

3.6 Sea Traffic Demand

The cargo volume in each province is estimated by macroscopic forecast method since the purpose of this study is not to examine a feasibility of a certain port development which requires precise forecast, but to prepare a nationwide strategy for port development and management/operation which is enough to use only macroscopic estimation.

3.6.1 Socio-economic Framework

The frameworks are estimated with consideration of the economic crisis in 1998 and based on PJPII.

(1) Population

The population in target years(2003, 2008 and 2018) is estimated by the growth rates in PJPII which are 1.37% in REPELITA VII, 1.20% in REPELITA VIII, 1.01% in REPELITA IX and 0.88% in REPELITA X. Result of the estimation is shown in Table 3.6.1.1.

(2) Gross Domestic Product(GDP)

The GDP in the target years(2003, 2008 and 2018) is estimated based on the growth rates of GDP during each REPELITA in which the growth rate was set and in consideration of the economic crisis in 1998.

The three alternatives of GDP in the target years are set with the following preconditions:

Alternative-1: It is assumed that the growth rate of GDP after the economic crisis in 1998 is approximately minus five percent. Then, the growth rate will be restored to the original estimated value of GDP of PJPII from the year 2006.

Alternative-2: It is assumed that the growth rate of GDP after the economic crises in 1998 is approximately minus five percent, and that there will be zero growth in 1999. Then, the growth rate will be gradually restored to the original growth rate estimated in PJPII.

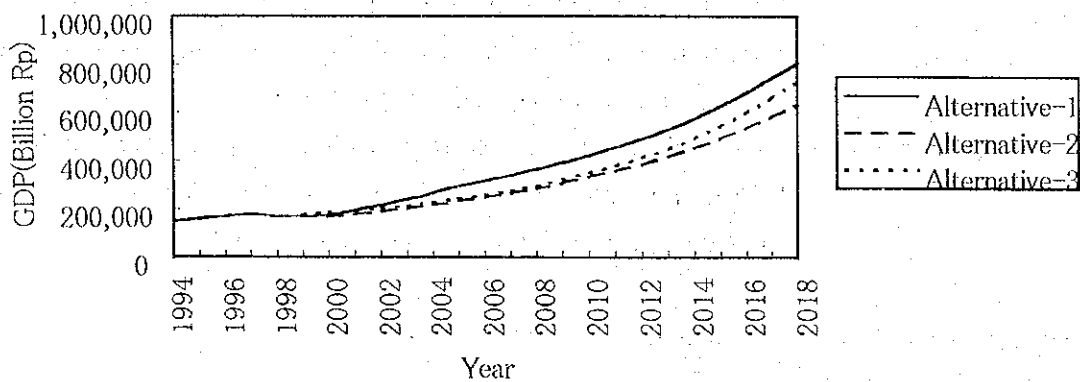
Alternative-3: It is assumed that the growth rate of GDP after the economic crisis in 1998 is approximately minus five percent, after that the value is set at the middle position between alternative-1 and 2.

Figure 3.6.1.1 shows the estimated GDP from 1994 to 2018.

Table 3.6.1.1 Population in 2003, 2008 and 2018

(Thousand)			
Province	2003	2008	2018
ACEH	4530.3	4920.8	5567.1
SUMATERA UTARA	12405.7	13128.9	14241.9
SUMATERA BARAT	4811.6	5085.7	5505.4
RIAU	4977.4	5593.1	6657.5
JAMBI	2980.2	3328.6	3927.2
SUMATERA SELATAN	8656	9486.3	10880.8
BENGKULU	1805.6	2033.6	2428.5
LAMPUNG	7669.1	8240.5	9164.5
Sumatera Total	47835.9	51817.5	58372.9
DAERAH JAKARTA	10592.1	11455.5	13034.7
JAWA BARAT	45534.1	49252.9	56055.6
JAWA TENGAH	31188.5	32070.8	33482.8
DAERAH YOGYAKARTA	2867	2826	2810.8
JAWA TIMUR	35740	36830.2	38602.4
BALI	3075.2	3176.5	3343.3
Jawa Total	128996.9	135611.9	147329.6
KALIMANTAN BARAT	4287	4660.5	5297.4
KALIMANTAN TENGAH	2022.8	2249.9	2647.7
KALIMANTAN SELATAN	3373.1	3648.9	4115.5
KALIMANTAN TIMUR	3115.4	3576.5	4401.8
KALIMANTAN Total	12798.3	14135.8	16462.4
SULAWESI UTARA	2917.2	3065.6	3289.4
SULAWESI TENGAH	2339.1	2566.9	2953
SULAWESI TENGGARA	1986.2	2216.3	2613.8
SULAWESI SELATAN	8480.7	8995.8	9805.2
SULAWESI Total	15723.2	16844.6	18661.4
NUSATENGGA BARAT	4072.9	4324	4772.9
NUSATENGGA TIMUR	4043	4321.5	4823.8
TIMOR TIMUR	974.7	1055.6	1203.9
MALUKU	2467.9	2693.1	3107.8
IRIANJAYA	2471.5	2784	3368.8
Other EAST PART Total	14030	15178.2	17277.2
TOTAL(all Indonesia)	219384.3	233588	258103.5

Figure 3.6.1.1 GDP at 1983 Constant Price from 1994 to 2018



The GRDP by each region namely Sumatra, Java, Kalimantan Sulawesi and the other eastern islands in the target years is calculated based on the share of the growth rate of GDP during PJPII period in the interim report of Technical Assistance Service for Port Development Strategy Study for the Southern Sumatra and Western Java Region prepared by Louis Berger International, Inc. Two GRDP distribution scenarios are assumed under the three alternative GDPs so that six cases of GRDP for each region are drafted. The two scenarios of GRDP distribution are as follows:

Scenario I: This scenario, R1, is largely based on a continuation of the trends which started in the mid-eighties, namely concentration of the economic activities in Java Region.

Scenario II: This scenario, R2, is based on an active regional development policy aiming at attaining equal distribution of activities throughout Indonesia. This scenario places more emphasis on the development of the eastern provinces.

The cargo forecast in this study should be conducted for each province so that GRDP should be drafted by province. The GRDP of each province is calculated by the same growth rate of the estimated GDP in each region.

3.6.2 Cargo Volume

(1) Foreign Trade Cargo

1) Methodology

The foreign trade cargo by sea transportation is estimated based on the past records of foreign trade by the following steps:

- (A) Regional Forecast
- (B) National Forecast (Indonesia as a whole)
- (C) Adjustment
- (D) Cargo Volume at Public Ports and Special Ports

2) Cargo Volume at Public Ports and Special Ports

The results of the calculation for Scenario 2 in Alternative-3 are shown form Table 3.6.2.1 to 3.6.2.3.

Table 3.6.2.1 Foreign Cargo Volume at Special Ports for in Each Province in The Target Years
(Scenario 2, Alternative 3)

	2003			2008			2018		
	Export	Import	Total	Export	Import	Total	Export	Import	Total
Aceh	32.91	1.72	34.64	62.48	2.63	65.11	170.85	6.87	177.72
Sumatra Utara	68.00	3.56	71.57	129.10	5.44	134.54	353.02	14.20	367.21
Sumatra Barat	21.81	1.14	22.96	41.41	1.75	43.16	113.24	4.55	117.79
Riau	56.80	2.98	59.78	107.83	4.55	112.38	294.87	11.86	306.73
Jambi	5.63	0.30	5.93	10.69	0.45	11.14	29.24	1.18	30.41
Sumatra Selatan	24.32	1.27	25.59	46.16	1.95	48.11	126.23	5.08	131.31
Bengkulu	3.09	0.16	3.26	5.87	0.25	6.12	16.06	0.65	16.71
Lampung	12.39	0.65	13.04	23.52	0.99	24.51	64.31	2.59	66.90
Sumatra (total)	224.96	11.79	236.75	427.07	18.01	445.08	1,167.81	46.96	1,214.77
DKI Jakarta	5.58	7.53	13.11	9.61	11.39	21.00	23.24	29.43	52.67
Jawa Barat	5.69	3.45	9.14	9.80	11.62	21.42	23.70	30.02	53.72
Jawa Tengah	2.96	3.81	6.76	5.09	6.04	11.13	12.31	15.59	27.91
D.I. Yogyakarta	0.36	0.47	0.83	0.62	0.74	1.36	1.51	1.91	3.42
Jawa Timur	4.38	5.63	10.01	7.53	8.93	16.46	18.22	23.08	41.30
Bali	0.51	0.65	1.16	0.87	1.03	1.90	2.11	2.67	4.77
Jawa (total)	19.48	21.54	41.02	33.52	39.75	73.27	81.09	102.69	183.79
Kalimantan Barat	14.82	0.53	15.34	27.61	0.87	28.48	73.69	2.53	76.22
Kalimantan Tengah	7.48	0.27	7.75	13.95	0.44	14.39	37.22	1.28	38.50
Kalimantan Selatan	10.94	0.39	11.33	20.39	0.64	21.04	54.43	1.87	56.30
Kalimantan Timur	77.92	2.77	80.69	145.20	4.58	149.78	387.48	13.31	400.80
Kalimantan (total)	111.16	3.95	115.12	207.15	6.53	213.68	552.82	19.00	571.81
Sulawesi Utara	0.04	0.06	0.10	0.07	0.10	0.16	0.10	0.30	0.41
Sulawesi Tengah	0.03	0.03	0.06	0.04	0.06	0.10	0.06	0.19	0.25
Sulawesi Selatan	0.11	0.15	0.26	0.18	0.25	0.43	0.27	0.80	1.07
Sulawesi Tenggara	0.02	0.02	0.04	0.03	0.04	0.07	0.05	0.13	0.18
Sulawesi (total)	0.20	0.26	0.46	0.32	0.45	0.77	0.49	1.42	1.91
Nusa Tenggara Barat	0.19	0.06	0.25	0.30	0.11	0.40	0.48	0.36	0.83
Nusa Tenggara Timur	0.16	0.05	0.21	0.25	0.09	0.34	0.40	0.30	0.70
Timor Timur	0.04	0.01	0.05	0.06	0.02	0.09	0.10	0.08	0.18
Maluku	0.18	0.06	0.23	0.28	0.10	0.37	0.44	0.33	0.78
Irian Jaya	0.42	0.13	0.55	0.65	0.23	0.88	1.04	0.78	1.82
Eastern Part (total)	0.99	0.32	1.31	1.53	0.55	2.08	2.46	1.85	4.31
Total	355.80	37.54	393.34	668.06	64.74	732.80	1,802.21	170.07	1,972.28

Table 3.6.2.2 Import Cargo Volume at Commercial Ports in Each Province in The Target Years
(Scenario 2, Alternative 3)

(Unit: Million tons)

