in the case of subsidy. Interest rate of a loan is, for example, three-fourths of the interest rate of Japan Policy Investment Bank and can be applicable to finance 25 - 50% of the project cost. In another case, preferential interest rate (25 year repayment with grace period of maximum 5 years) is applied and the upper limit of the loan is half of the entire project cost.

Again, this system would be difficult to introduce in the Philippines due to a lack of available funds.

17.3 Cooperation with Other Industries

As a port is an infrastructure supporting maritime transport, port development should be undertaken in coordination with the shipping and ship building sectors. Many secondhand vessels purchased from Japan have played an important role in Philippine maritime transport, largely because they can be purchased at a low price. However secondhand vessels have shortcomings such as short service life (in many cases, vessels which have exceeded their service lives are still in operation), frequent maintenance and so on.

Therefore, it is proposed that small vessels of less than 1,000DWT could be newly built at an only slightly higher cost than secondhand vessels by using capital investment and technical assistance from foreign countries (foreign companies are now able to have more than a 50% interest in capital ventures) together with the relatively low cost of Philippine labor and cheap steel plate imported from China and Russia. In addition, the cost could be further reduced if designs were standardized and a large quantity of same design vessels were built at the same time. This also leads to the advantage of sharing spare parts among vessels. Moreover the shipbuilding industry can create jobs and thereby contribute to poverty alleviation.

17.4 Measures to Promote Development of Regional Ports

Management of small regional ports is very difficult because demand is small especially in the initial stage. In some cases, ports are forced to stop operations because their losses are too large.

It is important to begin with minimum port facilities and to expand them gradually in line with the increase of cargo and passenger except for the case where firm demand is fixed and a shipping company is committed to using a particular port.

[Case Study]

17.4.1 Items Related to Cost

(1) Site selection

In choosing a site for port development, it is essential to select a calm sea area sheltered from the open sea since a large initial investment would be required if protective facilities are required. Sheltered coves throughout the country have already been investigated. (See Appendix X.3.1.) These sites should be selected for any new port development for small ships.

(2) Adoption of standard port facilities

Standardization of port facilities can lower the cost of construction. In general, natural conditions have a great influence on development of infrastructure. However if port facilities are constructed at a shallow beach in a sheltered cove, it is easy to standardize the port facility.

Use of local materials to the extent possible and economical construction methods are desirable. In particular, concrete and reinforced concrete using cement, and stone, sand and soil procured at the field should be used.

Moreover it is important that the structure of a mooring facility suits the shallow and calm sea water. Floating pier (pontoon) and piled piers with precast pre-stressed concrete piles are good options because they can be constructed in a factory are effective for rapid, mass and easy construction.

(3) Development of access road

Sheltered coves suitable for a port are often far from urban districts. In such a case, access road has to be constructed. The access road at an early stage should be gravel road with unreinforced channels (Barangai road) and pavement should be made as the traffic demand increases. However the road width has to be secured to allow for the two-way flow of large vehicles.

Road width	3.25m x 2 =	6.5m
Sidewalk	1.0m x 2 =	2.0m
Channel	1.0m x 2 =	2.0m
Total		10.5m

It is desirable that a local or central government reduce the financial burden of an entity in charge of a port development project by constructing access road using public fund.

(4) Port facilities

1) Floating pier (Pontoon)

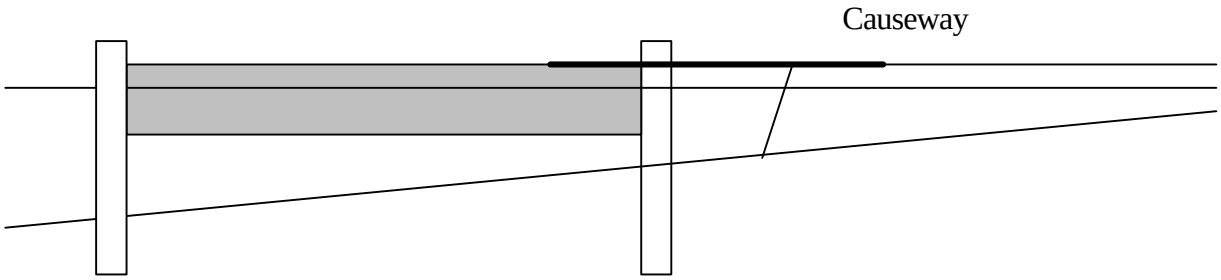


Figure 17.4.1 Floating Pier

Surcharge on a pontoon

Vehicle load	2.0 ton truck
Cargo	2.0 t/m2
Passenger	0.5 t/m2

2) Piled pier with precast beams

Precast PC beams are used as a superstructure.

Piles are reinforced concrete piles or pre-stressed concrete piles or cast-in-place piles.

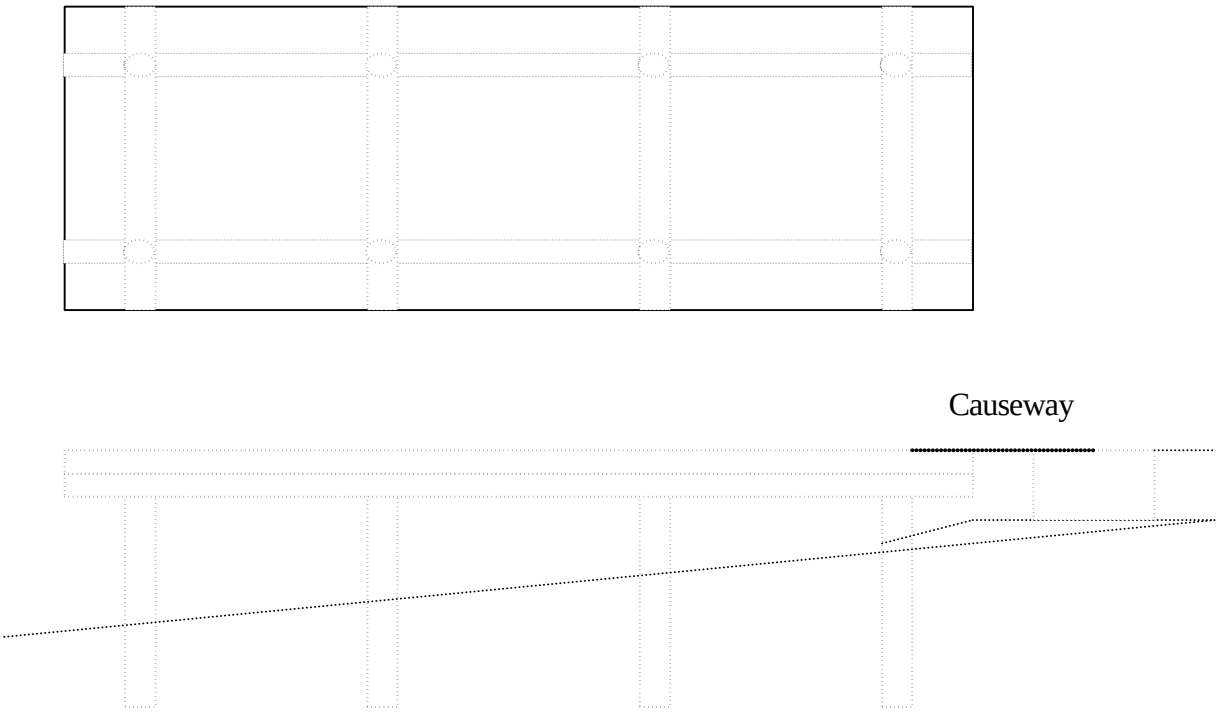


Figure 17.4.2 Piled Pier

(5) Construction cost

Construction costs based on the conditions mentioned before are shown in the following table.

Table 17.4.1 Construction Cost for Small Port

Structure		Cost 1(Peso)	Remarks	Cost 2(Peso)
Access road (per km)	a) Base	5,169,000	a)	5,169,000
	b) Crossing RC Pipe	3,584000	a)+b)	8,753,000
	c) Concrete pavement	7,422,000	a)+b)+c)	16,175,000
	d) U-type gutter	3,915,000	a)+b)+c)+d)	20,090,000
Floating pier (PC hybrid)		27,800,000	including causeway	41,400,000
PC piled pier		13,100,000	including causeway	26,700,000
PC piled pier with precast concrete beam		12,500,000	including causeway	26,100,000

Note: 1. Floating pier 3m x 26m x 1.2m
2. PC piles pier 10m x 25m
3. PC piles pier with precast concrete beam10m x 25m
Large construction equipment is needed for the structure of this type.
4. Causeway is 50m in length and 10m in width.

PC piled pier can be constructed for less than 27 million pesos under the following conditions:

1) Local government bears the purchase cost for land for access road and port, or land is donated by owner(s);
2) Land leveling and construction of base for access road is carried out as a separate project. Construction cost is paid from another account.

Then, concrete pavement and U-type gutter will be built in line with the increase of traffic demand and income.

When an entity for port development bears the cost for access road and construct a terminal building at the first stage, the initial cost exceeds 100 million pesos in many cases.

17.4.2 Items Related to Income

(1) In case of a port where no RO/RO vessel calls

In the case of Atimonan which started its operation on December 2002, 15 - 20 passenger vessels, fishing vessels and cargo vessels with outrigger of less than 100 gross tonnage call every day, and total income gained from port activities accounts for 100 - 180 thousand pesos a month. On the other hand, 80,000 pesos are needed for management and operation of the port including personnel expenses, power supply and water supply. The balance is 20 - 100 thousand pesos a month as net income and annual net income reaches about 700 thousand pesos. Net income will increase as traffic demand growths.

(2) In case of a port where RO/RO vessels call

When a port has 2 round trips a day from a vessel which carries 100 passengers and 14 vehicles, annual income of the port reaches 2.788 million pesos based on the present tariff, while maintenance and operation cost reach 1.256 million pesos. Therefore annual net income is 1.532 million pesos.

If the port tariff were doubled, annual income would become 5.576 million pesos and net income would reach 4.320 million pesos.

17.4.3 Project Viability

As for a port where no RO/RO vessel calls, it would be impossible for a private company to participate in a small port development project even if the initial investment cost were reduced to a minimum level because annual income is too small.

In the case of a port where RO/RO vessels call, FIRR of a project is 1.21% under the following conditions:

1) Construction cost is 73 million pesos.
2) A RO/RO vessel that carries 100 passengers and 14 vehicles calls a port twice a day.
3) Present port tariff is applied.

However FIRR would be improved to 7.95% if the port tariff was doubled and the initial construction cost could be held down to 50 million pesos. Moreover, if the initial construction cost would be 26 million pesos, FIRR would exceed 15%. It is probable that a private company would take part in a small port development project, if the incentives mentioned before are given well in addition to the raising of the port tariff and the reduction of initial construction cost.

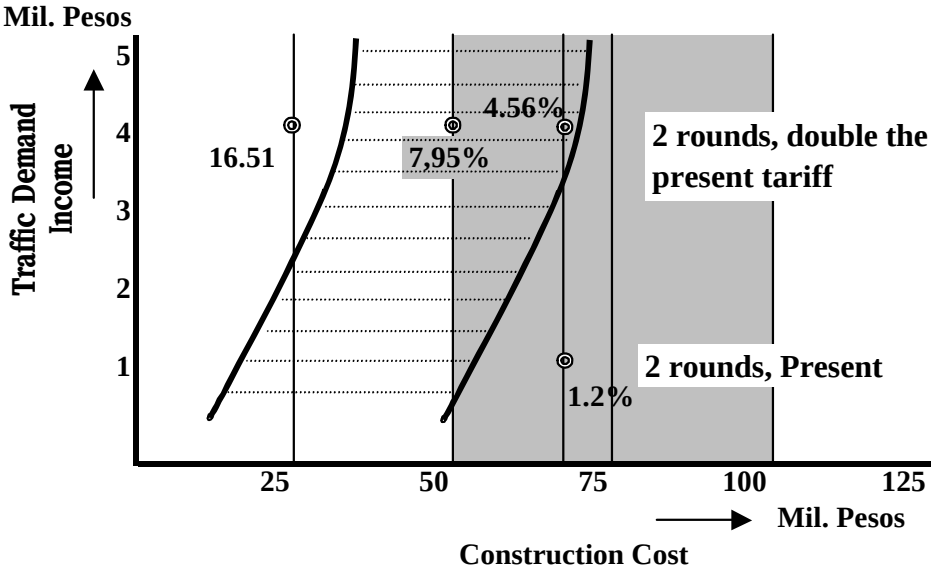


Fig 17.4.3 Relation Between Cost and Income

17.5 Return of Profit gained from LGU Port

The regional port development projects have been carried out using foreign ODA loans by DOTC. After completion of the project by DOTC, port facilities are transferred to a municipality and the net income gained from the facilities are to be used for the regional development as the municipality's income.

But since the Philippine government is facing financial difficulty due to the shortage of tax revenues, an idea has been proposed that a part of the net income from the port activities should be returned to the central government when a certain level of net income is posted.

The port facilities require not only personnel expenses to operate them but also maintenance cost which become larger as facilities age. In order to avoid discouraging municipalities from promoting port activities, a system where no money is paid to the central government when the net income (that is, the difference between the total income and the maintenance and operation cost) is under a fixed amount, and a certain portion, for example 50%, of the net income exceeding the fixed amount is paid to the central government when the net income is over the fixed amount should be established.

Since the objective is to promote social development, the fixed amount should relatively large. For example, a monthly amount of 100 thousand pesos, or an annual amount of 1.2 million pesos should be set as the fixed amount. In addition to the income, municipalities can hire several officials for management and operation out of the maintenance and operation cost.

Chapter 18 Financial Analysis, Policy and Strategy for National Port Development

18.1 Present Financial Situation

18.1.1 Present Financial Situation of National Government

Philippines' national finance is very tight. Table 18.1.1 indicates that total obligation of national government amounted to 682 billion pesos in 2000, 780 billion pesos in 2002. But, National revenues in the same years were 514 billion pesos in 2000, 624 billion pesos in 2002. National finance balance resulted in a huge amount of deficit every year, in these days. Accordingly the government must take out foreign and domestic loans, or issue bonds. The portion of the budget used to finance the deficit increased from 50 billion pesos in 1998 to 130 billion pesos in 2002 (see Table 18.1.2).