Province	Ratio of G	Cargo Volume														
		2003					2008					2018				
		Container	Conventional	Dry bulk	Liquid bul	Total	Container	Conventional	Dry bulk	Liquid bul	Total	Container	Conventional	Dry bulk	Liquid bul	Total
Aceh	0.13	0.15	0.16	0.17	0.09	0.57	0.29	0.27	0.17	0.26	0.99	1.00	0.73	0.67	0.69	3.08
Sumatra Utara	0.27	0.30	0.34	0.36	0.18	1.18	0.60	0.55	0.36	0.54	2.05	2.06	1.50	1.38	1.42	6.36
Sumatra Barat	0.09	0.10	0.11	0.11	0.06	0.38	0.19	0.18	0.11	0.17	0.66	0.66	0.48	0.44	0.46	2.04
Riau	0.23	0.25	0.28	0.30	0.15	0.98	0.50	0.46	0.30	0.45	1.71	1.72	1.26	1.15	1.19	5.31
Jambi	0.04	0.04	0.05	0.14	0.11	0.33	0.08	0.07	0.25	0.14	0.54	0.27	0.20	0.79	0.29	1.55
Sumatra Selatan	0.15	0.17	0.19	0.60	0.47	1.44	0.35	0.31	1.09	0.59	2.34	1.18	0.86	3.40	1.25	6.69
Bengkulu	0.02	0.02	0.02	0.08	0.06	0.18	0.04	0.04	0.14	0.08	0.30	0.15	0.11	0.43	0.16	0.85
Lampung	0.08	0.09	0.10	0.31	0.24	0.73	0.18	0.16	0.55	0.30	1.19	0.60	0.44	1.73	0.64	3.41
Sumatera (total)	1.00	1.12	1.26	2.07	1.35	5.80	2.24	2.03	2.97	2.55	9.79	7.65	5.58	9.98	6.08	29.29
DKI Jakarta	0.27	2.14	2.41	1.27	0.75	6.57	3.44	3.13	1.87	1.14	9.57	9.31	6.79	4.90	2.94	23.95
Jawa Barat	0.27	2.18	2.46	5.95	0.34	10.93	3.51	3.19	1.90	1.16	9.76	9.50	6.93	5.00	3.00	24.43
Jawa Tengah	0.17	1.35	1.52	1.84	0.38	5.09	2.17	1.97	2.44	0.60	7.19	5.88	4.28	6.36	1.56	18.08
D.I.Yogyakarta	0.02	0.17	0.19	0.23	0.05	0.62	0.27	0.24	0.30	0.07	0.88	0.72	0.52	0.78	0.19	2.21
Jawa Timur	0.25	2.00	2.25	2.72	0.56	7.53	3.21	2.92	3.61	0.89	10.64	8.69	6.34	9.41	2.31	26.75
Bali	0.03	0.23	0.26	0.31	0.07	0.87	0.37	0.34	0.42	0.10	1.23	1.00	0.73	1.09	0.27	3.09
Jawa (total)	1.00	8.07	9.08	12.32	2.15	31.62	12.97	11.78	10.54	3.97	39.27	35.11	25.59	27.55	10.27	98.52
Kalimantan Barat	0.18	0.02	0.02	0.06	0.39	0.49	0.03	0.03	0.10	0.66	0.82	0.07	0.05	0.30	1.98	2.40
Kalimantan Tengah	0.11	0.01	0.01	0.04	0.29	0.35	0.02	0.02	0.06	0.48	0.58	0.04	0.03	0.18	1.43	1.69
Kalimantan Selatan	0.16	0.02	0.02	0.06	0.42	0.51	0.02	0.02	0.09	0.70	0.84	0.06	0.05	0.26	2.10	2.47
Kalimantan Timur	0.55	0.06	0.06	0.20	0.07	0.39	0.09	0.08	0.32	0.16	0.65	0.22	0.16	0.92	0.65	1.95
Kalimantan (total)	1.00	0.10	0.11	0.36	1.16	1.74	0.15	0.14	0.58	2.01	2.89	0.39	0.29	1.66	6.16	8.51
Sulawesi Utara	0.21	0.01	0.02	0.17	0.04	0.24	0.03	0.03	0.28	0.06	0.40	0.13	0.09	0.87	0.19	1.28
Sulawesi Tengah	0.13	0.01	0.01	0.10	0.02	0.15	0.02	0.02	0.17	0.04	0.25	0.08	0.06	0.54	0.11	0.79
Sulawesi Selatan	0.56	0.04	0.04	0.44	0.11	0.63	0.08	0.08	0.74	0.16	1.06	0.33	0.24	2.32	0.49	3.38
Sulawesi Tenggara	0.09	0.01	0.01	0.07	0.02	0.10	0.01	0.01	0.12	0.03	0.17	0.05	0.04	0.38	0.08	0.56
Sulawesi (total)	1.00	0.07	0.08	0.78	0.19	1.12	0.15	0.14	1.31	0.29	1.88	0.59	0.43	4.11	0.87	6.01
Nusa Tenggara Barat	0.19	0.02	0.03	0.01	0.03	0.10	0.04	0.03	0.02	0.03	0.12	0.09	0.07	0.03	0.01	0.19
Nusa Tenggara Timur	0.16	0.02	0.02	0.01	0.03	0.08	0.03	0.03	0.02	0.03	0.10	0.08	0.05	0.03	0.00	0.16
Timor Timur	0.04	0.01	0.01	0.01	0.00	0.02	0.01	0.01	0.00	0.01	0.03	0.02	0.01	0.01	0.00	0.04
Maluku	0.18	0.02	0.03	0.01	0.03	0.09	0.03	0.03	0.02	0.03	0.11	0.08	0.06	0.03	0.00	0.18
Irian Jaya	0.42	0.05	0.06	0.03	0.07	0.21	0.08	0.07	0.04	0.07	0.26	0.20	0.14	0.07	0.01	0.42
Other islands (total)	1.00	0.12	0.14	0.08	0.15	0.50	0.19	0.17	0.09	0.17	0.62	0.46	0.34	0.17	0.03	1.00
Total	-	9.48	10.68	15.61	5.00	40.77	15.70	14.26	15.49	8.99	54.45	44.21	32.23	43.48	23.41	143.32

Table 3.6.2.3 Export Cargo Volume at Commercial Ports in Each Province in The Target Years
(Scenario 2, Alternative 3)

Unit: Million ton

Province	Ratio of GRDP	Cargo Volume										2018			
		2003					2008					2018			
		Container	Conventional	Dry bulk	Liquid bulk	Total	Container	Conventional	Dry bulk	Liquid bulk	Total	Container	Conventional	Dry bulk	Liquid bulk
Aceh	0.13	0.62	2.52	3.30	1.65	8.09	1.27	3.69	4.08	6.25	15.29	2.46	5.25	16.56	17.08
Sumatra Utara	0.27	1.29	5.20	6.82	3.40	16.71	2.61	7.63	8.43	12.91	31.58	5.07	10.86	34.21	35.30
Sumatra Barat	0.09	0.41	1.67	2.19	1.09	5.36	0.84	2.45	2.70	4.14	10.13	1.63	3.48	10.97	11.32
Riau	0.23	1.07	4.35	5.70	2.84	13.96	2.18	6.37	7.04	10.78	26.38	4.24	9.07	28.57	29.49
Jambi	0.04	0.17	0.69	4.17	0.56	5.59	0.35	1.01	8.17	1.07	10.60	0.67	1.44	23.83	2.92
Sumatra Selatan	0.15	0.74	2.98	18.01	2.43	24.15	1.50	4.36	35.29	4.62	45.77	2.90	6.21	102.88	12.62
Bengkulu	0.02	0.09	0.38	2.29	0.31	3.07	0.19	0.56	4.49	0.59	5.82	0.37	0.79	13.09	1.61
Lampung	0.08	0.37	1.52	9.17	1.24	12.30	0.76	2.22	17.98	2.35	23.32	1.48	3.16	52.42	6.43
Sumatera (total)	1.00	4.77	19.30	51.66	13.52	89.25	9.70	28.29	88.20	42.71	168.89	18.82	40.27	282.53	116.78
DKI Jakarta	0.27	1.00	4.04	0.59	0.91	6.54	2.27	6.62	0.75	1.78	11.43	7.17	15.35	0.83	5.37
Jawa Barat	0.27	1.02	4.13	0.60	0.93	6.67	2.32	6.75	0.77	1.82	11.65	7.32	15.66	0.84	5.48
Jawa Tengah	0.17	0.63	2.55	0.37	1.14	4.69	1.43	4.18	0.48	2.09	8.18	4.52	9.68	0.52	5.73
D.I. Yogyakarta	0.02	0.08	0.31	0.05	0.14	0.57	0.18	0.51	0.06	0.26	1.00	0.55	1.19	0.06	0.70
Jawa Timur	0.25	0.93	3.78	0.55	1.69	6.94	2.12	6.18	0.70	3.10	12.10	6.70	14.33	0.77	8.48
Bali	0.03	0.11	0.44	0.06	0.19	0.80	0.24	0.71	0.08	0.36	1.40	0.77	1.66	0.09	0.98
Jawa (total)	1.00	3.77	15.24	2.21	5.00	26.22	8.56	24.96	2.84	9.40	45.75	27.04	57.85	3.11	26.75
Kalimantan Barat	0.18	0.41	1.64	11.32	1.48	14.85	0.86	2.52	21.53	2.76	27.66	2.38	5.09	58.98	7.37
Kalimantan Tengah	0.11	0.24	0.99	8.37	0.75	10.36	0.52	1.51	15.87	1.39	19.29	1.43	3.06	43.26	3.72
Kalimantan Selatan	0.16	0.36	1.45	12.25	1.09	15.14	0.76	2.21	23.20	2.04	28.21	2.09	4.48	63.26	5.44
Kalimantan Timur	0.55	1.26	5.08	-0.28	7.79	13.85	2.67	7.78	0.82	14.52	25.78	7.36	15.75	6.93	38.75
Kalimantan (total)	1.00	2.26	9.16	31.66	11.12	54.20	4.81	14.02	61.41	20.72	100.95	13.26	28.38	172.43	55.28
Sulawesi Utara	0.21	0.09	0.38	0.16	0.00	0.63	0.21	0.62	0.24	0.00	1.07	0.64	1.37	0.36	0.00
Sulawesi Tengah	0.13	0.06	0.24	0.10	0.00	0.39	0.13	0.38	0.15	0.00	0.66	0.40	0.85	0.22	0.00
Sulawesi Selatan	0.56	0.25	1.02	0.41	0.00	1.68	0.56	1.63	0.64	0.00	2.84	1.69	3.63	0.96	0.00
Sulawesi Tenggara	0.09	0.04	0.17	0.07	0.00	0.28	0.09	0.27	0.11	0.00	0.47	0.28	0.60	0.16	0.00
Sulawesi (total)	1.00	0.45	1.80	0.73	0.00	2.98	1.00	2.90	1.14	0.00	5.04	3.01	6.44	1.70	0.00
Nusa Tenggara Barat	0.19	0.40	1.63	0.02	0.13	2.18	0.86	2.50	0.03	0.11	3.50	2.31	4.95	0.00	0.05
Nusa Tenggara Timur	0.16	0.34	1.37	0.01	0.10	1.83	0.72	2.10	0.03	0.09	2.94	1.94	4.15	0.00	0.04
Timor Timur	0.04	0.09	0.35	0.00	0.03	0.47	0.18	0.54	0.01	0.02	0.75	0.50	1.07	0.00	0.01
Maluku	0.18	0.38	1.52	0.01	0.12	2.02	0.80	2.33	0.03	0.10	3.25	2.15	4.60	0.00	0.04
Irian Jaya	0.42	0.88	3.57	0.04	0.27	4.76	1.88	5.47	0.07	0.24	7.65	5.06	10.83	0.01	0.10
Other islands (total)	1.00	2.09	8.44	0.08	0.65	11.25	4.43	12.93	0.16	0.57	18.10	11.96	25.60	0.02	0.25
Total	-	13.33	53.95	86.34	30.28	183.90	28.49	83.10	153.74	73.39	338.73	74.09	158.54	459.80	199.06
															891.49

(2) Domestic Cargo Volume

1) Methodology

Domestic trade cargo volume for loading and unloading by packing style in the target years in each province is estimated based on the past data of IPC Ports.

Cargo handling volumes for domestic trade at commercial ports and non-commercial ports in the target years are estimated, respectively.

The basic framework of the domestic trade cargo volume forecast at commercial ports is the same as in the forecast of the foreign trade cargo volume. The major difference is that statistics of foreign trade in Indonesia are used to forecast the foreign trade cargo volume while the past cargo volume records at ports are adopted for the domestic cargo volume forecast.

Domestic cargo volume at non-commercial ports in each IPC area is estimated using the ratio of domestic cargo volume at non-commercial port(including domestic cargo volume at special ports) to domestic cargo volume at IPC ports.

2) Cargo Volume at Commercial Ports

From Tables 3.6.2.4 to 3.6.2.5 show the domestic cargo volume by packing style in each province in the target years for Scenario 2 in Alternative-3.

3) Cargo Volume at Non-commercial Ports

Table 3.6.2.6 shows the result of the estimation of cargo handling volume at non-commercial public ports in the target years.

(3) Passenger

1) Methodology

The passenger volume forecast at commercial ports is basically conducted in the same manner as the cargo volume forecast of domestic trade at commercial ports.

According to the information from DGSC, almost all passenger at non-commercial ports are domestic travel passengers. Therefore, the all passengers at non-commercial ports are assumed to be domestic travel passengers in this study.