In this financial situation in the Philippines, the national government has been investing a considerable amount of money in social infrastructure such as transportation facilities, electric power facilities, irrigation facilities and so on. As shown in Table 18.1.3, investment in transportation infrastructure account for more than 30 % of the national capital outlays. The majority of this money is going into the road sector. The share of airport investment was 2.5 % in 2000, but it has increased to more than 5 %. However, only 774 million pesos were spent for port and lighthouse facilities in 2000, although this figure jumped up to 1.292 billion pesos in 2002. Port investment is extremely small compared with other transportation investment in the Philippines. The amount of port investment is thought to be insufficient to meet the growing investment demand of government ports in the Philippines.

Table 18.1.1 National Finance at Present (Unit: million pesos)

Particulars	2000	2001	2002
A. Tax Revenue	460,034	498,880	571,282
B. Non-Tax Revenue	54,728	59,338	53,025
C. Total Revenue : [A+B]	514,762	558,218	624,307
D. Operating Expenditures	592,969	635,685	691,110
E. Capital Outlays	86,857	57,170	83,545
F. Net Lending	2,634	7,023	6,135
G. Total Obligation of National Gov. : [D+E+F]	682,460	699,878	780,790
H. Surplus / (Deficit) : [C – G]	(167,698)	(141,660)	(156,483)

Source: Fiscal Statistics Handbook, Department of Budget and Management

Table 18.1.2 National Government Financing 2000-2002 (Unit: million pesos)

Particulars	2000	2001	2002
A:Net Foreign Borrowings	103,914	10,422	48,548
A1:Gross Foreign Borrowings	145,434	58,284	138,562
A2:Amortization	(41,520)	(47,862)	(90,014)
B:Net Domestic Borrowing	99,901	163,339	63,258
B1:Gross Domestic Borrowings	145,330	211,081	128,845
B2:Amortization	(45,429)	(47,742)	(65,587)
C:Change In Cash	(69,603)	(28,761)	18,194
D:Total Financing Requirement [A+B+C]	134,212	145,000	130,000

Source: Fiscal Statistics Handbook, Department of Budget and Management

Table 18.1.3 Transportation Infrastructure Outlays within Capital Outlays of National Expenditure Program (Unit: thousand pesos)

Infrastructure investment by Transport mode	2000(Actual)		2001(Actual)		2002 (Proposed)	
	Amount	A / B	Amount	A / B	Amount	A / B
A: Transportation infrastructure outlays	26,605,817	30.6%	19,240,742	33.7%	27,972,790	33.5%
A1:Roads and bridges	21,469,019	24.7%	15,363,448	26.9%	20,864,790	25.0%
A2:Airports/national facilities	2,208,225	2.5%	1,866,387	3.3%	4,335,584	5.2%
A3:Land transportation	2,154,660	2.5%	1,551,907	2.7%	1,480,536	1.8%
A4:Ports and lighthouses	773,913	0.9%	459,000	0.8%	1,291,880	1.5%
B: National capital outlays	86,856,616	100%	57,169,617	100%	83,545,146	100%

Source: Fiscal Statistics Handbook, Department of Budget and Management

18.1.2 Present Financial Situation of Local Government Units

The present finance of local government Units (LGUs) shows good performance. Table 18.1.4 indicates that the ending cash balance of LGUs was 39.8 billion pesos surplus in 2000, and 51.8 billion pesos surplus in 2002 up from 39.8 billion pesos in 2000. However, it should be noted that there are large discrepancies in the finances of urban and rural area. In fact, 31 provinces in the total 79 provinces were in the red in 2002. Those provinces that are forced to service their debt will not be suffer from financial deficit will not be able to spend their financial resources on new transport facility investment (see Appendix 18.1).

Table 18.1.4 Cash Flow of LGUs 2000 -2002 (Unit: million pesos)

Particulars	2000	2001	2002
A: Beginning Balance	31,601	39,790	38,226
B: Cash Inflow	126,112	130,881	157,112
B1:Tax Revenue	113,133	116,835	140,456
B2:Non-tax Revenue	12,979	14,046	16,656
B3:Borrowings	3,450	1,649	2,293
C: Expenditure	121,373	134,095	145,830
C1:General Services	56,476	63,376	67,963
C2: Economic Services	27,286	28,845	30,677
C3: Social Services	26,766	28,979	31,562
C4:Others	10,845	12,895	15,627
D: Ending Cash Balance : [A+B-C]	39,790	38,226	51,800

Source: Fiscal Statistics Handbook, Department of Budget and Management

18.1.3 Present Financial Situation of Philippine Ports Authority

(1) Financial Performance of Philippine Ports Authority

The present financial situation of the Philippine Ports Authority (PPA) can be said favorable. All major financial indicators remain within the financially reasonable range (see Table 18.1.5).

To begin with, the return on assets indicates the degree of profits realized in relation to the amounts invested in assets. It is calculated by dividing the net operating income by the average operating fixed assets. This indicator is always above the minimum requirement of 7%.

Secondly, the port operating ratio indicates the operational efficiency of the port management organization as an enterprise. It is calculated by dividing the total operating expenses by the total port revenue. A lower ratio indicates a higher profit margin. When this ratio is less than 70%, the operation of the port management organization is assessed to be efficient.

Thirdly, the debt coverage ratio indicates whether or not the operating income is able to cover the repayment of the principal and interest of long-term loans. This ratio should be higher than 1.0 and preferably be higher than 1.75.

Lastly, the self sufficiency ratio measures the capability of the port management organization to generate cash from its operation to finance its capital expenditures. The minimum requirement of this ratio is 30%. As shown in Table 18.1.5, PPA's self sufficiency ratio is always greater than 30%. According to PPA's financial statement of operation, net income of operation shows a surplus (see Table 18.1.6). Therefore, PPA's financial performance is now quite favorable. There is no financial problem at present.

Table 18.1.5 PPA's Financial Performance

Ratio	1995	1997	1999	2001
Return on Assets	14.3%	14.0%	14.4%	16.1%
Port Operating Ratio	57.1%	62.0%	63.4%	58.5%
Debt Coverage Ratio	2.2	2.9	2.9	4.0
Self Sufficiency Ratio	71.6%	55.0%	57.4%	111.0%

Source: Financial Report CY 1997, 1999 and 2001, PPA

Table 18.1.6 PPA Statement of Operation 1999 and 2001 (Unit: thousand peso)

Revenue and expenses	1999		2001	
	Amount	%	Amount	%
A: Revenue	4,145,461	100%	5,120,848	100%
A1: Tariff revenue	2,474,661	59.7%	2,991,147	58.4%
A2: Fixed fee(ICTSI)	1,074,199	25.9%	1,441,319	28.1%
A3: Other income	596,601	14.4%	688,382	13.5%
B: Expenses	2,950,339	100%	3,446,684	100%
B1: Personal services	680,531	23.1%	738,848	21.4%
B2: Maintenance and other operating expenses	2,269,808	76.9%	2,707,836	78.6%
C: Deduction/Other expenses	25,765	100%	(10,052)	100%
Foreign exchange loss	25,675	99.7%	(10,059)	-
Extraordinary loss	90	0.3%	7	-
D: Net income(A-B-C)	1,169,357		1,684,216	

Note :( ) stands for "gain".

Source: Financial Report CY 1999 and 2001, PPA

(2) Port Revenue of Philippine Ports Authority

The port revenue of Philippine Ports Authority (PPA) has been increasing each year, and reached 5.12 billion pesos in 2001. Table 18.1.7 shows the PPA's port revenue by tariff item. The revenue from wharfage had the greatest share of the total revenue in 1997, but the share of the wharfage revenue has been decreasing and it was taken over by ICTSI's container terminal concession fees, which took the largest share of 28% in 2001. The terminal operator and stevedoring revenue follows with 15% of the gross revenue. It can be pointed out that PPA's port revenue greatly relies on foreign calling vessels and foreign cargo handling charge, including ICTSI'S (MICT) concession fees.

Table 18.1.7 PPA Revenue by Tariff Item (Unit: million pesos)

Category	1997		1999		2001	
	Amount	% of Total	Amount	% of Total	Amount	% of Total
A: Charges on Vessels	545.33	14.97	616.61	14.87	809.69	15.81
A1:Port dues	175.67	4.82	219.44	5.29	296.17	5.78
A2:Dockage(Berthing)	186.89	5.13	217.83	5.25	303.66	5.93
A3:Dockage(Anchorage)	67.47	1.85	67.22	1.62	65.55	1.28
A4:Usage fees	108.28	2.97	104.93	2.53	126.38	2.47
A5:Lay Up Fees	0.16	0.00	0.43	0.01	0.76	0.01
A6:Pilotage	6.86	0.19	6.76	0.16	17.17	0.34
B: Charges on Cargoes	1,840.52	50.51	1,858.04	44.82	2,181.46	42.60
B1:Wharfage Dues	1,167.50	32.04	1,096.58	26.45	1,195.26	23.34
B2:Storage Charges	165.80	4.55	132.27	3.19	149.04	2.91
B3:Terminal operator/Stevedoring (*)	507.22	13.92	629.19	15.18	837.16	16.35
C: Other sources	1,257.90	34.52	1,670.81	40.30	2,129.70	41.59
C1:ICTSI Fees (*)	771.16	21.16	1,074.20	25.91	1,441,32	28.15
C2:Fund Management Income	289.53	7.95	378.25	9.12	390.38	7.62
C3:Other Income	197.21	5.41	218.36	5.27	298.00	5.82
D: Gross Revenue : [A+B+C]	3,643.75	100.00	4,145.46	100.00	5,120.85	100.00

Note: (*) stands for Fixed fee + Variable fee.

Source: Financial Report CY 1999 and 2001, PPA

Table 18.1.8 shows the district-wise distribution of port revenue and the comparison of port revenue between government ports and private ports. PDO Manila had the largest share in the total port revenue, that is, 56 % in 2001. The combined share of PDO Manila and PPA Head Quarter reaches 64 %. This means that local ports' revenue is quite scarce. Profitable cargoes are concentrated in the District Manila and its surroundings. PPA's port revenue comes from private ports. Private ports that were constructed by the national government must pay 100% of the wharfage revenue to PPA, while private ports that were fully constructed by the private sector must pay 50% of the wharfage revenue to PPA. The nation-wide port revenue from private ports amounts to 1.0 billion pesos, 20% of the PPA's total port revenue in 2001.

Table 18.1.8 Port Revenue Comparison between Government Port and Private Port in 2001

(Unit: million pesos)

District/PMO Office	Revenue Total		Government Ports		Private Ports	
	Amount	% of PPA Total	Amount	% of PMO Representative	Amount	% of PMO Representative
1:PDO Manila	2,882.64	56.3%	2,870.96	100%	11.68	0%
2:PDOLuzon	889.11	17.4%	224.62	25%	664.49	75%
3:PDO Visayas	311.06	6.1%	212.28	68%	98.78	32%
4:PDO N.Mindanao	255.31	5.0%	169.68	66%	85.63	34%
5:PDO Southern Mindanao	383.99	7.5%	237.12	62%	146.87	38%
6:PPA Head Office	398.74	7.8%	398.74	100%	-	
Grand Total	5,120.85	100.%	4,113.40	80%	1,007.45	20%

(3) Cash Flow Statement of Philippine Ports Authority

The cash flow of the Philippine Ports Authority (PPA) has been, therefore, remained sound for a long time. Table 18.1.9 shows the cash flow statement and forecast of PPA from 1993 to 2004. The ending cash balance increased from 1.7 billion pesos in 1993 to 5.6 billion pesos in 2001. However, in the most likely future scenario, the ending cash balance of PPA is forecast to show a deficit of 2.8 billion in 2004. It will continue to go down, reaching a deficit of 3.6 billion in 2007 (Details are shown in Appendix 18.1). This is due to the sudden rise-up of capital outlay based on PPA's port development and rehabilitation program. PPA's 5 Year Development Program (2002-2006), which covers 2 foreign assisted projects, that is Batangas Port Development Project (Phase II) and the Philippine Port Package Project (Davao, General Santos, Zamboanga and Iloilo), in addition to locally funded projects of all PPA ports in the Philippines. Total cost of 5 Year Development Program amounts to 25.7 billion pesos. This investment cost just coincides with the capital outlay of PPA's cash flow forecast. During the 5 Year Development Program period, PPA's capital outlay rapidly increases, but port revenues will not increase at the same growth rate as the capital outlay. Accordingly, PPA's financial situation will be severe, and the ending cash balance will continue to show a deficit until the completion of the 5 Year Program.

Table 18.1.9 Cash Flow Statement of PPA 1993-2007 (Unit: million pesos)

Cash Flow	1993	1997	2001	2007
A: Cash Balance Beginning	1,570	3,498	4,710	(3,407)
B: Cash Inflow	2,645	4,061	5,246	8,532
B1:Revenue	1,893	3,322	4,711	7,497
B2:Foreign Loan Proceeds	374	449	144	1,031
B3:Others	378	290	390	
C: Total Cash Available[A+B]	4,215	7,599	9,956	5,126
D: Total Cash Outlay	2,555	4,056	4,390	8,729
D1:Cash Operating Expenses (Personnel Services, Administration Cost, Maintenance)	699	1,599	2,200	3,272
D2: Capital Outlay	1,046	1,022	1,215	4,303
D3: Debt Services-Interest	413	333	245	224
D4: Debt Services-Principal	357	373	623	492
D5: Dividend Payment	40	729	107	438
E: Ending Cash Balance[C-D]	1,660	3,503	5,590	(3,605)

Source: Financial Report CY 1997, CY 1999, CY 2001, and Financial Statement/Schedule Sep 30 2002, PPA

18.1.4 Port Investment Plans Prepared by Relevant Public Organizations

Port investment consists of improvement and rehabilitation of present port facilities, creation of new port facilities, procurement of cargo handling equipment, land acquisition, construction of access road, and environmental countermeasures.

(1) Long-term Port Investment Plans Up to the Year 2024

Total investment cost for the public port development plans up to the year 2024 formulated by Philippine port authorities and public port development bodies reaches 534 billion pesos, and the major part of long-term investment is borne by PPA (see Table 18.1.10). PPA formulated a long term port development plan in 1994. 25 Year Plan includes Rehabilitation and Extension Program of the Manila South Harbor and North Harbor, Phase II Project of the Port of Batangas, and Container and Bulk Terminal Construction Project at the Port of Cagayan de Oro. Total cost of the project amounts to 492 billion pesos (see Table 18.1.11). Needless to say, as some urgent port development works have already been carried out, the actual investment cost is now less than 492 billion pesos. However, since cargo is projected to increase at a rate of 10-15% up to the target year 2024, a huge investment will still be required to provide PPA ports with required berth lengths.

DOTC's Medium Term Public Investment Program proposes 2 water transportation development

projects. The first one is the on-going Social reform related feeder ports development project (up to 2006), the remaining project cost of which amounts to 947 million pesos. The other one is RO/RO ferry network and trans-Visayas intermodal transport project, that will be initiated after Medium Term Program is completed. The project cost is estimated to be 3.3 billion pesos. PMO Port of DOTC is also preparing for the next RO/RO feeder port development program after the on-going Social reform related feeder ports development project is completed in 2006. In the master plan study for feeder port development in 2000, 82 ports in the Philippines were proposed to be developed until the year 2024. The total project cost amounts to 4.9 billion pesos, while the short-term project cost is estimated at 1.3 billion pesos for 31 ports (see Table 18.1.12).

In addition, the Development Bank of the Philippines (DBP) and PIA's (PHIVIDEC Industrial Authority) launched ambitious port development projects recently. DBP's port development program is deriving DBP's Sustainable Logistics Development Program (SLDP), that is aiming to establish the most economic grain and fruits transportation system from farm lands to end-users

PIA started a large scale port development project. PIA is a land-lord of container terminal. A sophisticated foreign container handling terminal tentatively began operations in August, 2003. PIA has also launched a large scale bulk terminal project that will be located next to the new foreign container terminal. The cost of the bulk terminal project is estimated at 2.3 billion pesos, and operation is scheduled to commence in 2006.

Table 18.1.10 Long-term Public Port Investment Plans Up to 2024

Project Promoter	Project	No. of Ports	Estimated Cost (million Pesos)	Remarks
PPA	25 Year Development Plan	22	492,100	1994-2020
CPA	Cebu Integrated Port Development Plan (Master Plan)	4	22,966	2006-2020
DOTC	Medium Term Public Investment Program 1: Social Reform Related Feeder Ports Development Project 2: RO/RO Ferry Network and Trans-Visayas Intermodal Transport		947 3,289	2003-2006 After 2006
	Feeder Port Projects Package (Assisted by Foreign Loan)	82	4,870	
DBP	Sustainable Logistics Development Program 1: Road-RORO Ferry Network (96 RORO Ferry Ports Improvement) 2: Bulk Terminals, Handling and Transport Equipment (12 Sts)	96 4	3,500 4,000	2003-2006 2003-2006
PIA	Bulk Terminal Project (Phase II)	1	2,283	2003-2010

Table 18.1.11 PPA's 25 Year Development Plan (Unit: million pesos)

Items	1994	2000	2005	2020
Annual Cargo Growth Rate	1994-2005 : 15% per year			2006 – 2020 10% per year
Projected Cargo Traffic (million metric tons)	46	106		894
Projected Passenger Traffic (million Pax)	22	31		68
Required Berth Length (km)	-	7		136
Required Investment Cost	492,100			

Source: 25 Year Development Plan, Prepared in 1994, PPA

Table 18.1.12 Master Plan of Feeder Port Development (Unit: million pesos)

Project Phase	No. of Ports	Estimated Cost	Remarks
Short Term Project	31	1,313	2006-2010
Long Term Project	51	3,557	2011-2020
Total	82	4,870	2006-2020

Source: Master Plan Report for Feeder Port development, Mar. 2000

(2) Short-term Port Investment Plans

Table 18.1.13 shows the short-term public port investment cost formulated by Philippine port authorities and public port development bodies. Total amount of investment cost reaches 53 billion pesos. Major part of short-term investment is also borne by PPA. According to PPA's 5 Year Development Program that was started in 2002, total cost of the project amounts to 25.7 billion pesos (see Table 18.1.14). PPA's 5 Year Development Program includes rehabilitation and extension program of the Manila South Harbor and North Harbor, Phase II Project of the port of Batangas, and container and bulk terminal construction project at the port of Cagayan de Oro.

DOTC's Medium Term Public Investment Program proposes 2 Water Transportation Development Projects. One is the on-going Social Reform Related Feeder Ports Development Project (up to 2006), the remaining project cost of which amounts to 947 million pesos. The other is RO/RO Ferry Network and Trans-Visayas Intermodal Transport Project that will be initiated after the year 2006. The latter project cost is same as the long-term project cost. PMO Port of DOTC is also preparing for another RO/RO Feeder Port development Program after the on-going Social Reform Related Feeder Ports Development Project is completed in 2006. In the Master Plan Study for Feeder Port Development in 2000, 31 ports are proposed to be developed until the year 2010. The total project cost amounts to 1.3 billion pesos (see Table 18.1.15).

Other big port development projects have been launched recently by public organizations. This year, Development Bank of the Philippines (DBP) launched Sustainable Logistics Development Program (SLDP), which consists of three major projects: (1) Grain highway project, (2) RO/RO ferry network project, and (3) Cold chain project. Total project cost is 30 billion pesos for the first 3 years. Base on DBP's efficient transportation and storage system project for grain and fruits, 96 RO/RO ferry ports and 4 major bulk terminals will be developed by the private sector with financial assistance from DBP. The project cost is 3.5 billion pesos for RO/RO ferry ports and 4.0 billion pesos for major bulk terminals.

Another is PIA's bulk terminal project. Mindanao island needs a great amount of fertilizer in order to cultivate rice, corn, and fruits as efficiently as possible. In addition, corn and other harvested products must be transported from Mindanao to the northern part of the Philippines as quickly as possible. To catch up with the growing demand of those bulk cargoes, the large-scale bulk terminal project has been timely launched by PIA. Total cost of PIA's project is 2.3 billion pesos. The bulk terminal project will be completed in 2009.

Table 18.1.13 Short-term Public Investment Plans

Project Promoter	Project	No. of Ports	Estimated Cost (million pesos)	Remarks
PPA	5 Year Development Program		25,678	2002-2006
CPA	Cebu Integrated Port Development Plan (Short-term Plan)	2	11,965	2006-2010
DOTC	Medium Term Public Investment Program			
	1: Social Reform Related Feeder Ports Development Project (Assisted by Foreign Loan)		947	2003-2006
	2: RO/RO Ferry Network and Trans-Visayas Intermodal Transport		3,289	After 2006
	Feeder Port Projects Package (Assisted by Foreign Loan)	31	1,313	2006-2010
DBP	Sustainable Logistics Development Program			
	1: Road-RORO Ferry Network(96 RORO Ferry Ports Improvement)	96	3,500	2003-2006
	2: Bulk Terminals, Handling and Transport Equipment(12 Sets)	4	4,000	2003-2006
PIA	Bulk Terminal Project (Phase II)	1	2,283	2003-2010

Table 18.1.14 PPA's 5 Year Development Program (Unit: million pesos)

Program Components		2002	2003	2004	2005	2006
Foreign Assisted Project	Batangas Port Development Project (Phase II)	1,067.39	1,262.20	483.30	5.78	-
	Philippine Port Package (Davao,G.Santos.Zambiloilo)	540.25	1,928.27	2,859.80	2,755.62	1,376.30
	Total	1,404.72	3,111.12	3,304.39	2,761.22	1,376.30
Locally Funded Project	Manila South Harbor	26.67	56.00	95.00	70.00	65.00
	Manila North Harbor	140.86	4.50	1.30	-	-
	Other PDO Manila	85.51	253.61	309.03	225.80	125.80
	PDO Visayas	637.12	1,133.12	587.10	255.00	1,386.20
	PDO N. Mindanao	374.72	538.36	518.10	526.80	688.50
	PDO S. Mindanao	421.00	617.03	296.00	200.00	101.00
	F.S./D.D. Study	80.00	80.00	80.00	80.00	80.00
	Total	2,105.64	3,393.48	2,280.53	1,771.60	2,826.50
Acquisition of Capital Assets		331.29	393.29	417.63	100.00	100.00
Grand Total		3,841.65	6,897.89	6,002.55	4,632.82	4,302.80

Source: 5 Year Development Program 2002-2006, PPA

Table 18.1.15 Feeder Port Development Plan 2006-2010 (Unit: million pesos)

LGU Ports	EIRR	Estimated Cost	LGU Ports	EIRR	Estimated Cost
Basco	-3.8	364	St.Isidro	50.7	35
Itbayat	2.8	31	Sn. Antonio	17.2	23
Burdeos	15.8	31	Lao-ang	46.0	43
Bataraza	19.9	36	Padre Burgos	34.5	33
Dumaran	16.0	30	Sn. Francisco	15.1	30
Mercedes	16.2	28	Olutanga	52.9	24
Sirma	37.4	13	Lupon	63.8	31
St. Vicente	16.5	44	Kapitan	16.4	44
Mayangaway	28.9	27	Sta Cruz	17.9	19
Batan	3.8	13	Jolo	20.6	34
Rapu Rapu	22.9	28	Languyan	26.3	29
St. Pascual	19.1	38	Loreto	28.9	16
Claveria	33.7	43	Dinagat	21.9	48
Milagros	17.8	65	Sn. Benito	15.9	27
Poro	30.3	36	Pilar	17.8	24
Pilar	19.8	22	Total		1,313

Source: Master Plan Report for Feeder Port Development, Main Report, Mar. 2000

Table 18.1.16 3 Year DBP Strategy (Unit: billion pesos)

Road RO/RO Ferry Network	Serial building of 96 vessels	4.0
	Financing new/improvements of 96 RO/RO ferry port	3.5
Cold Chain	Establishment of 16 processing and marketing centers	8.0
	Aggregating Centers – 160 areas	3.0
	Reefer transport eqipment/vehicles – 500 Units	5.0
Bulk Chain	Establishment of 12 processing (aggregating) centers	2.5
	Bulk terminal, handling and transport equipment – 12 sets	4.0
Total		30.0

Source: Sustainable Logistics Development Program, Development Bank of the Philippines

18.2 Port Cargo Throughput

18.2.1 General

Philippine seaborne cargo is expected to grow rapidly. Annual average growth rate of public cargo between 2001 and 2024 is 5.78%. Annual average growth rate of private cargo between 2001 and 2024 is 5.32%, almost the same as public cargo. Among the various types of cargo, container cargo will grow most rapidly. Annual average growth rate of public container cargo between 2001 and 2024 is 6.94%, which is much higher than public cargo total. In accordance with rapid growth of cargo throughput at port, port revenues are also expected to increase in future. In particular, revenue from container cargo handling is expected to become the main source of port revenues.

Table 18.2.1 Result of Cargo Demand Forecast

Public / Private	Cargo Classification	Cargo Tonnage 2001 (ton)	Average Growth Rate	Cargo Tonnage 2009 (ton)	Average Growth Rate	Cargo Tonnage 2024 (ton)	Average Growth Rate
Public	Container	37,184,658	8.41%	70,919,178	6.17%	174,075,073	6.94%
	Others	31,649,346	4.35%	44,480,894	3.71%	76,823,616	3.93%
	Total (Share to Grand Total)	68,834,004 (42.2%)	6.67%	115,400,072 (44.5%)	5.31%	250,898,689 (46.7%)	5.78%
Private	Container	4,220,554	7.80%	7,697,085	6.17%	18,906,060	6.74%
	Others	90,052,733	5.33%	136,386,168	4.61%	267,974,258	4.86%
	Total (Share to Grand Total)	94,273,287 (57.8%)	5.45%	144,083,253 (55.5%)	4.70%	286,880,318 (53.3%)	4.96%
Grand Total		163,107,291 (100.0%)	5.98%	259,483,325 (100.0%)	4.98%	537,779,007 (100.0%)	5.32%

Source: JICA Study Team

18.2.2 Public Port Cargo Throughput

Table 18.2.2 shows the public cargo demand forecast up to the target year 2024. Among three types of cargo in the table, international container cargo grows most rapidly. The share of international container cargo to total public cargo will become larger. The international container cargo share jumps up from 21.3% in 2001 to 31.7% in 2024.

Table 18.2.2 Public Cargo Demand Forecast

Based on GDP Growth Rate 4.5%	Cargo Tonnage (ton), 2001	Average Growth Rate (2001-2009)	Cargo Tonnage (ton), 2009	Average Growth Rate (2009-2024)	Cargo Tonnage (ton), 2024	Average Growth Rate (2001-2024)
International Container Cargo	14,646,465 (21.3%)	9.68%	30,663,072 (26.6%)	6.57%	79,644,958 (31.7%)	7.64%
Domestic Container Cargo	22,547,193 (32.8%)	7.51%	40,256,106 (34.9%)	5.85%	94,430,115 (37.6%)	6.43%
Other Cargo	31,649,346 (46.0%)	4.35%	44,480,894 (38.5%)	3.71%	76,823,616 (30.6%)	3.93%
Total Cargo	68,843,004 (100.0%)	6.67%	115,400,072 (100.0%)	5.31%	250,898,689 (100.0%)	5.78%

Source: JICA Study Team

18.2.3 Private Port Cargo Throughput

The private cargo demand forecast up to the target year 2024 is shown in Appendix 18.2. Among three types of cargo in the table, container cargo (international plus domestic) grows most rapidly. However, the share of private container cargo to total private cargo is rather small, less than 10%. Bulk cargo (international plus domestic) occupies the greatest portion among the three types of private cargo. Private cargo is expected to increase at the same growth rate as public cargo up to 2024.

18.3 International Container Terminal Development Plans

In accordance with public cargo demand growth, public port capacity has to be expanded rapidly. In

particular, port capacity at international container terminals needs to be expanded urgently to catch up with rapidly increasing container cargo in the Philippines. Port development plans at international container terminals in the Philippines are shown in Appendix 18.3. It could be said that the amount of facilities in 2024 can match the increased demand while the amount of facilities in 2009 might be over-provided. Berth requirements up to 2024 are summarized in Table 18.3.1. According to the table, 7 more berths are planned by the year 2009, and 17 more berths are planned between 2010 and 2024. Total number of additional international container berths planned by the year 2024 is 24.