The number of passenger at non-commercial ports for domestic travel is estimated using correlation between the number of passenger at non-commercial ports and population.

2) Number of Passenger at Commercial Ports

The results of the calculation for Scenario 2 in Alternative-3 are shown from Table 3.6.2.7 to 3.6.2.8.

Table 3.6.2.4 Domestic Unloading Cargo Volume at Commercial Ports in The Target Years

Alternative-3, Scenario-2

Province	Percent of GRDP	2003						2008						2018					
		Container cargo	General cargo	Bagged cargo	Dry bulk cargo	Liquid bulk cargo	Total	Container cargo	General cargo	Bagged cargo	Dry bulk cargo	Liquid bulk cargo	Total	Container cargo	General cargo	Bagged cargo	Dry bulk cargo	Liquid bulk cargo	Total
Bengkulu	0.02	0.1	266.1	90.2	47.7	262.2	666.3	1.1	526.8	170.2	34.6	385.9	1,118.6	114.3	1,791.0	589.4	3.4	1,011.0	3,509.1
Aceh	0.13	0.7	1,729.7	586.4	309.8	1,704.3	4,331.0	6.9	3,424.3	1,106.2	225.2	2,508.5	7,271.0	743.1	11,641.5	3,831.0	22.0	6,571.7	22,809.2
Jambi	0.03	0.2	399.2	135.3	71.5	393.3	999.5	1.6	790.2	255.3	52.0	578.9	1,677.9	171.5	2,686.5	884.1	5.1	1,516.5	5,263.7
Lampung	0.08	0.4	1,064.4	360.9	190.6	1,048.8	2,665.2	4.2	2,107.3	680.7	138.6	1,543.7	4,474.5	457.3	7,164.0	2,357.5	13.5	4,044.1	14,036.4
North Sumatra	0.27	1.4	3,592.5	1,218.0	643.4	3,539.8	8,955.1	14.3	7,112.1	2,297.4	398.4	5,210.0	15,101.4	1,543.3	24,178.4	7,956.7	45.6	13,648.9	47,372.9
Reau	0.23	1.2	3,060.3	1,037.5	548.1	3,015.4	7,662.5	12.1	6,038.4	1,957.0	398.4	4,438.2	12,864.1	1,314.7	20,596.4	6,777.9	38.9	11,626.8	40,354.7
South Sumatra	0.15	0.8	1,995.8	676.7	357.4	1,966.5	4,997.3	7.9	3,951.1	1,276.3	259.8	2,894.5	8,389.6	857.4	13,432.5	4,420.4	25.4	7,582.7	26,318.3
West Sumatra	0.09	0.5	1,197.5	406.0	214.5	1,179.9	2,998.4	4.8	2,370.7	765.8	155.9	1,736.7	5,033.8	514.4	8,059.5	2,652.2	15.2	4,549.6	15,791.0
Sumatra Total	1.00	5.3	13,305.5	4,511.1	2,383.0	13,110.3	33,315.2	52.8	26,341.0	8,508.9	1,732.0	19,296.4	55,931.0	5,715.9	89,549.8	29,469.1	169.1	50,551.4	175,455.26
Bali	0.03	0.2	344.2	15.3	459.3	936.9	1,949.0	1.6	796.8	7.9	534.8	991.8	2,332.9	124.2	1,945.7	8.9	724.6	1,111.2	3,914.6
Central Java	0.17	1.2	3,083.8	86.6	2,563.3	5,309.3	11,044.2	9.0	4,515.3	44.8	3,030.5	5,620.2	13,219.9	703.8	11,025.5	50.2	4,106.3	6,297.1	22,182.9
DKI Jakarta	0.27	2.0	4,897.9	137.5	4,071.1	8,432.4	17,540.8	14.4	7,171.3	71.2	4,813.2	8,926.2	20,996.4	1,117.7	17,511.2	79.8	6,521.7	10,001.2	35,231.7
East Java	0.25	1.8	4,535.1	127.3	3,769.5	7,807.8	16,241.5	13.3	6,640.1	65.9	4,456.7	8,265.0	19,441.1	1,034.9	16,214.0	73.9	6,038.6	9,260.4	32,621.9
West Java	0.28	2.0	5,079.3	142.6	4,221.9	8,744.8	18,190.5	14.9	7,436.9	73.9	4,991.5	9,256.8	21,774.0	1,159.1	18,159.7	82.7	6,763.3	10,371.7	36,536.5
T. Jawa	1.00	7.3	18,140.3	509.2	15,078.0	31,231.3	64,966.0	53.2	26,560.5	263.8	17,826.8	33,060.1	77,764.4	4,139.8	64,856.1	295.5	24,154.6	37,041.6	130,487.6
Central Kalimantan	0.11	0.4	1,055.9	168.8	250.2	264.7	1,740.1	3.8	1,882.2	213.5	539.8	280.2	2,919.4	375.4	5,881.4	426.9	2,088.1	313.9	9,085.8
East Kalimantan	0.55	2.1	5,279.6	844.0	1,251.2	1,323.4	8,700.3	18.9	9,411.1	1,067.4	2,698.8	1,400.9	14,597.1	1,877.0	29,407.0	2,134.5	10,440.7	1,569.7	45,429.0
South Kalimantan	0.16	0.6	1,535.9	245.5	364.0	385.0	2,531.0	5.5	2,737.8	310.5	785.1	407.5	4,246.4	546.0	8,554.8	620.9	3,037.3	456.6	13,215.7
West Kalimantan	0.18	0.7	1,727.9	276.2	409.5	433.1	2,847.4	6.2	3,080.0	349.3	883.2	458.5	4,777.2	614.3	9,624.1	698.6	3,417.0	513.7	14,867.7
Kalimantan Total	1.00	3.8	9,599.2	1,584.6	2,274.9	2,406.3	15,818.8	34.3	17,111.1	1,940.6	4,906.9	2,547.2	26,540.1	3,412.8	53,467.3	3,880.9	18,983.2	2,853.9	82,598.1
Central Sulawesi	0.13	0.2	417.2	178.3	72.1	50.2	718.0	1.5	769.5	266.7	151.5	53.2	1,242.4	170.2	2,666.6	766.0	620.6	59.6	4,283.0
North Sulawesi	0.21	0.3	674.0	288.0	116.4	81.2	1,159.8	2.5	1,243.0	430.8	244.7	85.9	2,007.0	274.9	4,307.5	1,237.5	1,002.5	96.3	6,918.7
South Sulawesi	0.57	0.7	1,829.3	781.8	315.9	220.3	3,148.0	6.8	3,373.9	1,169.4	664.3	233.2	5,447.6	746.3	11,691.9	3,358.8	2,721.2	261.3	18,779.4
South East Sulawesi	0.09	0.1	288.8	123.4	49.9	34.8	497.1	1.1	532.7	184.6	104.9	36.8	860.1	117.8	1,846.1	530.3	429.7	41.3	2,965.2
Sulawesi Total	1.00	1.3	3,209.3	1,371.6	554.3	386.4	5,522.9	11.9	5,919.1	2,051.6	1,165.4	409.1	9,557.2	1,309.3	20,512.0	5,892.7	4,774.0	458.3	32,946.3
East Timor	0.04	0.0	112.3	71.9	4.4	16.6	205.2	0.5	163.2	107.7	4.9	17.5	293.9	52.4	365.8	286.6	6.0	19.7	730.5
Irian Jaya	0.42	0.5	1,178.9	754.9	46.6	174.0	2,154.9	5.0	1,713.5	1,131.3	51.6	184.2	3,085.5	549.9	3,840.8	3,009.7	63.0	206.4	7,669.8
Maluku	0.18	0.2	505.3	323.5	20.0	74.6	923.5	2.1	734.3	484.8	22.1	78.9	1,322.4	235.7	1,646.1	1,289.9	27.0	88.4	3,287.0
West Nusa Tenggara	0.20	0.2	561.4	359.5	22.2	82.9	1,026.2	2.4	815.9	538.7	24.6	87.7	1,469.3	261.9	1,829.0	1,433.2	30.0	98.3	3,652.3
East Nusa Tenggara	0.16	0.2	449.1	287.6	17.7	66.3	820.9	1.9	652.8	431.0	19.7	70.2	1,175.4	209.5	1,463.2	1,146.5	24.0	78.6	2,921.8
Total East Indonesia	1.00	1.1	2,807.0	1,797.5	110.9	414.3	5,130.8	11.9	4,079.7	2,693.5	122.9	438.5	7,346.5	1,309.3	9,144.8	7,165.9	150.0	491.4	18,261.3
Total Indonesia	-	18.8	47,061.3	9,723.9	20,401.1	47,548.5	124,753.6	164	80,011	15,458	25,754	55,751	177,139	15,887	237,530	46,704	48,231	91,397	439,748.7

Unit:1000tons

Table 3.6.2.5 Domestic Loading Cargo Volume at Commercial Ports in The Target Years
Alternative-3, Scenario-2

Province	Percent of GRDP	2003					2008					2018							
		Container cargo	General cargo	Bagged cargo	Dry bulk cargo	Liquid bulk cargo	Total	Container cargo	General cargo	Bagged cargo	Dry bulk cargo	Liquid bulk cargo	Total	Container cargo	General cargo	Bagged cargo	Dry bulk cargo	Liquid bulk cargo	Total
Bengkulu	0.02	0.4	183.1	11.3	287.5	789.2	1,271.5	1.9	307.7	0.0	348.4	1,327.5	1,985.5	67.4	895.7	0.0	390.3	4,114.7	5,468.1
Aceh	0.13	2.4	1,189.9	73.7	1,868.7	5,129.9	8,264.5	12.1	2,000.2	0.1	2,264.4	8,628.7	12,905.5	438.2	5,821.9	0.1	2,537.1	26,745.4	35,542.7
Jambi	0.03	0.6	274.6	17.0	431.2	1,183.8	1,907.2	2.8	461.6	0.0	522.6	1,991.2	2,978.2	101.1	1,343.5	0.0	585.5	6,172.0	8,202.2
Lampung	0.08	1.5	732.2	45.3	1,149.9	3,156.9	5,085.8	7.4	1,230.9	0.1	1,393.5	5,310.0	7,941.8	269.7	3,582.7	0.1	1,561.3	16,458.7	21,872.4
North Sumatra	0.27	5.0	2,471.3	153.0	3,881.1	10,654.4	17,164.7	25.1	4,154.2	0.2	4,703.1	17,921.1	26,803.7	910.1	12,091.6	0.2	5,269.5	55,548.0	73,819.5
Reau	0.23	4.2	2,105.2	130.4	3,366.1	9,076.0	14,621.8	21.4	3,538.8	0.2	4,006.3	15,266.1	22,832.7	775.3	10,300.3	0.2	4,488.8	47,318.7	62,883.3
South Sumatra	0.15	2.8	1,372.9	85.0	2,156.2	5,919.1	9,536.0	13.9	2,307.9	0.1	2,612.8	9,956.2	14,890.9	505.6	6,717.6	0.1	2,927.5	30,860.0	41,010.8
West Sumatra	0.09	1.7	823.8	51.0	1,293.7	3,551.5	5,721.6	8.4	1,384.7	0.1	1,567.7	5,973.7	8,934.6	303.4	4,030.5	0.1	1,756.5	18,516.0	24,606.5
Sumatra Total	1.00	18.3	9,152.8	566.8	14,374.4	39,460.7	63,573.1	92.9	15,386.0	0.8	17,418.7	66,374.4	99,272.8	3,370.8	44,783.8	0.9	19,516.5	205,733.5	273,405.5
Bali	0.03	0.8	376.9	86.5	51.4	18.2	533.8	3.5	583.5	80.2	54.4	19.3	740.9	115.4	1,533.0	64.2	60.9	21.6	1,795.2
Central Java	0.17	4.3	2,135.9	490.2	291.1	103.3	3,024.9	20.0	3,306.4	454.3	308.2	109.4	4,198.2	653.9	8,687.0	364.1	345.3	122.6	10,172.8
DKI Jakarta	0.27	6.8	3,392.3	778.6	462.4	164.1	4,804.2	31.7	5,251.4	721.5	489.5	173.7	6,667.8	1,038.5	13,797.1	578.2	548.4	194.6	16,156.9
East Java	0.25	6.3	3,141.0	720.9	428.2	152.0	4,448.4	29.4	4,862.4	668.0	453.2	160.9	6,173.9	961.6	12,775.1	535.4	507.8	180.2	14,960.1
West Java	0.28	7.1	3,518.0	807.4	479.5	170.2	4,982.2	32.9	5,445.9	748.2	507.6	180.2	6,914.8	1,077.0	14,308.1	599.6	568.8	201.9	16,755.3
T. Jawa	1.00	25.2	12,564.1	2,883.7	1,712.6	607.8	17,793.5	117.4	19,449.7	2,672.2	1,812.9	643.4	24,695.6	3,846.3	51,100.3	2,141.5	2,031.3	720.9	59,840.2
Central Kalimantan	0.11	2.9	1,453.3	5.2	28.3	1,361.8	2,851.6	17.9	2,966.7	5.5	0.1	1,441.6	4,431.9	779.3	10,353.2	6.2	0.1	1,615.2	12,754.0
East Kalimantan	0.55	14.6	7,266.4	26.2	141.7	6,809.1	14,258.0	89.5	14,833.6	27.7	0.6	7,207.8	22,159.3	3,896.4	51,765.9	31.1	0.7	8,075.9	63,769.9
South Kalimantan	0.16	4.2	2,113.9	7.6	41.2	1,980.8	4,147.8	26.0	4,315.2	8.1	0.2	2,096.8	6,446.3	1,133.5	15,059.2	9.0	0.2	2,349.4	18,551.3
West Kalimantan	0.18	4.8	2,378.1	8.6	46.4	2,228.4	4,666.2	29.3	4,854.6	9.1	0.2	2,358.9	7,252.1	1,275.2	16,941.6	10.2	0.2	2,643.0	20,870.2
Kalimantan Total	1.00	26.5	13,211.7	47.6	257.6	12,380.2	25,923.6	162.8	26,970.2	50.4	1.2	13,105.2	40,289.7	7,084.3	94,119.9	56.5	1.3	14,683.4	115,945.4
Central Sulawesi	0.13	0.3	132.4	40.0	439.3	70.4	682.3	1.3	222.1	9.5	1,062.3	74.5	1,369.7	52.4	695.6	10.7	1,190.2	83.4	2,032.2
North Sulawesi	0.21	0.4	213.8	64.6	709.6	113.6	1,102.2	2.2	358.8	15.4	1,716.0	120.3	2,212.6	84.6	1,123.6	17.2	1,922.6	134.8	3,282.9
South Sulawesi	0.57	1.2	580.3	175.4	1,926.2	308.5	2,991.6	5.9	973.8	41.8	4,657.6	326.5	6,005.6	229.6	3,049.8	46.8	5,218.6	365.9	8,910.6
South East Sulawesi	0.09	0.2	91.6	27.7	304.1	48.7	472.4	0.9	153.8	6.6	735.4	51.6	948.2	36.2	481.6	7.4	824.0	57.8	1,406.9
Sulawesi Total	1.00	2.0	1,018.1	307.8	3,379.3	541.2	5,248.4	10.3	1,708.3	73.3	8,171.3	572.9	10,536.1	402.7	5,330.6	82.1	9,155.4	641.9	15,632.6
East Timor	0.04	0.0	19.5	14.0	0.4	6.5	40.4	0.1	22.3	14.5	0.4	6.9	44.1	2.0	27.0	15.4	0.4	7.7	52.6
Irian Jaya	0.42	0.4	204.5	147.3	3.7	68.2	424.1	1.4	233.8	152.2	3.9	72.2	463.5	21.3	283.3	162.2	4.4	80.9	552.1
Maluku	0.18	0.2	87.6	63.1	1.6	29.2	181.8	0.6	100.2	65.2	1.7	31.0	198.7	9.1	121.4	69.5	1.9	34.7	236.6
West Nusa Tenggara	0.20	0.2	97.4	70.1	1.8	32.5	202.0	0.7	111.3	72.5	1.9	34.4	220.7	10.2	134.9	77.2	2.1	38.5	262.9
East Nusa Tenggara	0.16	0.2	77.9	56.1	1.4	26.0	161.6	0.5	89.1	58.0	1.5	27.5	176.6	8.1	107.9	61.8	1.7	30.8	210.3
Total East Indonesia	1.00	3.0	486.8	350.7	8.8	162.4	1,009.8	3.4	556.6	362.4	9.3	172.0	1,103.6	50.8	674.5	386.1	10.4	192.7	1,314.4
Total Indonesia	-	73.0	36,433.6	4,156.6	19,732.7	53,152.4	113,548.3	386.7	64,070.8	3,159.0	27,413.4	80,867.8	175,897.7	14,754.9	196,028.9	2,667.1	30,714.9	221,972.4	466,138.1

Unit: 1000tons

Table 3.6.2.6 Non-commercial Public Ports
Alternative-3, Scenario-1

Million ton			
Province	2003	2008	2018
Bengkulu	1.1	1.7	5.0
Aceh	3.8	6.0	17.4
Jambi	1.6	2.6	7.5
Lampung	4.4	6.9	20.0
North Sumatra	7.9	12.5	36.1
Reau	6.8	10.7	30.7
South Sumatra	8.2	13.0	37.5
West Sumara	2.6	4.2	12.0
Sumatra Total	36.5	57.7	166.3
Bali	0.1	0.1	0.2
Central Jawa	0.4	0.5	1.1
DKI Jakarta	13.5	17.9	38.7
East Jawa	0.6	0.8	1.7
West Jawa	14.0	18.6	40.2
Jawa Total	28.5	37.9	81.9
Central Kalimantan	0.1	0.2	0.5
East Kalimantan	5.7	8.7	8.7
South Kalimantan	0.2	0.3	0.8
West Kalimantan	4.2	6.5	18.3
Kalimantan Total	10.1	15.7	28.3
Central Sulawesi	0.3	0.5	0.5
North Sulawesi	0.5	0.9	0.9
South Sulawesi	1.4	2.3	2.3
South East Sulawesi	0.2	0.4	0.4
Sulawesi Total	2.5	4.1	4.1
East Timur	0.0	0.0	0.0
Irian Jaya	0.7	1.0	1.0
Maluku	0.3	0.4	0.4
West Nusa Tenggara	0.0	0.0	0.1
East Nusa Tenggara	0.0	0.0	0.1
Total East Indonesia	1.0	1.5	1.6
Total Indonesia	78.7	116.8	282.2

Table 3.6.2.7 Number of Foreign Travel Passenger for Scenario2 in Alternative 3
(Unit:1000Persons)

Province	Percent of GRDP	2003			2008			2018		
		Get on	Get off	Total	Get on	Get off	Total	Get on	Get off	Total
Bengkulu	0.02	8.6	7.9	16.5	13.2	12.2	25.3	35.2	32.4	67.6
Aceh	0.13	55.7	51.4	107.1	85.7	79.1	164.7	228.5	210.9	439.4
Lambi	0.03	12.9	11.9	24.7	19.8	18.2	38.0	52.7	48.7	101.4
Lampung	0.08	34.3	31.6	65.9	52.7	48.6	101.4	140.6	129.8	270.4
North Sum	0.27	115.7	106.7	222.4	177.9	164.2	342.1	474.6	438.0	912.6
Reau	0.23	98.5	90.9	189.4	151.6	139.9	291.4	404.3	373.1	777.4
South Sum	0.15	64.3	59.3	123.5	98.8	91.2	190.1	263.7	243.3	507.0
West Sum	0.09	38.6	35.6	74.1	59.3	54.7	114.0	158.2	146.0	304.2
Sumatra T	1.00	428.4	395.3	823.7	659.0	608.1	1,267.1	1,757.9	1,622.2	3,380.1
Bali	0.03	5.0	5.9	11.0	6.7	7.9	14.5	10.0	11.7	21.7
Central Ja	0.17	28.6	33.6	62.2	37.9	44.5	82.4	56.5	66.4	122.8
DKI.Jakar	0.27	45.4	53.4	98.8	60.2	70.7	130.9	89.7	105.4	195.1
East Jawa	0.25	42.0	49.4	91.5	55.7	65.5	121.2	83.0	97.6	180.6
West Jawa	0.28	47.1	55.3	102.4	62.4	73.3	135.7	93.0	109.3	202.3
T.Jawa	1.00	168.2	197.7	365.9	222.9	261.9	484.8	332.2	390.4	722.6
Central K	0.11	3.5	2.0	5.5	4.4	2.5	6.9	6.2	3.5	9.7
East Kalin	0.55	17.6	9.9	27.5	22.0	12.4	34.4	31.0	17.4	48.4
South Kali	0.16	5.1	2.9	8.0	6.4	3.6	10.0	9.0	5.1	14.1
West Kali	0.18	5.8	3.2	9.0	7.2	4.1	11.3	10.1	5.7	15.8
Kalimanta	1.00	32.0	18.0	50.0	40.1	22.6	62.6	56.3	31.7	88.0
Central Su	0.13	0.9	0.9	1.7	0.9	0.9	1.7	0.9	0.9	1.7
North Sula	0.21	1.4	1.4	2.8	1.4	1.4	2.8	1.4	1.4	2.8
South Sula	0.57	3.8	3.8	7.6	3.8	3.8	7.6	3.8	3.8	7.6
South Eas	0.09	0.6	0.6	1.2	0.6	0.6	1.2	0.6	0.6	1.2
Sulawesi T	1.00	6.7	6.7	13.4	6.7	6.7	13.4	6.7	6.7	13.4
East Timu	0.04	0.6	0.6	1.2	1.0	0.9	1.9	2.8	2.5	5.3
Irian Jaya	0.42	6.4	5.8	12.2	10.4	9.4	19.8	28.9	26.3	55.3
Maluku	0.18	2.7	2.5	5.2	4.4	4.0	8.5	12.4	11.3	23.7
West Nusa	0.20	3.0	2.8	5.8	4.9	4.5	9.4	13.8	12.5	26.3
East Nusa	0.16	2.4	2.2	4.6	3.9	3.6	7.5	11.0	10.0	21.1
Total East	1.00	15.2	13.8	29.1	24.7	22.5	47.1	68.9	62.7	131.7
Total Indd	--	650.5	631.5	1,281.9	953.3	921.7	1,875.0	2,222.0	2,113.7	4,335.7

Table 3.6.2.8 Number of Domestic Travel Passenger for Scenario 2 in Alternative 3

(Unit:1000persons)