Table 18.3.1 Planned Number of Berths for International Container Terminal

Port	2003	2004/2009	2009	2010/2024	2024
MICT	5 berths (10 G.Cranes)	-	5 berths (10 G.Cranes)	1 berths (4 G.Cranes)	6 berths (14 G.Cranes)
South Harbor	3 berths (9 G.Cranes)	-	3 berths (9 G.Cranes)	1 berth (2 G.Cranes)	4 berths (11 G.Cranes)
Subic	-	2 berths (4 G.Cranes)	2 berths (4 G.Cranes)	1 berth (2 G.Cranes)	3 berths (6 G.Cranes)
Batangas	Under Construction	2 berths (6 G.Cranes)	2 berths (6 G.Cranes)	7berths (14 G.Cranes)	9 berths (18 G.Cranes)
Cebu	(1 existing berth) (-9m), (2G.Cranes)	1 berth (2 G.Cranes)	1 berth (2 G.Cranes)	3 berths (6 G.Cranes)	4 berths (8 G.Cranes)
Iloilo				1 berth (1 Mobile Cranes)	1 berth (1 Mobile Cranes)
Cagayan De Oro	Under Construction	1 berth (2 G.Cranes)	1 berth (2 G.Cranes)	1 berth (2 G.Cranes)	2 berths (4 G.Cranes)
Davao	1 berth (No G. Crane)	1 berth (2 Mobile Cranes)	2 berths (2 Mobile Cranes)	-	2 berths (2 Mobile Cranes)
General Santos				1 berth (2 Mobile Cranes)	1 berth (2 Mobile Cranes)
Zamboanga				1 berth (1 Mobile Cranes)	1 berth (1 Mobile Cranes)
Total	9 berths	7 berths	16 berths	17 berths	33 berths

In the long run, additional port capacity may be needed in the Greater Capital Region (GCR). There are several development concepts for supplying the additional port capacity for growing international container cargo in the long run. The first development concept is the accelerated development of the international container terminal at Batangas. In addition to Phase-3 project of the Port of Batangas,

Batangas Phase-4 project is an option for the strategic long-term port development. However, to tap the unlimited potential of the Port of Batangas, the suspended highway project between the CALAVARSON industrial area and the port must be urgently implemented.

The second is the expansion of MICT and the South Harbor. The Port of Manila will be able to prepare for large scale port expansion if the dredging of the main access channel is efficiently implemented. However, the impact of growing port cargo on the urban traffic in Manila should be thoroughly examined.

The third concept is to construct a new port somewhere in Manila Bay. Cavite new port might be able to provide the long-term port capacity required in the Greater Capital Region. The construction cost of a new port has not been examined yet, but it is anticipated that the new port construction cost will be the highest among the development concepts.

18.4 Public Port Investment Cost

According to Table 18.4.1, 15.65 billion pesos is needed by the year 2009, and 38.8 billion pesos is needed between 2010 and 2024. Total investment cost needed by the year 2024 is 54.45 billion pesos.

On the other hand, the long-term (2004 - 2024) port investment cost other than international container terminals is 13.8 billion pesos for the international bulk/break bulk terminals, 23.2 billion pesos for the domestic container terminals, 25.4 billion pesos for the domestic bulk/break bulk terminals, and 18.7billion pesos for RO/RO ports development. Total port investment cost including international container terminals is 42.3 billion pesos in the short-term (2004 - 2009), and 91.7 billion pesos after 2010 up to 2024. The long-term (2004 - 2024) port investment cost including international container terminals is 134.0 million pesos. Table 18.4.2 shows the port function-wise investment cost up to 2024.

Table 18.4.1 International Container Terminal Investment Cost

International Gateway Ports	(2000 - 2003)	Short-term Investment Cost (2004 - 2009)	Investment Cost after the year 2010 (2010 - 2024)	Long-term Investment Cost (2004 - 2024)
MICT	-	-	Privatization BOT/Concession	Privatization BOT/Concession
South Harbor			Privatization BOT/Concession	Privatization BOT/Concession
Subic	-	6.800 bil P	3.400 bil P	10.200 bil P
Batangas	3.130 bil P	2.550 bil P	[*] 11.840 bil P	14.390 bil P
Cebu	-	3.700 bil P	11.100 bil P	14.800 bil P
Iloilo	-	-	2.500 bil P	2.500 bil P
Cagayan De Oro	3.774 bil P	-	3.700 bil P	3.700 bil P
Davao	-	2.600 bil P	1.160 bilP	3.760 bil P
General Santos	-	-	2.600 bilP	2.600 bil P
Zamboanga	-	-	2.500 bilP	2.500 bil P
Total	6.904 bil P	15.650 bil P	38.800 bil P	54.450 bil P

Note: [*] This figure does not include the investment cost for Phase-3 because Batangas Phase-3 project is assumed to be privatized

Source: JICA Study Team

Table 18.4.2 Port Function-wise Investment Cost

(Unit: billion pesos)

Port Function	Short-term (2004 - 2009)	After 2010 to 2024	Long-term (2004 - 2024)
International Container Terminal	15.650	38.800	[*] 54.450
International Bulk/Break Bulk Terminal	3.300	10.500	13.800
Domestic Container Terminal	11.905	11.295	23.200
Domestic Bulk/Break Bulk Terminals	4.600	20.770	25.370
RO/RO Ports Development	7.236	11.465	18.701
Total	42.691 (31.5%)	92.830 (68.5)	135.521 (100.0%)

Note: [*]; Manila MICT, Manila South and Batangas Phase-3 port expansion projects are assumed to be privatized. Accordingly, the long-term investment cost for international container terminals, which is different from the long-term investment cost shown in Table 10.4.11 (68.65 billion pesos), does not include these projects.

Source: JICA Study Team

18.5 Public Port Revenues

18.5.1 Cargo Type-wise Port Revenues

Among various kinds of port revenues, port due, anchorage fee, usage fee, dockage fee, and wharfage are collected by port authorities and 100% of those revenues come to port authorities. On the other hand, cargo handling tariff is collected by terminal operators and shared by terminal operators and port authorities. When it comes to international container cargo handling, port authorities usually impose a fixed fee on terminal operators based on the concession contract between port authorities and terminal operators. In addition to the above port tariff, Philippine port authorities are collecting port charge from private ports. Those port charge from private ports are basically 50% of port dues, usage fee and wharfage. Public port revenues derived from private ports amounts to 1.0 billion pesos in 2001, and will reach more than 3.0 billion pesos in 2024. The accumulated revenues derived from private ports between 2004 and 2024 are estimated to be 42 billion pesos. Assuming that all kinds of port charges keep present level up to the year 2024, the accumulated port revenues in the short-term plan period (2004 - 2009) and in the long-term plan period (2004 - 2024) are estimated to be 46 billion pesos, and 256 billion pesos, respectively.

Cargo type-wise revenue analysis shows that the revenue from international container cargo accounts for almost 70% of total revenues although it represents only 20 to 30% of the total cargo volume. On the other hand, port revenues from domestic cargo handling account for less than 5% of total revenue, excluding port revenue from domestic container cargo handling. This is because the port charge for domestic cargo handling is at a very low level. The JICA Study Team recommends that the present port charge should be normalized based on the actual examination of port revenues and expenditures.

Table 18.5.1 Cargo Type-wise Accumulated Port Revenues (Unit: million pesos)

Classification	Short-term Plan Period (2004 - 2009)		2010 - 2024		Long-term Plan Period (2004 - 2024)	
	Accumulated Revenues	Share	Accumulated Revenues	Share	Accumulated Revenues	Share
International Container Cargo	29,924	65.3%	146,915	70.0%	176,839	69.2%
International Break Bulk Cargo	2,303	5.0%	7,655	3.6%	9,958	3.9%
International Bulk Cargo	970	2.1%	4,095	2.0%	5,065	2.0%
Domestic Container Cargo	3,132	6.8%	13,072	6.2%	16,204	6.3%
Domestic Break Bulk Cargo	1,116	2.4%	3,169	1.5%	4,285	1.7%
Domestic Bulk Cargo	226	0.5%	985	0.5%	1,211	0.5%
Revenue from Private Ports	8,122	17.7%	33,995	16.2%	42,117	16.5%
Total	45,793	100.0%	209,886	100.0%	255,679	100.0%

Source: JICA Study Team

18.5.2 International Container Revenues

International container charge consists of the following three sorts of charges based on the port charge regulated by port authorities. Those charges are port due, wharfage and container handling tariff, including stevedore, terminal operator and storage. Port due and wharfage are taken by the port management body (PMB), and container handling tariff is allocated between PMB and terminal operator. Table 18.5.2 shows accumulated port revenues of international container cargo handling up to 2024. International container cargo is forecast to grow rapidly and accordingly international container revenue will also grow very fast, reaching more than 45 billion pesos in 2024. The accumulated international container cargo revenues total is 559 billion pesos up to 2024.

Revenue allocation between PPA and a terminal operator at Manila Port is shown in Table 18.5.3. Port due and wharfage belong to PPA, but cargo handling charge is allocated between them; 20% for PPA, and 80% for a terminal operator. In addition, PPA takes fix fee from a terminal operator as yearly rental fee of the terminal facilities. In general, the allocation share of international container handling charge for public port management body is 37.5%.

Table 18.5.2 Predicted International Container Handling Revenues (Unit: million pesos)

Based on GDP Growth Rate 4.5%	Revenue 2002 (Estimation) 2,073,768 TEU	Revenue 2003 3,623,825 TEU	Accumulated Revenue 2004-2009	Revenue 2010 3,897,879 TEU	Revenue 2024 9,537,879 TEU	Accumulated Revenue 2010-2024	Accumulate(Revenue 2004-2024
Port Due	99.3 (1.0%)	173.6	969	186.7	456.7	4,549	5,518 (1.0%)
Wharfage	673.7 (6.7%)	1,177.2	6,570	1,266.3	3,098.5	30,858	37,428 (6.7%)
Handling Charge	9,287.4 (92.3%)	16,229.3	90,557	17,457.1	42,715.4	425,405	515,982 (92.3%)
Total	10,060.4 (100.0%)	17,580.1	98,096	18,910.1	46,270.6	460,812	558,928 (100.0%)

Source: JICA Study Team

Table 18.5.3 Revenue Allocation between Public and Private (ICTSI and ATI)

	Revenue Items	2002	Public/Private Revenue Share (%)
PPA	Port Due	79.3 mil P	
	Wharfage	538.6 mil P	
	20% of Handling Charge	1,481.2 mil P	Total container handling volume is 1,653,187TEUs
	(+) Fixed Fee	(+) 912.4 mil P	667.7 Mil P(ICTSI) + 244.7 Mil P (ATI)
	Total	3,011.5 mil P	37.5%
Operator (ICTST +ATI)	80% of Handling Charge	5,925.0 mil P	Total container handling volume is 1,653,187TEUs
	(-) Fixed Fee	(-) 912.4 mil P	667.7 Mil P(ICTSI) + 244.7 Mil P (ATI)
	Total	5,012.6 mil P	62.5%
Grand Total		8,024.1 mil P	8,024.1 Mil P

Source: JICA Study Team

18.5.3 Revenue from Private Port

As discussed above, port authorities collect half of port due, usage fee and wharfage from private port. Private port cargo is forecast to grow rapidly, accordingly public port revenues derived from private ports will also grow very fast, and reach more than 3 billion pesos in 2024. The accumulated revenues derived from private ports up to 2024 are 43.25 billion pesos.

Table 18.5.4 Accumulated Public Port Revenues Derived From Private Ports Up To 2024

	2001 (Realized)	2009 (Estimated)	Accumulated Revenue 2004-2009	2010 (Estimated) 3,897,879TEU	2024 (Estimated) 9,537,879TEU	Accumulated Revenue 2010-2024	Accumulated Revenue 2004-2024
Private Port Cargo	94,273,287 ton	144,083,253 ton		150,852,550 ton	286,880,318 ton		
Charge from Private Port	1,007.5 mil P	1,539.7 mil P	9,245 mil P	1,612.08 mil P	3,065.74 mil P	34,007 mil P	43,252 mil P

Source: JICA Study Team

18.6 Comparison of Port Revenues and Investment Cost

18.6.1 Comparison of Long-term (2004 - 2024) Port Revenues and Investment Cost

Based on the above-mentioned discussion, port investment cost and revenues up to 2024 are summarized as shown in Table 18.6.1. The long-term (2004 - 2024) total port investment cost is 167.4 billion pesos, including maintenance and operational cost for newly built facilities. On the other hand, the long-term total port revenues amount to 255.7 billion pesos. The accumulated port revenues are 1.5 times greater than the accumulated port investment cost, leaving a positive balance of 88.3 billion pesos. It should be noted, however, that the above accumulated revenues contain the revenues derived from the existing port facilities in addition to the newly built port facilities. On the contrary, the above accumulated port investment cost does not contain the maintenance and operational cost of the existing port facilities. For a true comparison between revenues and investment cost, all parameters should be equal. However, in spite of the unequal accounting basis, the cargo type-wise comparison of revenues and investment cost reveals that international container terminal projects produce a great amount of surplus, but that most of other port development projects result in deficit. However, the total port development finance will show a surplus. Therefore, a greater part of public port development will be able to be financed by the public port revenues in the long run. In other words, the large financial surplus that will be accumulated in the long run can be used to assist ports which are not financially viable. "Internal fund appropriation" or cross subsidy from profitable international container terminals to financially difficult domestic cargo facilities is needed.

Here, the comparison of all port revenues and all costs in terms of total accumulated amount between 2004 and 2024 is carried out. Table 18.6.2 shows the comparison of the long-term port revenues and investment cost, including on-going foreign loan disbursement, maintenance and operational cost of existing port facilities and equipment, loan repayment and interest, and dividend payment to the national government. Assuming that the present port charge level continues until 2024, the difference between all revenues and costs will be surplus. In addition, if port charges are raised and/or foreign and domestic loans are extended to port authorities and public port development bodies, financial balance will be better.

Table 18.6.1 Cargo Type-wise Comparison of Long-term Port Revenues and Investment Cost

(Unit : billion pesos)

Port Function	Port Revenues (1)	Investment and related Cost (2)			Remaining (3) = (1) - (2)
		New Investment Cost	Maintenance and Operational Cost	Sub-total	
International Container Cargo	176.84	54.45	15.00	69.45	107.39
International Bulk /Break Bulk Cargo	15.02	13.80	3.70	17.50	- 2.48
Domestic Container Cargo	16.20	23.20	7.20	30.40	- 14.20
Domestic Bulk /Break Bulk Cargo	5.50	25.37	3.00	28.37	- 22.87
RO/RO Cargo	Small	18.70	3.00	21.70	- 21.70
Revenue from Private Ports	42.12	-	-	-	42.12
Total	255.68	135.52	31.90	167.42	88.26

Source: JICA Study Team

Table 18.6.2 Comparison of Long-term Port Revenues and Investment Cost

(Unit: billion pesos)

Accumulated Port Revenues (1)	On-going Foreign Loan Disbursement (2)	New Port Development Cost (3) (Including Maintenance and Operational Cost)	Accumulated Maintenance and Operational Cost of Existing Port Facilities and Equipment	Accumulated Loan Repayment and Interest	Dividend payment	Remaining: (5) = (1)+(2) - (3) - (4)
255.68	8.00	167.42	45.0	15.60	27.40	8.26
			Sub-total (4): 88.00			

Note: On-going foreign loan projects are Subic Phase-1, Batangas Phase-2 (Stage-1) and Mindanao container terminal

Source: JICA Study Team

18.6.2 Comparison of Short-term (2004 - 2009) Port Revenues and Investment Cost

Port investment cost and revenues up to 2009 are summarized as shown in Table 18.6.3. The short-term (2004 - 2009) total port investment cost is 46.2illion pesos, including maintenance and operational cost for newly built facilities. On the other hand, the short-term total port revenues amount to 45.8 billion pesos based on the present port charge level. The accumulated port revenues

are almost same as the accumulated port investment cost during the short-term period. The above accumulated revenues include revenues derived from the existing port facilities in addition to the newly built port facilities. On the contrary, the above accumulated port investment cost does not include the maintenance and operational cost of the existing port facilities.

Here, the comparison of all port revenues and all costs in terms of total accumulated amount between 2004 and 2009 is carried out. Table 18.6.4 shows the comparison of the short-term port revenues and investment cost, including on-going foreign loan disbursement, maintenance and operational cost of existing port facilities and equipment, loan repayment and interest, and dividend payment to the national government. All revenues and costs being taken into account, a deficit of 12.3 billion pesos occurs in the short term. As a result, any effective financial countermeasures such as the introduction of low-interest foreign loans and raise of port charges will be necessary to implement the projects in a timely manner. The list of proposed port development projects in the short run for which port authorities and public port development bodies want to apply foreign loan is shown in Appendix 18.6. The total estimated cost of proposed foreign loan projects is 24.0 billion pesos (including the domestic loan portion and on-going foreign loan disbursement) during the short-term period (2004 - 2009) and it includes the loans which have already been approved and have not been disbursed. If these loans are approved, surplus is registered in the short term. In addition, if port charges are raised, financial situation will be improved more.

Table 18.6.3 Cargo Type-wise Comparison of Short-term Port Revenues and Investment Cost

(Unit: billion pesos)

Port Function	Port Revenues (1)	Investment and related Cost (2)			Remaining (3) = (1) - (2)
		New Investment Cost	Maintenance and Operational Cost	Sub-total	
International Container Cargo	29.93	15.65	1.70	17.35	12.58
International Bulk /Break Bulk Cargo	3.27	3.30	0.40	3.70	- 0.43
Domestic Container Cargo	3.13	11.90	0.90	12.80	- 9.67
Domestic Bulk /Break Bulk Cargo	1.34	4.60	0.20	4.80	- 3.46
RO/RO Cargo	Small	7.24	0.30	7.54	- 7.54
Revenue from Private Ports	8.12	-	-	-	8.12
Total	45.79	42.69	3.50	46.19	- 0.40

Source: JICA Study Team

Table 18.6.4 Comparison of Short-term (2004-2009) Port Revenues and Investment Cost

(Unit: billion pesos)

Accumulated Port Revenues (1)	On-going Foreign Loan Disbursement (2)	New Port Development Cost (3) (Including Maintenance and Operational Cost)	Accumulated Maintenance and Operational Cost of Existing Port Facilities and Equipment	Accumulated Loan Repayment and Interest	Dividend Payment	Remaining: (5) = (1) + (2) - (3) - (4)
45.79	8.00	46.19	9.93	3.72	6.20	- 12.25
			Sub-total (4): 19.85			

Note: On-going foreign loan projects are Subic Phase-1, Batangas Phase-2 (Stage-1) and Mindanao container terminal

Source: JICA Study Team

18.7 Cash Flow Analysis of Port Authorities

18.7.1 PPA

PPA's cash flow in case of the short-term project implementation shows that the ending cash balance is always surplus towards the future (see Table 18.7.1). In preparation for the PPA's cash flow, the JICA Study Team made the following assumptions.

(1) GDP growth rate of 4.5% was adopted for the demand forecast.
(2) Present port charge of PPA remains unchanged until 2024.
(3) Batangas Phase-2 (3 international container terminals) project is implemented by 2010. The total investment cost between 2004 and 2009 is 2.55 billion pesos. First 2 international container terminals will be operational in 2005, and the fixed fee for the terminal utilization is determined to be 140.4 million pesos per year, based on the concept that all investment costs for container terminals must be recovered within the concession contract period.
(4) So-called Philippine Port package project is implemented during the short-term plan period. The Philippine Port package project consists of 4 port expansion projects at the ports of Zamboanga, General Santos, Davao and Iloilo. The total investment cost between 2004 and 2009 is 7.6 billion pesos. New berths will be operational in 2008.
(5) PPA also invests port development and improvement projects at necessary ports within the PPA port system. . The total investment cost between 2004 and 2009 is 13.2 billion pesos, and all investment cost is supplied by PPA's own fund.
(6) ADB and OECF loan repayment and interest for MICT and South Harbor continue to be paid by PPA during the short-term period.
(7) The base case scenario for PPA's cash flow assumes that there is no inflation during 2004 and

2024.

(8) Expenses for repair and maintenance substantially increase 2 % per year.

Based on the above, the ending cash balance falls to 1.75 billion pesos in 2005, but will steadily increase after 2005. Therefore, PPA's short-term port financing is feasible on condition that PPA takes necessary financial actions, in particular, the introduction of low interest foreign loan and internal fund appropriation.

18.7.2 CPA

CPA's cash flow in case of the short-term project implementation shows that the ending cash balance is always surplus towards the future (see Table 18.7.2). In preparation for the CPA's cash flow, the JICA Study Team made the following assumptions.

(1) GDP growth rate of 4.5% was adopted for the demand forecast.
(2) Present port tariff of PPA remains unchanged.
(3) Cebu International Container Terminal Phase-1 project is implemented during the short-term plan period. The total investment cost between 2004 and 2009 is 3.7 billion pesos including land acquisition cost. The first international container terminal will be operational in the second half of the short-term period. The fixed fee for the terminal utilization is determined to be 185 million pesos per year based on the concept that all investment costs for container terminals must be recovered within the concession contract period.
(4) International container cargo will be handled at the existing multi-purpose berth with gantry cranes until the new international container terminal becomes operational. The cargo handling capacity at the existing multi-purpose berth is assumed to be 200,000 TEU per year.
(5) Ordinary repair and maintenance is carried out but no other development projects are anticipated.
(6) In the base case scenario for CPA's cash flow, no inflation effect is considered.
(7) Expenses for repair and maintenance substantially increase 2 % per year.

Based on the above assumptions, CPA's ending cash balance continues to go up towards the future, assisted by steadily growing port revenues mainly derived from international container cargo handling at the existing multi-purpose berth. Therefore, CPA's short-term port financing is feasible on condition that CPA takes necessary financial actions, in particular, the introduction of low interest foreign and domestic loan and internal fund appropriation.

Table 18.7.1 PPA's Cash Flow in Case of Short-term Project Implementation

(Unit: million pesos)

Classification	2004	2005	2006	2007	2008	2009
1.Cash Balance Beginning	2,486	1,907	1,752	2,545	3,222	4,256
2.Cash Inflows	6,346	9,524	10,110	10,460	8,339	8,736
+Port Revenues	5,501	6,149	6,735	7,080	7,439	7,836
+Foreign Loan Proceedings	595	3,125	3,125	3,130	650	650
+Fund Management	250	250	250	250	250	250
3.Cash Outflows	6,925	9,679	9,317	9,783	7,305	8,206
+Personal Services						
(For Existing facilities)	1,006	1,016	1,026	1,036	1,047	1,057
(For New facilities)	-	1.0	1.0	1.0	3.8	3.9
+Administration Expenses(MOOE)						
(For Existing facilities)	711	718	725	732	739	747
(For New facilities)	-	0.6	0.6	0.6	2.3	2.3
+Repair and Maintenance						
(For Existing facilities)	380	390	410	440	460	480
(For New facilities)	-	105	105	105	436	436
+Dredging	330	360	400	440	440	440
+Foreign Loan Repayment	353.7	307.6	307.6	307.6	206.4	206.4
+Foreign Loan Interest	155.7	151.9	207.5	262.9	318.3	322.6
+Capital Outlay						
(Batangas Stage-1)	1,020	-	-	-	-	
(Batangas Stage-2)	-	-	-	-	765	765
(Philippine Port Package)	-	3,675	3,675	3,680	-	-
(Other Ports Investment)	2,309	2,394	1,909	2,058	2,117	2,376
+Dividend Payment	660	560	550	720	770	1,370
4.Ending Cash balance	1,907	1,752	2,545	3,222	4,256	4,786

Table 18.7.2 CPA's Cash Flow in Case of Short-term Project Implementation

(Unit: million pesos)

Classification	2004	2005	2006	2007	2008	2009
1.Cash Balance Beginning	281	459	656	859	1,115	1,404
2.Cash Inflows	486	525	536	2,492	2,534	876
+Port Revenues	486	525	536	642	684	876
+Foreign Loan Proceedings	-	-	-	1,560	1,560	-
+Local Loan Proceedings	-	-	-	290	290	-
3.Cash Outflows	307.6	328.2	333.2	2,235.8	2,245.2	539.4
+Personal Services	65	67	68	70	72	73
+Administration Expenses(MOOE)	68	70	72	73	75	77
+Repair and Maintenance	40	41	42	43	44	45
+Dredging	-	-	-	-	-	-
+Foreign Loan Repayment	-	-	-	-	-	-
+Foreign Loan Interest	-	-	-	-	34.3	68.6
+Local Loan Repayment	50	50	50	50	29	58
+Local Loan Interest	10	10	10	10	43.5	82.7
+Capital Outlay	-	-	-	1,850	1,850	-
(New Container Terminal)	-	-	-	(1,850)	(1,850)	-
+Dividend Payment	74.6	90.2	91.2	139.8	97.4	135.1
4.Ending Cash balance	459	656	859	1,115	1,404	1,741

Source: JICA Study Team

18.8 Financial Feasibility of Representative Projects

The financial feasibility of representative projects of each port function-wise project group is shown in Table 18.8.1. FIRR values of international container terminal projects (Batangas Phase-2, Subic Phase-1, Cebu Phase-1, and Davao New Container Terminal) are greater than 7%. On the other hand, based on the present port charge the FIRRs of Zamboanga and Araceli ports show a negative value and General Santos 1.5%. This is because the present port charge for domestic cargo handling is set lower than that required for project sustainability. In case that the port charge at these three ports be raised up to 15 to 116% greater than the present level, FIRRs exceed 3%. The port charge normalization is very important. Without port charge raise, port development projects and private sector participation to port sector will not be promoted.

Table 18.8.1 FIRR of Representative Short-term Port Development Projects

Ports Group	Port	Representative Project	Investment Cost	FIRR
International Gateway Port	Batangas	Batangas Stage-1	4.150 bil P	8.0 %
		Batangas Stage-2	1.530 bil P	
	Subic	Subic Phase-1	6.800 bil P	11.1 %
	Cebu	Cebu Phase-1	3.700 bil P	7.4 %
	Davao	New Int'l Container Terminal(250m)	2.600 bil P	9.9 %
Important International Transport Port	Zamboanga	I & D Multi-purpose berth (200m)	1.670 bil P	3.7%*1)
	General Santos	Domestic Multi-purpose berth (200m)	1.670 bil P	3.1%*2)
	Iloilo	International Bulk/Break Bulk Terminal	1.700 bil P	4.9%
RO/Ro Ports	Araceli	RO/RO Terminal	0.039 bil P	3.0%*3)

Note: * are calculated based on raised port charges. 1); increase of 80%, 2); increase of 15%, 3); increased of 116%

Source: JICA Study Team

18.9 Development of International Gateway Port

PPA is now planning to construct a large scale international container terminal, the Phase-3 project of Batangas, after completion of the on-going container terminal project (Phase-2: Stage-1 and Stage-2). According to the JICA Study Team's cargo demand forecast, the first container berth of the Phase-3 project shall be operational in 2012. The container handling volume at Phase-3 container berth in 2012 will be 63,000 TEUs and will grow steadily until reaching the maximum handling capacity of 300 thousand TEUs in 2016. The revenue sharing between PPA and a terminal operator is assumed to be 37.5% and 62.5%, respectively. Based on this assumption, PPA will gain port revenue of 113 million pesos in 2012, increasing to 546 million pesos in 2016 and thereafter.

The cost estimation shows that initial construction and equipment cost is 1.885 billion pesos, and that annual management and maintenance cost is 133.18 million pesos during the period between 2012 and 2043. Based on the above revenue and cost data of the Project, the financial internal rate of return (FIRR) is more than 25%, which indicates that this project is fully viable(see Appendix 18.9).

As described earlier, FIRR shows the profitability of the project during the project life, but it cannot show the actual financial burden of the project promoter. The financial burden is indicated by a cash flow of the project. Table 18.9.3 and Table 18.9.4 show the cash flow of Phase-3 project of Batangas, based on the assumption stated above, including revenue and cost estimation. The ending cash balance shows a deficit during in the short run. This is because the port must continue to expend a great amount on interest payments in addition to repayment of the principle before the container terminal begins to generate the expected revenue. The maximum accumulated deficit of the project is

478.2 million pesos. The port of Batangas will be in a very precarious financial situation unless it receives assistance from PPA. The deficit of profitable project in the short run is one of the most important factors when the project finance is planned.