Province	Percent of GRDP	2003			2008			2018		
		Get on	Get off	Total	Get on	Get off	Total	Get on	Get off	Total
Bengkulu	0.02	50.53	45.27	95.80	83.67	72.33	156.00	241.60	201.30	442.91
Aceh	0.13	328.47	294.24	622.71	543.88	470.15	1,014.03	1,570.43	1,308.46	2,878.89
Jambi	0.03	75.80	67.90	143.70	125.51	108.50	234.01	362.41	301.95	664.36
Lampung	0.08	202.14	181.07	383.20	334.70	289.32	624.02	966.42	805.21	1,771.62
North Sumatra	0.27	682.21	611.11	1,293.32	1,129.60	976.47	2,106.07	3,261.66	2,717.57	5,979.23
Reau	0.23	581.14	520.58	1,101.71	962.25	831.81	1,794.06	2,778.45	2,314.97	5,093.42
South Sumatra	0.15	379.00	339.51	718.51	627.56	542.48	1,170.04	1,812.03	1,509.76	3,321.80
West Sumara	0.09	227.40	203.70	431.11	376.53	325.49	702.02	1,087.22	905.86	1,993.08
Sumatra Total	1.00	2,526.69	2,263.37	4,790.06	4,183.70	3,616.54	7,800.25	12,080.22	10,065.08	22,145.31
Bali	0.03	46.66	53.01	99.67	61.31	73.52	134.83	130.51	170.39	300.90
Central Jawa	0.17	264.39	300.40	564.79	347.42	416.62	764.05	739.57	965.55	1,705.12
DKI Jakarta	0.27	419.91	477.10	897.01	551.79	661.70	1,213.48	1,174.61	1,533.53	2,708.13
East Jawa	0.25	388.81	441.76	830.57	510.91	612.68	1,123.60	1,087.60	1,419.93	2,507.53
West Jawa	0.28	435.47	494.77	930.24	572.22	686.20	1,258.43	1,218.11	1,590.32	2,808.44
T. Jawa	1.00	1,555.24	1,767.04	3,322.28	2,043.66	2,450.73	4,494.39	4,350.40	5,679.72	10,030.13
Central Kalimantan	0.11	174.43	138.34	312.77	281.87	203.07	484.94	799.36	514.89	1,314.25
East Kalimantan	0.55	872.17	691.68	1,563.86	1,409.35	1,015.37	2,424.72	3,996.78	2,574.47	6,571.24
South Kalimantan	0.16	253.72	201.22	454.94	409.99	295.38	705.37	1,162.70	748.94	1,911.63
West Kalimantan	0.18	285.44	226.37	511.81	461.24	332.30	793.54	1,308.04	842.55	2,150.59
Kalimantan Total	1.00	1,585.77	1,257.61	2,843.38	2,562.45	1,846.13	4,408.58	7,266.87	4,680.85	11,947.72
Central Sulawesi	0.13	153.11	132.10	285.21	163.25	134.82	298.08	183.55	140.27	323.82
North Sulawesi	0.21	247.32	213.40	460.72	263.72	217.79	481.51	296.50	226.58	523.09
South Sulawesi	0.57	671.31	579.22	1,250.53	715.80	591.15	1,306.95	804.79	615.01	1,419.81
South East Sulawesi	0.09	106.00	91.46	197.45	113.02	93.34	206.36	127.07	97.11	224.18
Sulawesi Total	1.00	1,177.73	1,016.18	2,193.91	1,255.79	1,037.11	2,292.90	1,411.92	1,078.97	2,490.89
East Timur	0.04	87.29	74.18	161.47	130.46	106.80	237.26	332.60	259.50	592.10
Irian Jaya	0.42	916.51	778.94	1,695.44	1,369.86	1,121.42	2,491.28	3,492.30	2,724.76	6,217.07
Maluku	0.18	392.79	333.83	726.62	587.08	480.61	1,067.69	1,496.70	1,167.76	2,664.46
West Nusa Tenggara	0.20	436.43	370.92	807.35	652.32	534.01	1,186.32	1,663.00	1,297.51	2,960.51
East Nusa Tenggara	0.16	349.15	296.74	645.88	521.85	427.21	949.06	1,330.40	1,038.00	2,368.41
Total East Indonesia	1.00	2,182.16	1,854.62	4,036.77	3,261.58	2,670.04	5,931.61	8,315.01	6,487.53	14,802.54
Total Indonesia	-	9,027.58	8,158.81	17,186.40	13,307.19	11,620.55	24,927.73	33,424.42	27,992.16	61,416.58

3) Number of Passenger at Non-commercial Ports

Result of the estimation is shown in Table 3.6.2.9.

Table 3.6.2.9 Number of Passengers at Non-Commercial Ports

Province	Ratio of Population	2003	2008	2018
ACEH	0.09	715,033	919,222	1,255,402
SUMATERA UTARA	0.26	1,958,036	2,517,182	3,437,773
SUMATERA BARAT	0.10	759,432	976,299	1,333,354
RIAU	0.10	785,601	1,009,941	1,379,299
JAMBI	0.06	470,376	604,698	825,850
SUMATERA SELATAN	0.18	1,366,207	1,756,348	2,398,685
BENGKULU	0.04	284,984	366,366	500,354
LAMPUNG	0.16	1,210,441	1,556,101	2,125,202
TOTAL	1.00	7,550,110	9,706,155	13,255,919
DAERAH JAKARTA	0.08	51,691	66,815	93,605
JAWA BARAT	0.35	222,212	287,228	402,395
JAWA TENGAH	0.24	152,204	196,736	275,620
DAERAH YOGYAKARTA	0.02	13,991	18,085	25,336
JAWA TIMUR	0.28	174,416	225,447	315,842
BALI	0.02	15,007	19,398	27,176
TOTAL	1.00	629,522	813,709	1,139,974
KALIMANTAN BARAT	0.33	87,549	106,449	139,326
KALIMANTAN TENGAH	0.16	41,309	50,227	65,741
KALIMANTAN SELATAN	0.26	68,885	83,756	109,625
KALIMANTAN TIMUR	0.24	63,622	77,357	101,250
TOTAL	1.00	261,366	317,790	415,942
SULAWESI UTARA	0.19	708,046	874,124	1,143,190
SULAWESI TENGAH	0.15	567,733	700,899	916,644
SULAWESI TENGGARA	0.13	482,079	595,154	778,350
SULAWESI SELATAN	0.54	2,058,386	2,541,198	3,323,409
TOTAL	1.00	3,816,244	4,711,375	6,161,593
NUSATENGGA	0.29	958,496	1,219,537	1,696,740
BARAT				
NUSATENGGA	0.29	951,460	1,210,584	1,684,284
TIMUR				
TIMOR TIMUR	0.07	229,381	291,852	406,053
MALUKU	0.18	580,784	738,956	1,028,109
IRIANJAYA	0.18	581,631	740,034	1,029,609
TOTAL	1.00	3,301,752	4,200,964	5,844,794
GRAND TOTAL		15,558,993	19,749,993	26,818,222

3.6.3 Sensitivity Analysis

Indonesia is still in the midst of an economic crisis, and thus the growth rate of GDP will likely be unstable for the next few years. Accordingly, the study team conducted a sensitivity analysis for the demand forecast as follows.

Alternative-2 is the lowest case of economic growth of the three alternatives, in which the growth rate of GDP in 1998 is assumed at -5.4% . In the sensitivity analysis, the study team assumed an even lower growth case, namely, where this value is -14.2% . In addition, regarding the growth rate of GDP in the recovery stage from the economic crisis, the study team analyzed three alternative cases. (Sensitivity-1, 2 and 3)

The growth rate of GDP is shown in Table 3.6.3.1.

Table 3.6.3.1 The growth rate of GDP in Sensitivity Cases

(Unit: %)

Year	Alternative-2	Sensitivity-1	Sensitivity-2	Sensitivity-3
1997	5.8	5.8	5.8	5.8
1998	-5.4	-14.2	-14.2	-14.2
1999	0.0	-6.9	0.0	0.0
2000	0.0	0.0	0.0	0.0
2001	6.0	3.0	6.0	10.0
2002	6.0	3.0	6.0	10.0
2003	6.0	3.0	6.0	10.0
2004	7.1	3.0	6.0	10.0
2005	7.1	7.1	7.1	7.1
2006	7.1	7.1	7.1	7.1
2007	7.1	7.1	7.1	7.1
2008	7.1	7.1	7.1	7.1
2009	7.8	7.8	7.8	7.8
2010	7.8	7.8	7.8	7.8
2011	7.8	7.8	7.8	7.8
2012	7.8	7.8	7.8	7.8
2013	7.8	7.8	7.8	7.8
2014	8.7	8.7	8.7	8.7
2015	8.7	8.7	8.7	8.7
2016	8.7	8.7	8.7	8.7
2017	8.7	8.7	8.7	8.7
2018	8.7	8.7	8.7	8.7

In each sensitivity case, the foreign and domestic cargo volume, and the numbers of passenger for domestic travel are forecast by using the correlation between GDP and the past cargo volume, and between GDP and the past passenger volume. The ratios of the volume of cargo and passenger in each sensitivity case to that in Alternative-2 are shown in Table 3.6.3.2.

Table 3.6.3.2 Ratios of the Volume of Cargo/Passenger
in Sensitivity Cases to that in Alternative-2

(GDP)

Year	Alternative-2	Sensitivity-1	Sensitivity-2	Sensitivity-3
2003	100%	77%	91%	101%
2008	100%	74%	90%	104%
2018	100%	74%	90%	104%

(Export Cargo)

Year	Alternative-2	Sensitivity-1	Sensitivity-2	Sensitivity-3
2003	100%	62%	84%	102%
2008	100%	64%	85%	106%
2018	100%	71%	88%	105%

(Import Cargo)

Year	Alternative-2	Sensitivity-1	Sensitivity-2	Sensitivity-3
2003	100%	65%	86%	102%
2008	100%	66%	86%	105%
2018	100%	71%	88%	105%

(Domestic Cargo)

Year	Alternative-2	Sensitivity-1	Sensitivity-2	Sensitivity-3
2003	100%	73%	89%	102%
2008	100%	71%	88%	105%
2018	100%	73%	89%	104%

(Passenger for Domestic Travel)

Year	Alternative-2	Sensitivity-1	Sensitivity-2	Sensitivity-3
2003	100%	67%	86%	102%
2008	100%	67%	87%	105%
2018	100%	72%	89%	105%

Chapter 4 FABRIC OF THE PORT DEVELOPMENT STRATEGY

4.1 Recent Trend Surrounding Ports

(1) High potentiality for socio-economic development and the recent severe economic situation in Indonesia

It is said that Asia will assert itself as a leading region in the world in the 21st century. Similar to the remarkable economic development achieved in some other Asian countries, Indonesia had been also achieving steady economic development. Moreover Indonesia given its large land area, rich national resources and large population, is one of the countries with a high potential for development.

Since the currency crisis of last year, Indonesia has been monitored by the IMF. Indonesian Government announced that GDP growth in 1998 would be approximately -15%. The unexpected and severe economic situation has resulted in the suspension of various new projects. Now, only ongoing projects and rehabilitation projects are being conducted. In such a severe situation, Indonesia has to make various efforts to realize a desirable situation in the 21st century.

(2) Regional disparity in development, especially that between the West and East

In order to keep pace with the other remarkably developing Asian countries, the Indonesia Government has given priority to the economic development of Java and Sumatra. This has resulted in various kinds of problems, such as excessive concentration of the population, traffic congestion, environmental pollution and so on, in the western region. On the other hand, in the eastern region, although 18% of Indonesia's population reside there, public and private investment has been scant. It is very important from the viewpoint of attaining well-balanced national and regional development to actively promote the development of the eastern region.

(3) Age of Global Exchange and Great Competition

GDPs of advanced countries in 2010 are expected to be 1.5 times larger than at present. On the other hand, GDPs of Asian countries such as the countries of ASEAN and China in 2010 are expected to be two or three times larger than their present levels. Indonesia, in particular, is expected to play an important role among those countries with a high potential for development in Asia.

Moreover, among Indonesia and surrounding countries, international economic cooperation has become active, especially between Indonesia and other ASEAN countries and Australia.

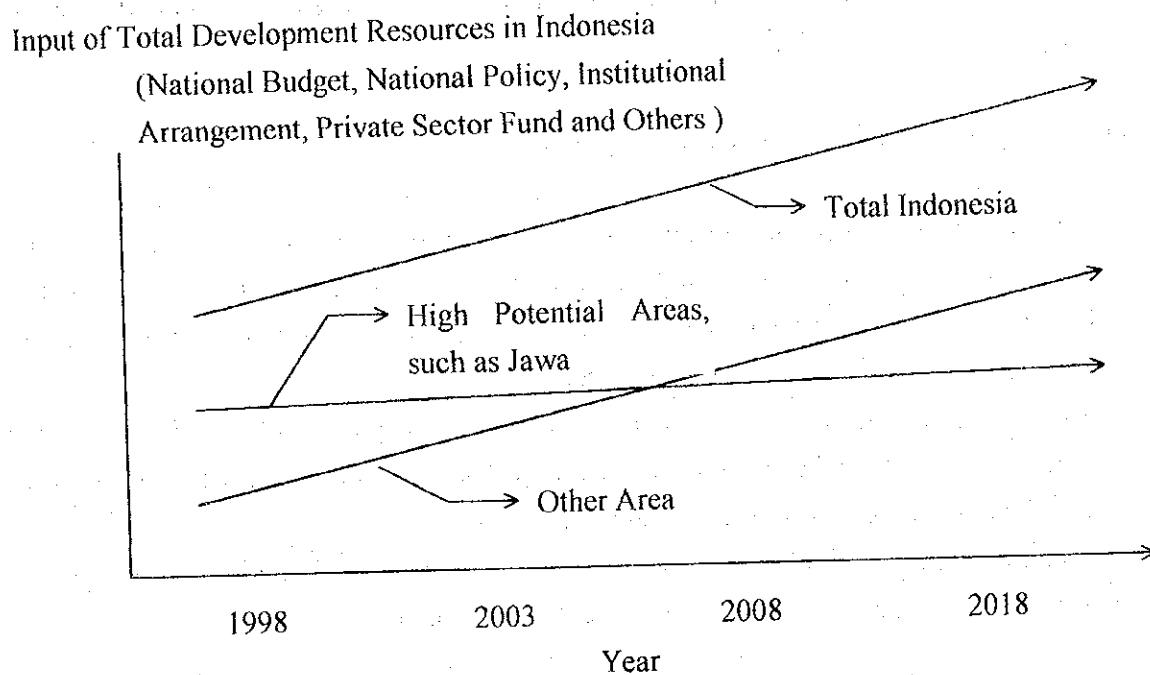
It is important for future socio-economic development that Indonesia be competitive with these countries. In particular cargo and passenger traffic between Indonesia and these countries will become more activated than now.