Table 18.9.1 Revenue Prospect of Phase-3 Project of Batangas

Port of Batting's	2012	2013	2014	2015	2016	-------	2043
Total cargo	1,263 Thousand TEU	1,336 Thousand TEU	1,414 Thousand TEU	1,496 Thousand TEU	1,500 Thousand TEU	-------	1,500 Thousand TEU
Cargo at Public Berths	1,200 Thousand TEU	1,200 Thousand TEU	1,200 Thousand TEU	1,200 Thousand TEU	1,200 Thousand TEU	-------	1,200 Thousand TEU
Cargo at Private Berth	63 Thousand TEU	136 Thousand TEU	214 Thousand TEU	296 Thousand TEU	300 Thousand TEU	-------	300 Thousand TEU
Revenue at No.5 Berth	302 Million Pesos	659 Million Pesos	1,038 Million Pesos	1,437 Million Pesos	1,456 Million Pesos	------- (100%)	1,456 Million Pesos
Revenue to Port Authority	113 Million Pesos	247 Million Pesos	389 Million Pesos	539 Million Pesos	546 Million Pesos	------- (37.5%)	546 Million Pesos
Revenue to Private Sector	189 Million Pesos	412 Million Pesos	649 Million Pesos	898 Million Pesos	910 Million Pesos	------- (62.5%)	910 Million Pesos

Source: JICA Study Team

Table 18.9.2 Cash Flow of Batangas Port Phase-3 Project (1) (Unit: million pesos)

Initial Construction and Procurement Cost (Million Pesos)			
	2010	2011	Total
Civil Works & Procurement	702	702	1,404
Gantry Cranes(2)	-	431	431
Transfer Cranes (4) and so on			
Computer system		50	50
Total	702	1,183	1,885

Management and Maintenance Cost (Million Pesos)		
Personnel Services Cost		9.30 / Year
Administration Expenses		9.30 ＊ 60% = 5.58/Year
Repair & Maintenance Cost	Facilities	Construction Cost ＊ 5% = 70.2/Year
	Equipments	Procurement Cost ＊10% =48.1/Year
T o t a l		133.18 / Year

Table 18.9.3 Cash Flow of Batangas Port Phase-3 Project (2) (Unit: Million Pesos)

CASH FLOW	2010	2011	2012	2013	2014	2015	2016	2018
1.Cash Beginning	0.0	-14.9	- 151.7	- 433.2	- 478.2	- 272.8	195.0	688.3
2.Cash Inflows	702	1,183	189.	412.	649.	898.	910.	910.
+Revenues	-	-	189.	412.	649.	898.	910.	910.
+Foreign Loan								
+Domestic Loan	702.	1,183.	-	-	-	-	-	-
3.Cash Outflows	850.1	1,453.0	470.5	457.0	443.6	430.2	416.7	403.3
+Personnel	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3
+Administration	5.58	5.58	5.58	5.58	5.58	5.58	5.58	5.58
+Repair & Maint'			133.18	133.18	133.18	133.18	133.18	133.18
+M. Dredging	-	-					-	-
+Foreign L.Repay	-	-				-	-	-
+Foreign Interest	-	-	-	-	-	-	-	-
+Domes L.Repay	-	46.8	125.7	125.7	125.7	125.7	125.7	125.7
+Domes Interest	-	75.1	196.7	183.2	169.8	156.4	142.9	129.5
+Capital Outlay	702.	1,183.	-	-	-	-	-	-
+Dividend Tax								
4.Cash Ending	- 14.9	- 151.7	- 433.2	- 478.2	- 272.8	195.0	688.3	1,195.0

Source: JICA Study Team

Table 18.9.4 Cash Flow of Batangas Port Phase-3 Project (3) (Unit: million pesos)

CASH FLOW	2019	2020	2021	2022	2023	2024	2025	2026
1.Cash Beginning	1,195.0	1,728.6	2,275.8	2,836.5	3,410.6	3,998.2	4,599.2	5,213.6
2.Cash Inflows								
+Revenues	910	910	910	910	910	910	910	910
+Foreign Loan								
+Domestic Loan								
3.Cash Outflows	376.4	362.8	349.3	335.9	322.4	309.0	295.6	235.4
+Personnel	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3
+Administration	5.58	5.58	5.58	5.58	5.58	5.58	5.58	5.58
+Repair & Maint'	133.18	133.18	133.18	133.18	133.18	133.18	133.18	133.18
+M. Dredging								
+Foreign L.Repay								
+Foreign Interest								
+Domes L.Repay	125.7	125.7	125.6	125.6	125.6	125.7	125.6	78.9
+Domes Interest	102.6	89.0	75.6	62.2	48.7	35.3	21.9	8.4
+Capital Outlay	-	-	-	-	-	-	-	-
+Dividend Tax								
4.Cash Ending	1,728.6	2,275.8	2,836.5	3,410.6	3,998.2	4,599.2	5,213.6	5,888.2

Source: JICA Study Team

18.10 RO/RO Port Development

18.10.1 RO/RO Ports Development Master Plan

RO/RO ports development should be accelerated in order to assist regional development in remote islands. The present RO/RO port development program consists of the following four financial schemes as shown in Table 18.10.1.

The first is DOTC's RO/RO and feeder ports development project. DOTC is, first of all, promoting small-scale feeder port development on a priority basis by appropriation of the national government's general fund. This port development consists, in other words, of port rehabilitation projects. In response to LGU's request for port rehabilitation and through DOTC's prioritization process for port improvement, almost 100 rural feeder ports are rehabilitated every year. Financial resource of this port development is the national government general budget. Fifty to 80 million pesos are allocated for the improvement and rehabilitation of those feeder ports every year. However, due to government's severe financial condition, port budget has been reduced year after year.. DOTC is also promoting medium-scale feeder ports in Visayas region by appropriation of low interest foreign loan (JBIC). This project is called "Social Reform Related Feeder Ports development Project". Total project cost is 2.65 billion pesos, and the project will be finished in 2006. In addition, DOTC is preparing for another RO/RO ports development project which is going to be financially assisted by low interest foreign loans. This RO/RO port network development project has been prepared by careful selection of financially viable ports in the Trans-Visayas region. A total of 17 candidate RO/RO ports in the Visayas region have been already selected. Total project cost is 3.23 billion pesos, and the project is planned to start in 2004.

Table 18.10.1 RO/RO Ferry Ports Development Scheme

Project Implementing Agency	Project	Project Staus qua	Project Cost	Project Location
DOTC	Feeder Ports Development Project	On-going	Average 50-80 mil P per year	All Feeder Ports in accordance with prioritization.
	Social Reform Related Feeder Ports Development Project	On-going	2,652 mil P	Trans-Visayas Region
	Trans-Visayas Transport Network Project	Being Prepared	3,230 mil P	17 Ports in Trans-Visayas Region
PPA	Western Sea-board Project	Being Prepared	-	Western Part of the Philippine Archiperago
DBP	Sustainable Logistic Development Program (SLDP)	On-going	3,500 mil P	48 Routes; 96 Ro/Ro Ferry Ports in Philippines

The second is PPA's RO/RO ports development project. PPA focuses on the western side of the Philippine archipelago. An effective transport network has been formulated along the eastern side of the Philippine archipelago. However, the transport network along the western side of the Philippine archipelago has not been connected for a long time due to the existence of many sea links. PPA's project, so-called "Western Sea Board Project", has been just launched together with the national government's "Strong Republic Nautical Highway Project".

The third is DBP's Sustainable Logistic Development Program (SLDP). DBP's SLDP Project has been already initiated under a privatization scheme. This SLDP's project is carried out using JBIC's 2 step loan. Ninety-six candidate RO/RO ports in the Philippines have been already selected. Total project cost is 3.5 billion pesos, and the project is planned to be initiated in 2004.

After reviewing all RO/RO and feeder port development plans, the JICA Study Team proposes the Nationwide RO/RO Port Development Plan, which consists of the following three development categories. 1) Major Corridor Development Project, 2) Mobility Enhancement Project, and 3) Remote Island Project (see Table 18.10.2). These projects will be funded by the national government's general fund or using low interest foreign loans, depending on the financial viability of each port project. Among the above various port development schemes, DOTC's RO/RO and feeder ports development projects and the JICA Study Team's Remote Island project / Social Reform Related Feeder Port development project may not be financially viable due to the low inter-island traffic demand. Accordingly, those isolated feeder port development projects need to be financially assisted by the government or PPA's internal fund appropriation/cross-subsidy.

Table 18.10.2 RO/RO Ports Development Master Plan

Project	Number of Candidate Ports			Investment Cost (million pesos)		
	Short-term 2004 - 2009	After Short-term 2010 - 2024	Long-term 2004 - 2024	Short-term 2004 - 2009	After Short-term 2010 - 2024	Long-term 2004 - 2024
Major Corridors Development	5 ports	3 ports	8 ports	850	2,550	3,400
Mobility Enhancement [*]	28ports	28 ports	54 ports	4,520	5,100	9,620
Remote Island Development [**]	31 ports	61 ports	92 ports	1,705	3,470	5,175
Social Reform	7 ports	15 ports	22 ports	161	345	506
Total	71 ports	107 ports	176 ports	7,236	11,465	18,701

Note : [*] : The number of ports during the long-term period is not equal to the combined number of ports during the short-term and after the short-term period, because the same port is often developed during the short-term period as well as after the short-term period.

[**] : This category includs RO/RO ports connecting remote islands.

18.10.2 Financial Scheme of RO/RO Ports Development

As described above, RO/RO ports development can be carried out using various financial schemes. At large scale candidate RO/RO ports where the traffic demand and profitability are sufficiently high, port investment from the private sector should be sought. DBP is financially assisting private investors in accelerating SLDP's RO/RO ports development program. Meanwhile, the medium scale RO/RO ports project should be implemented by low interest foreign loans. The foreign governments provided ODA loans for port projects which assisted regional economic development and were financially feasible. DOTC is now planning to launch Trans-Visayas Transport Network project. DOTC has, at the same time, been developing small scale feeder ports in rural area. In general, small scale feeder ports are basically not financially viable due to the limited sea traffic demand. Without DOTC's general fund, the development of those small scale feeder ports would not have been realized. The increase of the national government's budget for infrastructure development is highly recommended. On the other hand, PPA is playing an important role in accelerating RO/RO port development. In particular, PPA is keen to develop RO/RO ports which are covered by the Strong Republic Nautical Highway Network. PPA's new policy issued in 2003, states that all government commercial ports not otherwise under the jurisdiction of another government agency or entity shall belong to PPA's administrative jurisdiction. The policy also states that PPA may allocate funds for appropriate studies and development of new ports/areas and repair or maintenance of such other existing ports under its administrative jurisdiction to make them effective alternative mode of transport and foster domestic or inter-island trade and commerce. In line with PPA's new port development policy, PPA will promote any scale RO/RO port development, taking prioritization and project coordination into account. After coordinating financial schemes, RO/RO port development will be prioritized in order to enhance as effectively as possible.

Table 18.10.3 Project Implementation Bodies for RO/RO Ports Development

	Private Sector's Own Fund	PPA's Own Fund (PPA Port)	DBP Assistance	Foreign Loan Assistance	National Government Own Fund
Large Traffic RO/RO Project	●	●	●	●	—
	A large amount of traffic demand is anticipated. Project has considerble profitability. Privatization scheme can be				
Medium Traffic RO/RO Project	—	●	●	●	—
	Insufficient traffic demand for fully privatized project. However, project implementation is vital to regional				
Small Traffic RO/RO Project	—	●	▲	▲	●

18.10.3 Profitability of RO/RO Ports Development Project

A great number of RO/RO candidate ports need to be urgently developed in the Philippines to meet the growing inter-island traffic demand and to accelerate regional economic development. It is important to select the most appropriate financial scheme given the traffic demand. Assuming that initial construction cost of RO/RO port is 73 million pesos, two case studies on short-haul RO/RO port development project are conducted in order to find out the break point between financially viable and non-viable projects. The first case is 2 round-trip shipping services per day by means of 1 RO/RO vessel navigation. The other case is 4 round-trip shipping services per day by means of 2 RO/RO vessel navigation. Based on the latest port charge and freight, vessel procurement cost and maintenance cost, it has been identified that the privatized project which deals with both port construction and shipping operation for 2 and 4 round-trip services per day by means of used vessel, is financially viable. It was also identified that the port construction project for 4 round-trip shipping services per day by means of used vessel is financially viable. The summary of the analysis is shown in Table 18.10.4. The break point analysis of inter-island traffic demand is explained in detail below.

Table 18.10.4 FIRR of Typical RO/RO Port Development Project

Number of services per day	Type of RO/RO port development	Vessel purchasing	Realized FIRR	Comparison of bank interest rate
Two(2) round-trip Service One(1) vessel deployment	Port construction	-	1.21%	< 2.2%(ODA loan interest)
	Shipping operation	Used vessel	14.62%	> 9.5%(DBP's loan interest)
		New vessel	3.81%	< 9.5%(DBP's loan interest)
	Port +shipping	Used vessel	11.09%	> 9.5%(DBP's loan interest)
Four(4) round-trip services Two(2) vessel deployment	Port construction	-	4.56%	> 2.2%(ODA loan interest)
	Shipping operation	Used vessel	14.84%	> 9.5%(DBP's loan interest)
		New vessel	3.94%	< 9.5%(DBP's loan interest)
	Port +shipping	Used vessel	13.31%	> 9.5%(DBP's loan interest)

Source: JICA Study Team

18.10.4 Case Study for 4 Round Service per Day using of 2 RO/RO Vessels

(1) Port Charge

A new RO/RO port charge was issued in 2003. The port charge rate has been reduced in order to

stimulate the RO/RO traffic demand in regional areas. The new port charge is an inclusive tariff for the use of port facilities and services and is also collected by the port management body on a sea-leg journey at the port of loading or embarkation (see Table 18.10.5).

Table 18.10.5 RO/RO Port Charge Issued by PPA in 2003

Vehicle Type	Description	Terminal Fee
Type-1	Motorcycle, Tricycle, Scooter	P 50.0
Type-2	Car, Minivan, Owner Jeep etc	P 100.0
Type-3	Light Delivery Van, Pick-up Truck, PUJ (more than 16 pax)	P 200.0
Type-4	Stake Truck, Heavy Delivery Truck, Pax /Tourist Bus etc.	P 400.0

(2) Vessel Cost

Vessel cost is one of key factors when analyzing the finance of RO/RO shipping service. Table 18.10.6 shows vessel procurement cost in accordance with the RO/RO vessel capacity. Larger vessel with more than 100 meter LOA can accommodate 35 heavy trucks and 500 passengers. However, the vessel procurement cost amounts to more than 800 million pesos. The vessel which is introduced to RO/RO ports, must be carefully selected depending on the exact sea traffic demand. In this case study, 1,971 GRT RO/RO vessel is chosen from among the 4 types of vessels. This vessel can accommodate 14 heavy trucks and 400 passengers, and the procurement cost amounts to 545 million pesos. The case study also considers the adoption of a used vessel, assuming that used vessel cost and vessel life are half of a new vessel. In particular, when low traffic demand is anticipated at a target RO/RO port, introduction of a used vessel is recommended in order to reduce the financial burden of the investor.

(3) Traffic Demand and Forecast Revenue

The case study for 4 round-trip shipping services per day is examined in this chapter. Assuming that the candidate RO/RO link has 31 nautical miles and average inter-island traffic demand of 100 passengers and 14 trucks per one navigation, 2 RO/RO vessels should be introduced to this sea link in order to carry out 4 round trip shipping service per day. A 1,971 GRT vessel is used in this case study as an objective RO/RO vessel. The new RO/RO port tariff is also adopted in the case study. All these assumptions being taken into account, a candidate RO/RO port will gain revenue of 3,920 thousand pesos in a year. Meanwhile, a shipping company will gain revenue of 154 million pesos in a year as freight charge (see Table 18.10.7).

Table 18.10.6 List of RO/RO Vessel Size, Dimension, Capacity and FOB Price

Vessel Size	Principal dimensions	Capacity	FOB Price
5,500 GRT	LOA: 115m Breadth: 16m Draft: 4.45m Gross Tonnage: 5,500ton	8 ton truck: 35 Passenger: 500	818 mil pesos (1,800 mil yen)
1,900 GRT	LOA: 66m Breadth: 12.5m Draft: 3.45m Gross Tonnage: 1,971ton	8 ton truck:14 Passenger: 400	545 mil pesos (1,200 mil yen)
900 GRT	LOA: 43m Breadth: 11.5m Draft: 2.36m Gross Tonnage: 867ton	8 ton truck: 7 Car: 10 Passenger: 300	386 mil pesos (850 mil yen)
20 GRT	LOA: 28m Breadth: 8m Draft: 1.00m Gross Tonnage: 20ton	Pickup truck: 6 Passenger: 180	113 mil pesos (250 mil pesos)

Source: Japan Shipbuilding Industry

Table 18.10.7 Revenues from 4 Round -Trip Shipping Service per Day

Traffic Demand	100 passengers and 14 trucks (8 ton) per vessel
Port Charge & RO/RO Fare (New tariff and no terminal operator service)	Vessel(Usage) : P 0.6 per GRT Passenger : P130 per person Vehicle : P 200 per car Terminal fee : P 3,000 per vessel
Port Revenue	Usage : P 1,656,000 a year Terminal fee : P 3,920,000 a year Total : P 167,280,000 for 30 years
Shipping Company's Revenue (Freight)	P 154,000,000 a year P 4,620,000,000 for 30 years

Source: JICA Study team

(4) Comparison of Cost and Revenue

As shown in Table 18.10.8, cost/revenue comparison for port construction project indicates that revenue is greater than construction cost. As explained in the previous section, FIRR of this project is 4.56 %. Therefore, the initial construction and yearly maintenance cost will be balanced by port revenue in the long run, if a low interest rate loan can be obtained. At the same time, provided that used vessels are deployed the shipping business is also financially viable in the long run, because FIRR of shipping service project is 14.84 %. On the other hand, in case that an investor is involved in both port construction and RO/RO shipping service for the objective sea link, total accumulated revenue is still greater than total accumulated cost in the long run. FIRR of this project is 13.31 %. This indicates that the investor's long-term finance will be viable if financial assistance from DBP's SLDP program can be obtained.

Table 18.10.8 Cost and Revenue Comparison of RO/RO Port Construction and Shipping Service (4 Round-Trip Shipping Service in a Day)

Port Construction & Operation Cost	[Ferry Pier: P24,552; RO/RO Ramp: P11.518; Causeway :P1,246 Stair Landing :P3,200; Back Up Area :P27,766; Navigation Aids: P2,780 Access Road :P660; Shed :P1,250(thousand pesos)] Sub total :P72,972 thousand + Operation Cost :P37,680 thousand
Ship Procurement & Operation Cost (31 Nautical Mile)	Ship Procurement :P545,455 * 2 =P1,090,910 thousand/2 vessels Personnel(Ship) :(P700+P500*5)*2 ships*365*30 = P70,080 thousand Personnel(Land) :(P500+P400)*2 ports*365*30 = 19,710 thousand Administration cost :Personnel*60% = P53,880 thousand Oil and minor repair :P25,000*4*350*30 = P1,050,000 thousand Maintenance cost :Vessel cost*5% = P1,636,365 thousand TOTAL :P3,920,945 thousand (30Ys)
Cost/Revenue Comparison (Port Side)	Revenue/Cost = P167,280 thousand/ P110,652 thousand Revenue is greater than construction cost. Initial investment cost will be recovered by revenue in the long run, if low interest loan is obtained.
Cost/Revenue Comparison (Shipping Side)	Revenue/Cost = P4,620,000 thousand/ P3,920,945 thousand Revenue is greater than shipping business cost. Business opportunity will come up.
Total Cost/Total Revenue(Port+ Shiping)	Total revenue/ Total cost = P4,787,280 thousand/ P4,031,597 thousand Revenue is greater than port and shipping business cost. Loan can be returned, if low interest loan is obtained.

Source: JICA Study team

18.10.5 Case Study for 2 Round Service per Day by means of 1 RO/RO Vessel

(1) Port Charge

The new RO/RO port charge was issued in 2003. The port charge rate has been reduced in order to stimulate the RO/RO traffic demand in regional areas. The new tariff rate is shown in Table 18.10.5.

(2) Vessel Cost

The vessel procurement cost by vessel size is shown in Table 18.10.6. To identify the break point of sea traffic demand between financially viable and non-viable projects, 1,971 GRT RO/RO vessel has been chosen from among 4 types of vessel. This type of vessel can accommodate 14 heavy trucks and 400 passengers, and the procurement cost amounts to 545 million pesos.

(3) Traffic Demand and Forecast Revenue

Assuming that the candidate RO/RO link has 31 nautical miles and average inter-island traffic

demand of 100 passengers and14 trucks per one navigation, 1 RO/RO vessel should be introduced to this sea link in order to carry out 2 round shipping service per day. 1,971 GRT vessel is used in this case study as an objective RO/RO vessel. The new RO/RO port tariff is also adopted in the case study. All these assumptions being taken into account, a candidate RO/RO port will gain a revenue of 1.96 million pesos in a year. Meanwhile, a shipping company will gain revenue of 77 million pesos in a year as freight charge (see Table 18.10.9).

Table 18.10.9 Revenues from 2 Round -Trip Shipping Service per Day

Traffic Demand	100 passengers and 14 trucks (8 ton) per vessel
Port Charge & RO/RO Fare (New tariff and no terminal operator service)	Vessel(Usage) : P 0.6 per GRT Passenger : P130 per person Vehicle : P 200 per car Terminal fee : P 3,000 per vessel
Port Revenue	Usage : P 828,000 a year Terminal fee : P 1,960,000 a year Total : P 83,640,000 for 30 years
Shipping Company's Revenue (Freight)	P 77,000,000 a year P 2,310,000,000 for 30 years

Source: JICA Study team

(4) Comparison of Cost and Revenue

The cost/revenue comparison for the port construction project indicates that revenue is less than the construction cost (see Table 18.10.10). On the other hand, the shipping business in case of used vessel procurement is financially viable in the long run because FIRR of the shipping service project is 14.62 %. It is also indicated that in case that an investor is involved in both port construction and RO/RO shipping service for the objective sea link, total accumulated revenue is greater than total accumulated cost in the long run. As explained in the previous section, FIRR of this project is 11.09 %. Accordingly, the investor's long-term finance will be viable if financial assistance from DBP's SLDP program can be obtained.

Table 18.10.10 Cost and Revenue Comparison of RO/RO Port Construction and Shipping Service (2 Round-Trip Shipping Service in a Day)

Port Construction & Operation Cost	[Ferry Pier : P 24,552; RO/RO Ramp : P 11,518; Causeway : P1,246; Stair Landing :P 3,200; Back Up Area: P 27,766; Navigation Ai2,780 Access Road:P 660; Shed:P 1,250 (Thousand Pesos)] Sub total : P 72,972 thousand + Operation Cost : P 37,680 Thousand
Ship Procurement & Operation Cost (31 Nautical Mile)	Ship Procurement: P545,455 thousand /1 Vessel Personnel(Ship) : (P700+P500*5)* 365*30 = P 35,040 Thousand Personnel(Land):(P500+P400)*2ports * 365*30 = P 19,710 Thousand Administration cost: Personnel * 60% = P 32,850 Thousand Oil and minor repair: P 25,000 * 2rounds*350*30 = P525, 000 Thousand Maintenance cost: Vessel cost *5%* 30 = P 818,183 Thousand TOTAL: P 1,976,238 Thousand (30Ys)
Cost/Revenue Comparison (PORT Side)	Revenue / Cost=P 83,640 Thousand / P 110,652 Thousand Revenue is less than Construction Cost. Initial Investment Cost will not be recovered by revenue even in the long run.
Cost/Revenue Comparison (Shipping Side)	Revenue / Cost=P 2,310,000 Thousand / P1,976,238 Thousand Revenue is Greater than Shipping Business Cost. Business Opportunity will come up.
Total Cost/Total revenue (Port + Shipping)	Total Revenue /Total Cost = P 2,393,640 Thousand / P 2,086,890 Thousand Revenue is Greater than Port construction and Shipping Business Cost. Loan Can be Paid Out, If Low Interest Loan is Appropriated.

Source: JICA Study team

18.10.6 Cash Flow Analysis of RO/RO Port Development Project

As described earlier, FIRR shows the profitability of the project during the project life, but it cannot show the actual financial burden of the project promoter. The financial burden is indicated only by a cash flow of the project. The cash flow of port construction and shipping service project for 4 round-trip shipping service per day is shown in Table 18.10.8 and Table 18.10.9. What is the most important here is that the ending cash balance tends to become deficit during the short-term period. This is because the RO/RO port and shipping investor must continue to service the domestic loan before the RO/RO terminal begins operation. The maximum accumulated deficit of the project is 52.7 million pesos. If the investor does not possess sufficient funds to balance the cash flow in the short run, the project will be in jeopardy. The short-term deficit of a project profitable in the long run is one of the most important factors when the port project finance is planned.

Table 18.10.11 Cash Flow of RO/RO Sea-link Service for 4 Round-Trip Shipping Services per Day (1) (Unit: million pesos)

CASH FLOW	2005	2006	2007	2008	2009	2010	2011	2012
1.Cash Beginning	0	0	-12,673	-29,295	-41,506	-49,305	-52,693	-51,669
2.Cash Inflows	72,972	545,455	159,576	159,576	159,576	159,576	159,576	159,576
+Revenues	-	-	159,576	159,576	159,576	159,576	159,576	159,576
+Foreign Loan								
+Domestic Loan	72,972	545,455	-	-	-	-	-	-
3.Cash Outflow	72,972	558,128	176,198	171,787	167,375	162,964	158,552	154,141
+Personnel	-	-	3,322	3,322	3,322	3,322	3,322	3,322
+Administration	-	-	1,993	1,993	1,993	1,993	1,993	1,993
+Repair & Mainten'ce	-	-	28,003	28,003	28,003	28,003	28,003	28,003
+Oil & Repair	-	-	35,000	35,000	35,000	35,000	35,000	35,000
+Foreign L. Repay								
+Foreign Interest								
+Domestic L. Repay		4,865	41,229	41,229	41,229	41,229	41,229	41,229
+Domestic Interest		7,808	65,651	61,240	56,828	52,417	48,005	43,594
+Capital Outlay	72,972	545,455	-	-	-	-	-	-
+Dividend Tax								
4.Cash ending	0	-12,673	-29,295	-41,506	-49,305	-52,693	-51,669	-46,234

Table 18.10.12 Cash Flow of RO/RO Sea-link Service for 4 Round-Trip Shipping Services per Day (2) (Unit: million pesos)

CASH FLOW	2013	2014	2015	2016	2017	2018	2019	2020
1.Cash Beginning	-46,234	-35,387	-20,129	-459	23,622	52,115	84,917	122,232
2.Cash Inflows	159,576	159,576	159,576	159,576	159,576	159,576	159,576	159,576
+Revenues	159,576	159,576	159,576	159,576	159,576	159,576	159,576	159,576
+Foreign Loan								
+Domestic Loan								
3.Cash Outflow	148,729	144,318	139,906	135,495	131,083	126,774	122,261	117,849
+Personnel	3,322	3,322	3,322	3,322	3,322	3,322	3,322	3,322
+Administration	1,993	1,993	1,993	1,993	1,993	1,993	1,993	1,993
+Repair & Mainten'ce	28,003	28,003	28,003	28,003	28,003	28,003	28,003	28,003
+Oil & Repair	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000
+Foreign L. Repay								
+Foreign Interest								
+Domestic L. Repay	41,229	41,229	41,229	41,229	41,228	41,227	41,227	41,227
+Domestic Interest	39,182	34,771	30,359	25,948	21,536	17,124	12,714	8,302
+Capital Outlay								
+Dividend Tax								
4.Cash ending	-35,387	-20,129	-459	23,622	52,115	84,917	122,232	163,959

18.10.7 Reduction of RO/RO Port Construction Cost

Reduction of RO/RO port construction cost substantially improves the project financial viability. Generally speaking, RO/RO port construction cost is 50 to 100 million pesos. This RO/RO port's construction cost is estimated by adopting the typical construction standard and the typical Unit construction price. The above construction cost is also including the cost for RO/RO ramp, stair

landing, causeway, back up area, navigation aide, access road, and passenger terminal. Among these port facilities, pavement of back up areas, construction of passenger terminal etc. can be postponed until the port is fully operational and begins to collect port fees. The construction of access road should be also shared between the port management body and the road management body. In addition, the design of port facilities should be reviewed and improved in order to reduce the construction cost. All these efforts to reduce RO/RO port construction cost is one of the most effective ways to make RO/RO port development projects financially viable. If 50 % construction cost reduction is achieved, viability of RO/RO port development projects is improved.

18.11 Private Sector Participation

Increasing private sector involvement in public port development is an important policy of the Philippines. In general, when the value of FIRR is greater than 15% or private bank's interest rate, it is likel that the private sector will be interested in financing a port development project. On the other hand, when the FIRR value is not greater than 15 percent, that project has to be financially assisted by low interest foreign loan. ADB's interest rate is 5.6 to 5.8% with a 10 year grace period. JBIC's interest rate is 2.2% with a 10 year grace period. The required values of FIRR for privatized project implementation as well as foreign loan appropriation are shown in Table 18.11.1. Whenever possible, however, private sector participation should be sought.

Various types of Private Sector Participation (PSP) in the port business are shown in Table 18.11.2. Each scheme is differernt in terms of ownership, management and operation of ports. The most advanced PSP is, needless to say, 100% privatization. Lease for Operation and B.O.T. for port development are getting popular in many countries of the world. Manila's MICT can be classified as a concession type form of PSP.