4.2 Expected Scenario of National Development

In this study, the following scenario can be recommended for future national development based on the discussion with the authorities of the government and relevant organizations.

- (a) Judging from the current economic situation of Indonesia, the first priority of the government efforts should be placed on economic recovery for at least the next several years. During this period, various kind of development resources such as national budget, institutional actions and private sector funds shall be utilized for the development of Java and other selected areas where more direct economic impacts can be expected compared to other areas.
- (b) After the national economy recovers, a long term national policy of realizing well-balanced nationwide development shall be pursued. During this period, various kinds of development resources, especially government budget shall be utilized predominantly for the development of East Indonesia which is a less advanced area. However, during this period, input efficiency of the development resources will be lower than in the earlier period.

Figure 4.2.1 Assumed Scenario of Development Policy in Indonesia



As the basic concept, we consider that network will progress and enlarge as a chain-reaction in proportion to the progress of land development. Namely, in the short term, the network will be mainly well shaped in "Jawa - Sumatra", and in the middle term, it will be extended toward "Jawa - West Kalimantan", "Jawa - South and East Kalimantan - North Sulawesi", "Jawa - South Sulawesi", and "Jawa - Bali - Lombok". Finally in the long term, it will be extended toward the remaining regions.

International regional economic cooperation with neighboring countries, such as IMT-GT, IMS-GT, BIMP-EAGA and AIDA, will also influence this network. In Sumatra and the eastern part of Indonesia, cooperation with neighboring countries will increase more and more. As a result, this cooperation will also contribute to regional development in those areas.

4.3 Roles of Ports

Based on the above background, basic roles of ports in this long term port development strategy are envisaged as follows.

(1) Supporting socio-economic development

Port is a node connecting sea and land transportation and one of the most important transportation infrastructures which contribute to socio-economic development. In Indonesia ports play an especially important role, because the transportation of daily goods and people mainly depends on sea transportation.

And almost all the international cargo volume is transported by sea. From the above viewpoints, it can be said that sea transportation has played an important role in various kinds of socio-economic activities in Indonesia.

Because of the heavy reliance on sea transportation, ports will continue to play quite an important role in supporting the socio-economic development.

(2) Rectifying regional disparity

The Indonesian government is planning various development projects in order to rectify the regional disparity. Port is expected to play an important role in supporting these projects, especially those in the coastal area, because ports provide not only a transportation base but also an area for industrial activities which in turn provides people with jobs.

(3) Surviving in the Age of Global Exchange and Great Competition

Until 1986, one shipping company had made calls on Tanjung Priok Port and Tanjung Perak Port in the North America-Asia Liner Container Route as the first port or last port.

But in 1986, that route was suspended and the function of Indonesian ports has been limited to the status of feeder ports of Singapore port. Indonesia does not have a sufficient container terminal, so even on the Intra Asia Route, fewer and fewer vessels are calling Indonesian ports.

In addition, in Asia various kinds of international economic cooperation are being planned. To survive in the Age of Global Exchange and Great Competition, Indonesian ports, as important gateways, must provide users with world class service and remain competitive with other Asian ports.

4.4 Strategy Framework

4.4.1 Identified Problems

On the basis of observations made on the historical, actual and future trend of the port administration and development in Indonesia, the most basic and serious problems in each field are identified in the following fields.

- (1) Long-term nationwide port development policy
- (2) Port development for coping with rapid internationalization
- (3) Role of port development in eliminating regional disparity
- (4) Port system
- (5) Promoting private sector participation
- (6) Port administration
- (7) Port management and operation
- (8) Dredging
- (9) Navigational safety
- (10) Environmental consideration to the ports
- (11) Port development implementation process policy
- (12) Promoting port sector development

4.4.2 Viewpoint of Strategy

Rapid socio-economic development is an aim of PJP II covering the years between 1994 and 2018. REPELITA VII is now being prepared. In order to fulfill the aim of PJP II, REPELITA VII should be focused on the regional disparity problem and international sea transportation trends.

It is foreseen that the movement of cargoes/passenger by sea transportation will be greater both nationally/internationally in the future. Therefore, a huge amount of investment for port development shall be required compared to the past. It shall be important not only to establish port development policy but also to clarify the total investment funds and schedules of the port development, and then to consider the national economic situation.

From this point of view, the 1st target of the study is to contribute to the realization of the goal of the PJP-II and also to make recommendations on the port development strategy which shall be reflected in REPELITA VII.

The introduction of private funds/technologies into several fields of public infrastructures is a pre-dominant trend throughout world. Rapid increase in private participation can be

expected in the near future in Indonesia, too.

The amount of investment in port development in the past was much lower than that of other infrastructure investment in Indonesia and other archipelago countries. It is crucial to increase the amount of port development investment. Therefore, it is important not only to utilize limited public funds efficiently and effectively but also to expand and employ more private funds/technologies in the future.

From this point of view, the 2nd target of this Study is to attain the desirable financial situation by appropriate role sharing between public and private sector and to propose some ideas on how to expand and use private funds.

Public ports in Indonesia are now owned by the state. DGSC administrates port affairs, such as safety matters, and coordinates with related plans / related organizations. IPCs manage/operate all commercial ports.

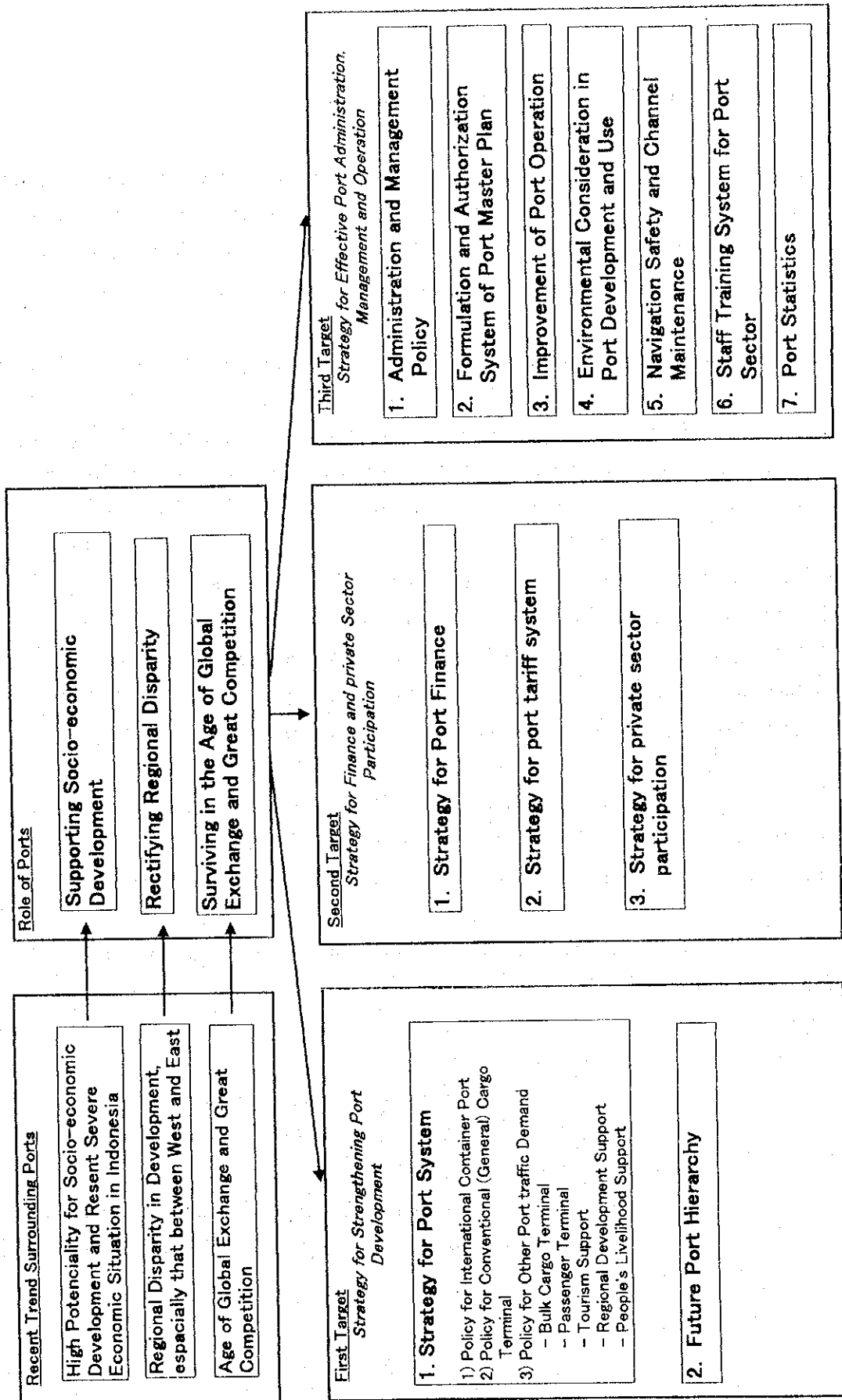
Generally, almost all port activities are commercial in nature except port administration and infrastructure development activities. From another point of view, it is important not only to develop new port facilities but also to improve the productivity of the existing port facilities. Therefore, through restructuring/deregulating port administration and management/operation activities of the public sector, it should be examined how to improve the public sector's performance and expand/employ the private sector's know how, especially in the port operation field.

In order to complement the above-mentioned 1st and 2nd targets of the Study, the 3rd one is to propose some ideas for effective port administration, management and operation affairs.

Based on the above, the main structure of the basic policy for this strategy is summarized below. (See Figure 4.4.1)

- I Strategy for Strengthening Port Development
- II Strategy for Port Finance and Private Sector Participation
- III Strategy for Effective Port Administration, Management and Operation

Figure 4.4.1 Structure of the Port Development Strategy



4.5 Main Strategies

4.5.1 Strategy for Strengthening Port Development

In formulating the Strategy for Strengthening Port Development, necessary and prioritized port development plan shall be proposed by the Study Team based on the forecast of total cargoes/passengers in 2018 under several indices of social-economic development targets in the PJP II and the recent socio-economic changes.

As for the foreign trade container, development of port facilities with high-level productivity and international standards shall be aimed at. On the other side, as for the domestic container, other cargoes and passengers, the economic rationality of nation-wide sea transportation, close linkage with other transportation modes and differences of the socio-economic development among various regions shall be considered.

Generally, the port provides a space not only for transportation but also for industrial activities and people's livelihood. To rectify regional disparity, the development of the Eastern region shall be considered. And to ensure that people all over Indonesia have adequate transportation service, securing people's appropriate living standard by way of sea transportation, which is dominant means of transportation, shall be considered.

For realizing an efficient port system in the long term, a huge amount of investment with appropriate investment schedule shall be provided. Therefore, it might be necessary to establish middle and short term strategies and to adopt the concept of intensive investment.

Based on the above, the Strategy for Strengthening Port Development shall be comprised of the following items.

I -1 Strategy for Port System

I -1-1 Policy for International Container Port

I -1-2 Policy for Conventional (General) Cargo Terminal

I -1-3 Policy for Terminal for Other Port Traffic Demand

1) Bulk Cargo Terminal, 2) Passenger Terminal, 3) Tourism Support,
4) Regional Development Support, 5) People's Livelihood Support

I -2 Future Port Hierarchy

4.5.2 Strategy for Port Finance and Private Sector Participation

In examining the Strategy for Port Finance and Private Sector Participation, roles of the government, IPCs and private sectors shall be defined considering the nature of the task and the cost of port development.

In Indonesia, level of investment in port development compared to other major public infrastructure development investment is not high, even though Indonesia is the world's biggest archipelago country. It is not, however, easy for the government to increase the share of port development investment under the limited national budget.

In public infrastructure development, throughout the world, private funds are being increasingly used. Along with the government private sector participation policy for public infrastructure development projects, the private sector participation of port development projects also must be promoted to compensate the lack of government funds.

In Indonesia, ports have historically been state owned, therefore, the introduction of private funds/technology has not been promoted so far. As stated before, actual port activities are commercial in nature. Therefore, measures on how to expand and employ private funds/technologies shall be introduced.

In addition, the tariff system also should be considered as a main tool for implementing the port finance strategy. In principle, the tariff system should be "flexible" in the determination process and "time-conscious" for users and "appropriate" to maintain competitiveness. Taking examples of other countries into consideration, we propose an appropriate tariff system.

From the above-mentioned views, the detail of the Strategy for Port Finance and Private Sector Participation shall be as follows.

- II -1 Strategy for Port Finance
- II -2 Strategy for Port Tariff System
- II -3 Strategy for Private Sector Participation

4.5.3 Strategy for Effective Port Administration, Management and Operation

In applying the above mentioned Strategies I and II successfully to the actual stage of port development of the country, it is most important that these strategies are strongly supported by the administration sector of DGSC and other agencies concerned. Without effective administration, management and operation of the ports, the proposed schemes for future port development can not be achieved. In this regard, this chapter focuses mainly on up grading administrative and management performance as well as suggestions on other important policy areas of port administration.

As the first subject of this chapter, overall administrative policy on major problem areas is discussed, which includes proposals on administration of commercial, non-commercial and special port sectors, followed by discussions on significance, role, contents and procedural policy of the port master plan.

After discussing improvement of port operations focusing on two major ports of Indonesia (the ports of Tanjung Priok and Tanjung Perak), proposals on environmental consideration in the port development are introduced. The natural environment such as flora/fauna, beach and forest in particular, shall be carefully treated in the planning process of port development. In addition, improvement of sea/river water quality in port area shall be considered accordingly.

Navigation safety and channel dredging, staff training affairs, port statistics administration, port engineering, research and survey, and supporting activities for port sector development are also the vital items to support the main strategies of the report, on which policies are discussed and proposed on the basis of the current and future situation of the port sector administration.

The Strategy for Effective Port Administration, Management and Operation contains the following components;

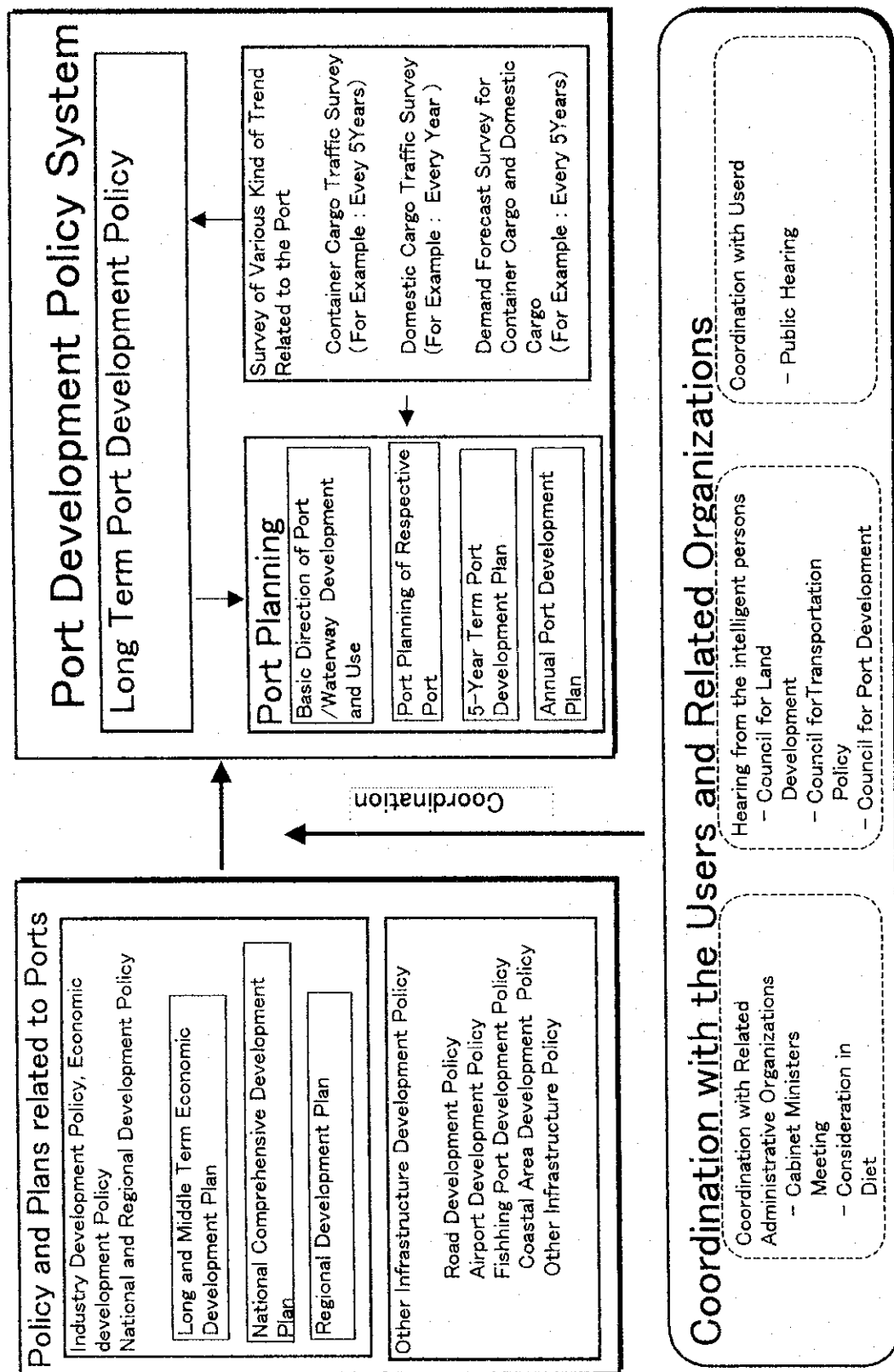
- III-1 Administration and Management Policy
- III-2 Formulation and Authorization System of Port Master Plan
- III-3 Improvement of Port Operation
- III-4 Environmental Consideration in Port Development and Use
- III-5 Navigation Safety and Channel Maintenance
- III-6 Staff Training System for Port Sector
- III-7 Port Statistics
- III-8 Port Engineering, Research and Survey
- III-9 Supporting Activities for Port Sector Development

4.6 Procedure for Coordination and Monitoring

Port Development is closely related to the national land development, regional development and other infrastructure development. The consent of users and people in the hinterland is also required. Thus port development strategy should be coordinated with those related plans and organizations, and take account of requests of users by following an appropriate procedure. In addition, appropriate revision of the port development strategy is needed to cope with changes in the socio-economic situation. (See Figure 4.6.1)

At this stage of the study, certain assumptions must be made in drafting the strategy, because the future socio-economic situation and various plans related to the Study are still not clear. Thus, by monitoring the strategy periodically based on the studies to be conducted, the strategy should be reviewed and revised periodically.

Figure 4.6.1 Procedures and Necessary Coordinations in Formulating and Monitoring the Port Development Strategy

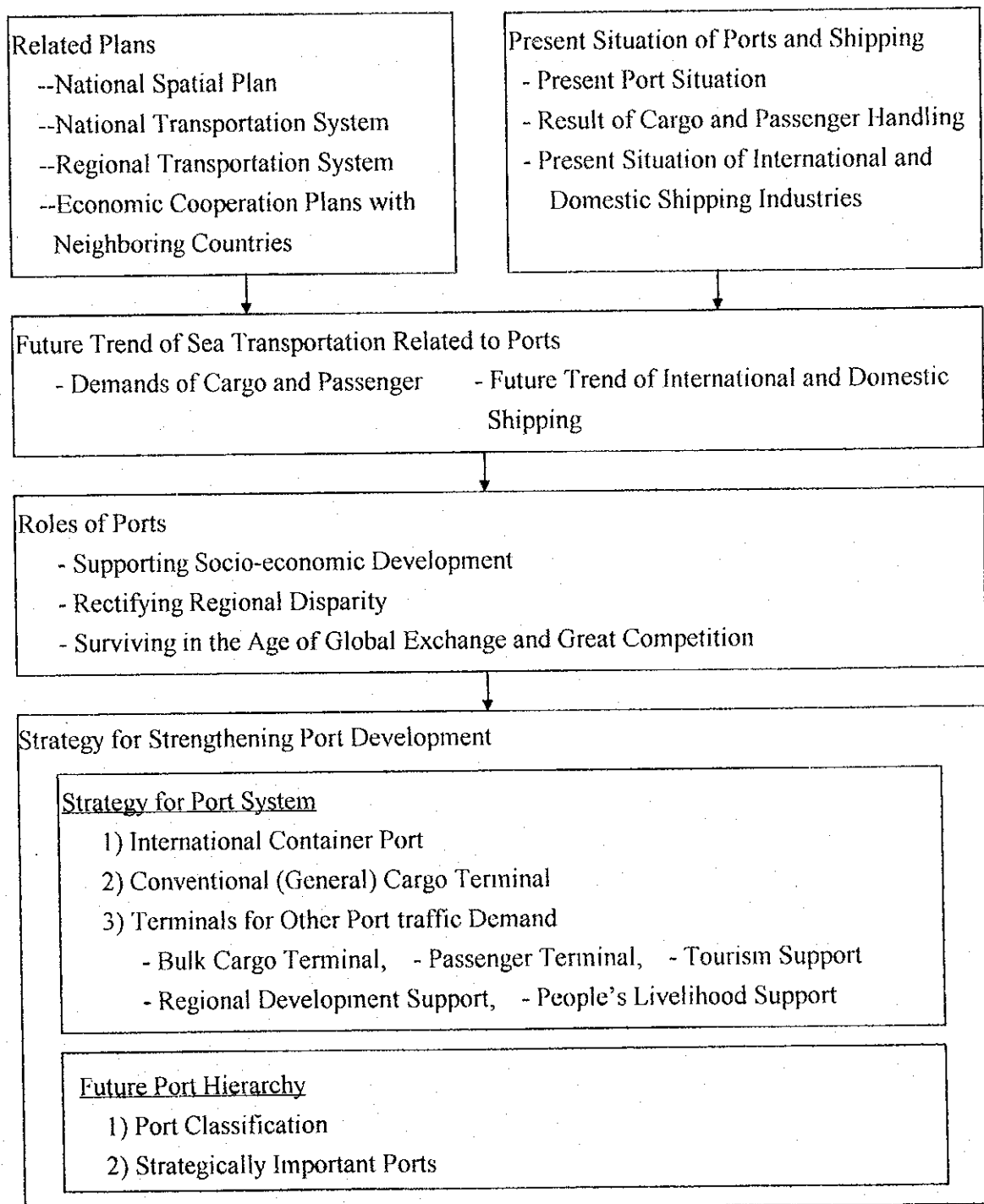


Chapter 5 STRATEGY FOR STRENGTHENING PORT DEVELOPMENT

5.1 General

In accordance with the procedure indicated in Figure 5.1.1, a strategy for strengthening port development will be presented in this chapter.