Table 18.11.1 Relation of FIRR and Port Financial Revenue

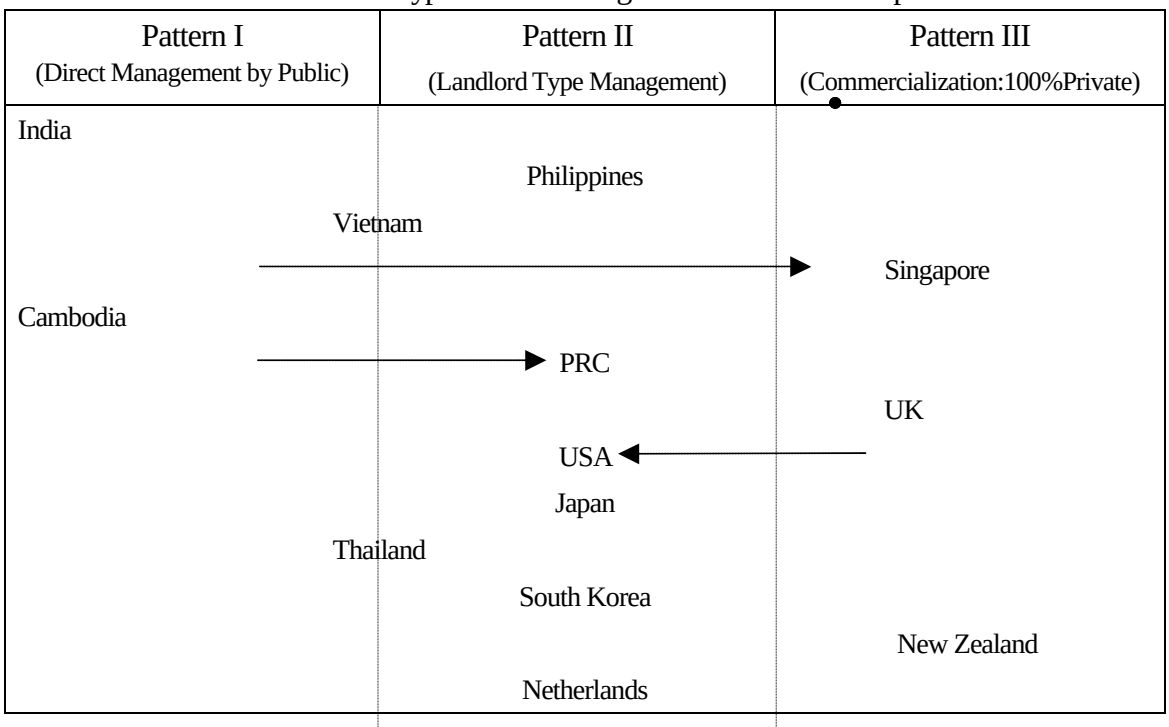
FIRR	FINANCING	REMARKS
Project's FIRR>16-17%	Privatization; B.O.T/Concession Contract	Supervision is required to ensure public utilization of ports.
Project's FIRR>12-13%	DBP(9.5-11%,15Y)	Vessel procurement & shipping business can be financially assisted.
Project's FIRR>7-8%	ADB(5.6-5.8%,25Y)	Interest rate was sharply reduced in 2002. However, a tight loan policy for port infrastructure development has been introduced.
Project's FIRR>3-4%	ODA(2.2%,30Y)	The lowest interest rate currently available.
Project's FIRR<2%	Local or Public Fund	Government or public fund must be efficiently allocated. Cross-subsidy can be utilized.

Table 18.11.2 Various Types of Private Sector Participation

PSP Type	Ownership	Management/ Operation	Financial Risk
Management Contract	Public	Public/Private	Public
Lease	Public/(Private)	(Public)/Private	(Public)/Private
Concession/Joint Operation	Public	Private	Private
B.O.T.	Private>>>Public	Private	Private
Joint Venture	Public/Private	Private	Private
Privatization	Private	Private	Private

A general shift from direct control by the public sector to land lord type management can be observed in the management of ports throughout the world (see Table 18.11.3). However, the Port of Singapore Authority and many ports in the United Kingdom have shifted from direct control by the public sector to complete privatization. Manila's MICT can be said to be landlord type management. Among port privatization projects in the Philippines, 6 port projects are planned to cope with urgent development needs by mobilizing private funds.

Table 18.11.3 Typical Port Management Patterns Participation



Source: JICA Study Team

Table 18.11.4 List of Port Privatization Projects in Philippines

Port	Investor	Fund	Project Description
Manila MICT	ICTSI	ICTSI	MICT's 6 th International Container Berth (- 13m) by the year 2009
South Harbor	ATI	ATI	1 Container Berth (-11m to –13.5m) in the short run. 4 More Container Berths (-11m to –13.5m) in the long run.
48 Candidate RO/RO Ports in the Philippines	Private Investor	DBP.'s Loan is Available. 10-11% Interest Rate with 15 year Loan Period.	RO/RO Ferry Ports Development Project. Grain Terminal at Manila, Batangas, Cebu and Cagayan de Oro.
North Harbor	Shipping and Stevedoring Companies	Private Fund	North Harbor Modernization Project.
BREDOCO Port	BREDOCO	Bacolod Real Estate Development Co.	Multi-purpose Terminal for domestic cargo.
Harbor Center	Harbor Center Port Terminal Inc.	Harbor Center Port Terminal Inc.	Multi-purpose Terminal for domestic cargo.

In addition, it is necessary to offer incentives to secure private sector participation. The JICA Study Team recommends that measures such as local tax breaks or exemption, financial support from the national government, financial assistance from public banks and raising the port charge should be introduced to attract private investment in public port development (see Table 18.11.5).

Table 18.11.5 Investment Incentives to Accelerate Privatization for Public Port development

1. Local tax breaks/exemption	Corporate tax, land acquisition tax which are collected by local governments, should be reduced for a certain years to private investors who are involved in public port development. More than half of local governments in the Philippines, are keeping their finance surplus every year. It could be possible for many local governments to provide private investors with tax exemption.
2. Financial support from national government	DOTC's national budget should spend for financially assisting LGUs on condition that those LGUs plan to construct public ports in financial collaboration with private investors. 50% national fund and 50% private fund will make public port development project financially viable.
3.Financial assistance from public bank (Appropriation of newly built DBP's public corporation's fund to port construction)	DBP is planning to establish a public corporation which will provide shipping companies with vessels for shipping operation. This newly built public corporation should financially assist private investors in developing public ports, because shipping companies are often involved in both shipping operation and port construction/port management. Shipping company's port construction and shipping operation financially assisted by newly built public corporation, is one of the most efficient means to realize RO/RO services in rural areas.
4. Port charge normalization	The present port charge, in particular domestic cargo charge, is set up to very low level. Due to the low port charge rate, private sectors are losing to be involved in public port development business. To increase private sector's investment incentives for public port development, the present port charge rate should be raised step by step in order for private investor's finance to become financially viable.

18.12 Proposed Financial Policies for Public Port Development

Philippine ports, both public and private, must cope with growing cargo and passenger traffic. Accordingly port capacity must be expanded and the cargo handling system must be modernized. To carry out the necessary port development, large funds are required. However, public funds for infrastructure investment are very limited. Fortunately, the overall financial condition of PPA, the nation's largest port authority, is quite good. However, PPA's income is almost solely derived from its international container berths. In fact, ports which do not handle international container cargo (90% of ports in the PPA ports system) do not generate enough revenue to be financially autonomous.

Under this tight financial situation, all possible financial sources including private funds must be utilized in order to equip ports with all necessary port facilities and equipment. Therefore, all port management bodies in the Philippine should adopt strong and practical financial policies to implement urgent port development needs.

First of all, port financing must be integrated. If a port management body does not have sufficient funds to implement a priority project, funds must be sought from any available source. Internal fund appropriation or cross-subsidy is one of the most practical funding methods. In addition, privatization should be taken into account. Low interest loan and issuing of bonds are measures to secure the necessary funds for infrastructure investment.

Secondly, to realize the maximum utilization of the limited investment fund for port development, over-investment and duplication of investment must be eliminated. In this sense, coordination of the port investment plan should be carried out at the national government level.

Thirdly, port development projects should be carefully selected and prioritized in an integrated manner. The timing of project implementation should be appropriately determined based on the accurate prediction of capacity requirement. The role of the national government and port authorities is very important to coordinate major port investment plans.

Fourth, port financing should be flexible and viable. Port income is actually the result of day-by-day port activities. Accordingly, port financial planning tends to be changed and reviewed from time to time based on the latest cost and revenue information. In particular, when a project promoter borrows a foreign loan, that promoter should always take into account the fluctuation of foreign exchange rate. If the value of the Philippines Peso declines in future, the actual amount of loan repayment will become much greater than the original amount. In this sense, phased investment planning is highly recommended. The financial polices to be taken are summarized in Table 18. 12.1.

Table 18.12.1 Financial Policies to be Taken

1. Integrated port financing is urgently needed. Both public and private sectors should participate in port development and improvement.
2. Duplication of investment must be avoided. Both sea and land transport investment should also be coordinated to establish an efficient transport network in the region.
3. The national government and public port authority should take the initiative in project implementation.
4. Port financing should be flexible and viable. Financing scheme should also be reformed to make the best use of all possible funds (Cross-subsidy, Private sector involvement, and Phased investment).

18.13 Proposed Financial Strategies for Public Port Development

Based on the financial policies described in the previous section, practical financial strategies for port development should be taken to accelerate port investment as effectively as possible without delay. The basic strategy for project implementation is internal fund appropriation or cross-subsidy. As described earlier, PPA's finance is highly dependent on revenue from international container cargo. Due to the remarkable tariff difference between international and domestic cargo, international container terminals gain much revenue, while domestic multi-purpose terminals gain comparatively little. Thus, transfer of funds from profitable international container ports to domestic multi-purpose ports and rural feeder ports should be introduced to develop all necessary ports in the Philippines. Secondly, loan appropriation should be utilized as effectively as possible to accelerate port development. In particular, ODA can provide port public port management bodies with low interest loans with a long repayment period. However, any foreign loan is not unlimited. The private sector is also able to obtain from DBP loan. The interest rate of DBP's loan is actually higher than foreign loan interest rate, but DBP's Peso loan is not affected by fluctuations in the foreign exchange rate. Thirdly, private sector participation should be accelerated. Fortunately, some private enterprises in the Philippines have successfully undertaken port construction, management and operation. Harbor Center in Manila North Harbor and BREDOCO multi-purpose terminal are typical examples of successful private sector involvement in port infrastructure investment. In order to accelerate private sector participation in the Philippines, local tax exemption, national government financial assistance to public/private joint venture projects, and financial assistance to private investors by means of newly built DBP's public corporation fund should be introduced to private sector's port development scheme. It is also necessary to reduce project costs by utilizing existing port facilities as much as possible. In addition to these financial strategies, the national government should increase investment in infrastructure and issue bonds when a sufficient level of economic growth has been attained. Recommended financial strategies are summarized in Table 18.13.1 and 18.13.2.

Table 18.13.1 Financial Strategies to be Taken (1/2)

Financial Strategy Menus	Financial Resources	Relevant Projects to Financial Policy Concerned, and Implementing Agencies/Private Sector	Remarks
1. Practical Use of Existing Facilities and Formation of Cost-saving Project	A number of financial resources are utilized, depending on project's financial viability.	LGUs, or private investors, which plan to construct RO/RO ports, in particular small scale rural ports for inter island transport.	Cost reduction will increase the viability of projects.
2. Internal Fund Appropriation or Cross Subsidy	Port revenues, mainly generated by international container cargo handling	Almost all domestic cargo handling facilities, including RO/RO and feeder ports in rural areas.	Growing international container cargo handling revenues can be used to cross-subsidizeprojects.
3. Port Charge Normalization	Port charge should be normalized (raised) in all accordance with the appropriate port operation and management cost.	All port development projects except international container port development project.	It is necessary to win understanding on port charge normalization from port users and shippers.
4. Domestic Loan Appropriation	DBP's 2 Step Loan: 8.5% to 11%, depending on project viability. Loan period is 15 years.	Large / medium scale RO/RO ports development projects; Grain terminal projects at Manila, Batangas, Cebu and C.D.O.	Interest rate is lower than private bank's rate. Borrowers do not have to worry about fluctuations in exchange rates.
5. Acceleration of Private Sector Participation -BOT or Land Lord Type Privatization-	Concession/BOT are becoming more common in Philippines. Private Sector can Utilize DBP's 2 Step Loan.	Further international container terminals at Manila Port(ICTSI, ATI). Multi-purpose domestic terminals at North Harbor.	Revenue share between public and private sector must be achieved in a competitive manner. Public berth utilization must be secured and maintained.

Table 18.13.2 Financial Strategies to be Taken (2/2)

Financial Strategy Menus	Financial Resources	Relevant Projects to Financial Policy Concerned, and Implementing Agencies/Private Sector	Remarks
6. Bond Issuing (Long-term Policy)	Both international and domestic monetary resources can be collected. Useful and necessary when foreign loan disbursement reaches the maximum.	High interest rate is anticipated for bond repayment. Thus, bond issuing should be restricted to profitable port development projects. (International container terminals, international bulk terminals)	Bond issuing agency must satisfy the financial reliability requirement. Financial viability of project must also be verified.
7. Foreign Loan Appropriation	Low interest foreign loan: ADB-5.6% to 5.8% interest with 25 year loan period; JBIC- 2.2% interest with 30 year loan period.	Medium scale port development projects. International container terminal projects are most suitable.	Projects must satisfy required FIRR value. Foreign currency stability must be also taken into account.
8. Expansion of National Government's Infrastructure Investment Budget (Long-term Policy)	National government's general account. At present, some 1% of national capital outlay is spent for public ports.	RO/RO feeder ports development projects in particular, small scale RO/RO feeder ports rely on the national government's fund.	National government's tight financial condition is expected to continue. DOTC's fund should be invested in joint venture port projects between LGUs and private sector to accelerate port development.

18.14 Foreign Loan Appropriation

Loan appropriation is often taken in order to accelerate project implementation for port development. Needless to say, a project must satisfy the loan requirements. EIRR and FIRR of the project must be greater than a certain value to justify the financial soundness of the project. The project must also satisfy the budget constraint of the loan. Usually, the budget constraint of the project is less than U.S. 300-400 million dollars. The borrower should also take loan repayment and interest into account. Loan project records for port development in the Philippines are listed in Appendix 18.14.