Figure 5.1.1 Procedure for Establishing Strategy for Strengthening Port Development



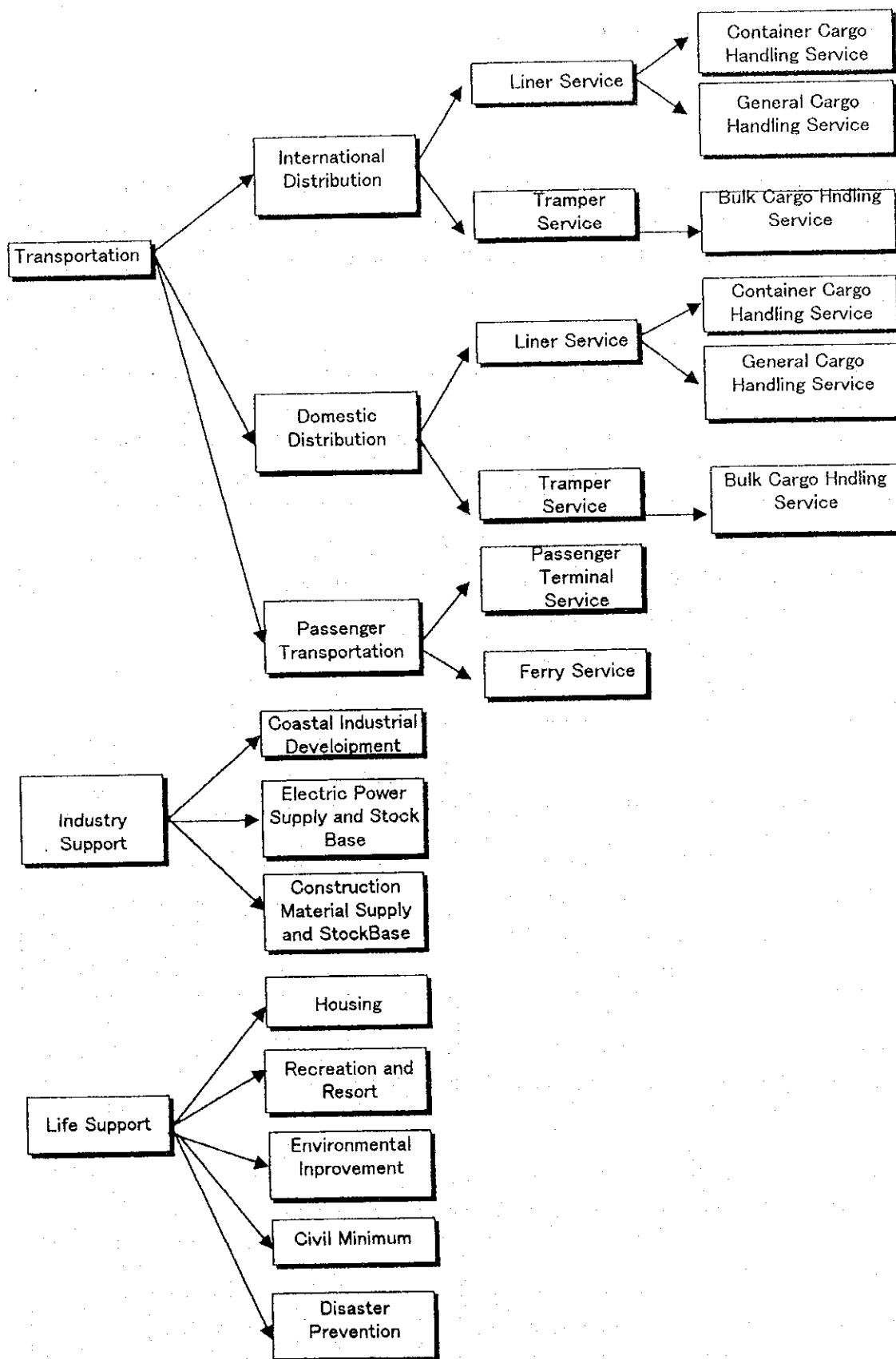
5.2 Clarification of the Function of Major Respective Ports

In Indonesia, which is the largest archipelago country in the world, function of ports of transporting cargoes and passengers is very important.

On the other hand, ports have various functions, such as transportation node, providing space for industry, supporting people's livelihood and so on. But now in Indonesia the main function of ports is considered only to transport cargoes and passengers. As for providing space for regional and industrial development, mainly special ports have played this role to date (See Figure 5.2.1).

In the future, functions of ports should be diversified to meet the various demands of people in the hinterland.

Figure 5.2.1 Classification of the Port Function



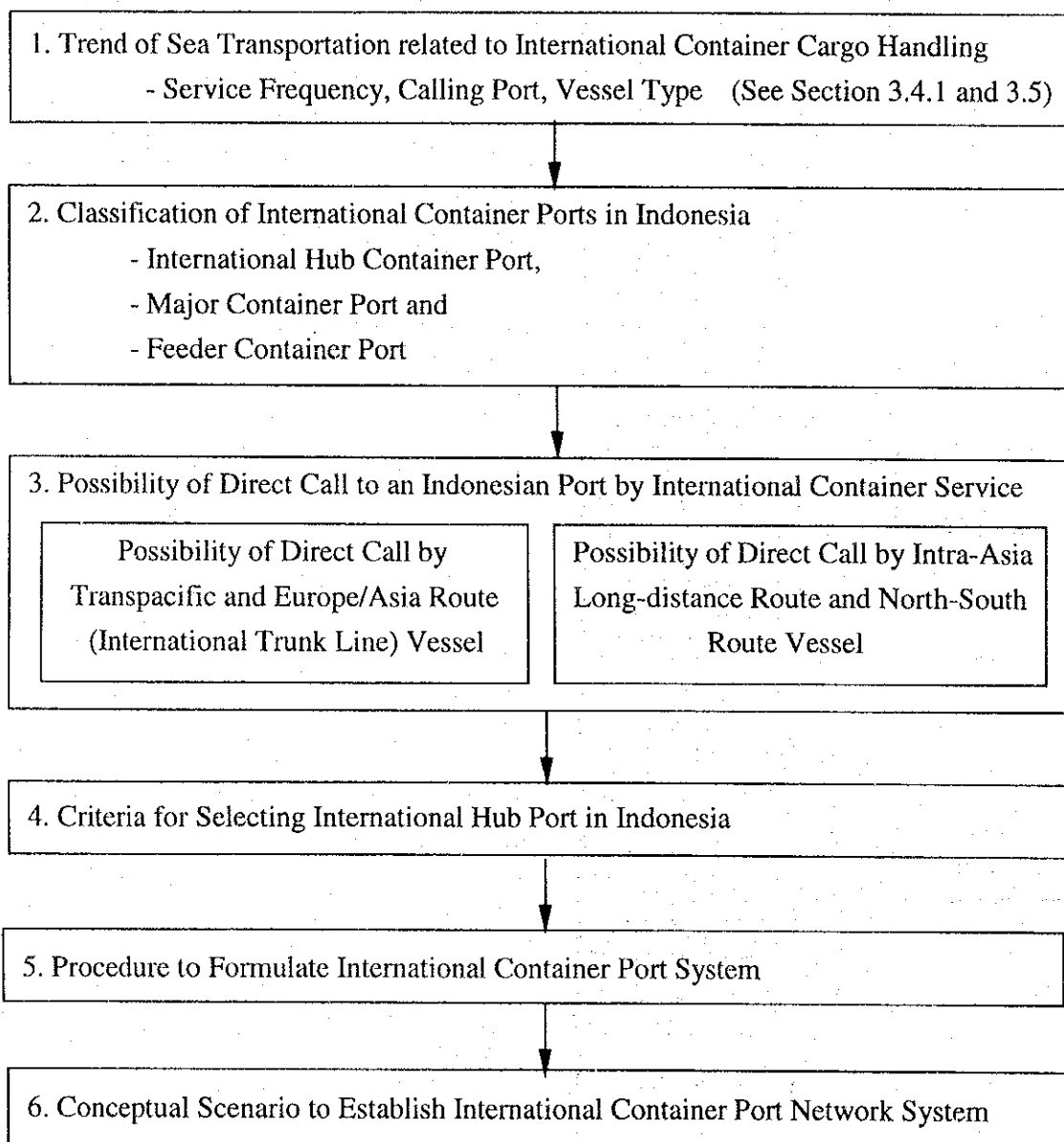
5.3 Strategy for Port System

5.3.1 Policy for International Container Port

5.3.1.1 General

In this section, we introduce the procedure to establish a international container port network system in Indonesia. In the third part, we estimate the container volume necessity for a port to be directly called by International Trunk Line service and Intra-Asia Long Distance service in Indonesia. (See Figure 5.3.1.1)

Figure 5.3.1.1 Procedure for Establishing International Container Port Network System



More than 80% of international container cargo of Indonesia is currently transported through Singapore Feeder service and the transshipment cost in Singapore is heavy burden of this transportation. In order to minimize transportation cost, a more efficient and effective container cargo transport system should be established in Indonesia, including direct calls by Intra-Asia Long Distance Container Service and International Trunk Container Service.

Cooperation with Asian countries is a key to economic recovery in Indonesia. The number of ports receiving Intra-Asia Long Distance service, therefore, should be increased.

5.3.1.2 Classification of International Container Ports

In accordance with the present worldwide container transportation network system, which is likely to continue well into the future, the Study Team proposes to classify the container cargo handling ports in Indonesia into 3 categories; International Hub Port, Major Container Port and Feeder Container Port. The function of each classified port and required frequency of each service vessel calling at a port to satisfy minimum level of service are defined as follows.

Table 5.3.1.1 Required Minimum Frequency of Service Call to Classified Port

Classification	Service Route				
	Europe/Asia	Transpacific	North/South	Intra-Asia	Feeder
International Hub Port	Twice a week	Twice a week	Twice a week	Twice a week	Sufficient level of feeder system
Major Port	No	More than once a week	Twice a week by either or both service		Certain level of feeder system
Feeder Port	No	No	No	No	More than once a week*

Note : * Receiving feeder service from Singapore or port in Indonesia

We propose to further categorize International Hub in Indonesia into following two types.

- Mother Port Type International Hub Port : Mainly accommodating O/D container (Origin/Destination Container from/to the hinterland). The location of port is selected based on O/D cargo volume. Share of transshipment container from/to foreland to total volume is less than 40% in general.
- Transshipment Port Type International Hub Port : accommodating substantial volume of transshipment container from/to foreland. The location of port is selected based mainly on closeness to international sea-lane. Share of transshipment container to total volume is more than 40% in general

5.3.1.3 Possibility of Direct Call to Indonesia Port by International Container Service

The possibility of direct call by Transpacific, Europe/East-Asia and Intra-Asia Long Distance Service to ports in Indonesia was examined considering several factors and showed the criteria of container volume in a port to be called by those services.

We used rough cost examination method to estimate the required container volume to receive direct call by those services from the viewpoint of ship operators.

Table 5.3.1.2 Required Container Volume to Receive Direct Calls

Service Route	Location	Required Loaded Container Volume (TEU/Year)	
Transpacific	Northern Part of Jawa	O/D Container	1,500,000
	Eastern Part of Sumatra	Total	1,500,000
Europe/East-Asia	Northern Part of Jawa	O/D Container	3,000,000
	Eastern Part of Sumatra	Total	3,000,000
Europe/East-Asia*	Eastern Part of Indonesia	O/D Container	1,680,000
		Total	4,200,000
Europe/East-Asia*	Facing Malacca Strait	O/D Container	1,400,000
		Total	3,500,000
Intra-Asia Long Distance	Northern Part of Jawa	O/D Container	450,000
	Facing Makassar Strait	Total	450,000
Intra-Asia Long Distance	Eastern Part of Sumatar	O/D Container	300,000
		Total	300,000

Note : * Share of transshipment container is assumed to be less than 60%

5.3.1.4 Criteria for Selecting an International Container Hub Port in Indonesia

The location of International Hub Port in Indonesia is essential to establish the container transportation network system, which is one of vital factor to support the international competitiveness of industrial product and promote economic activity in a certain region. The location of the port, therefore, should be selected considering port and economic activity in future as well as national and regional development policy.

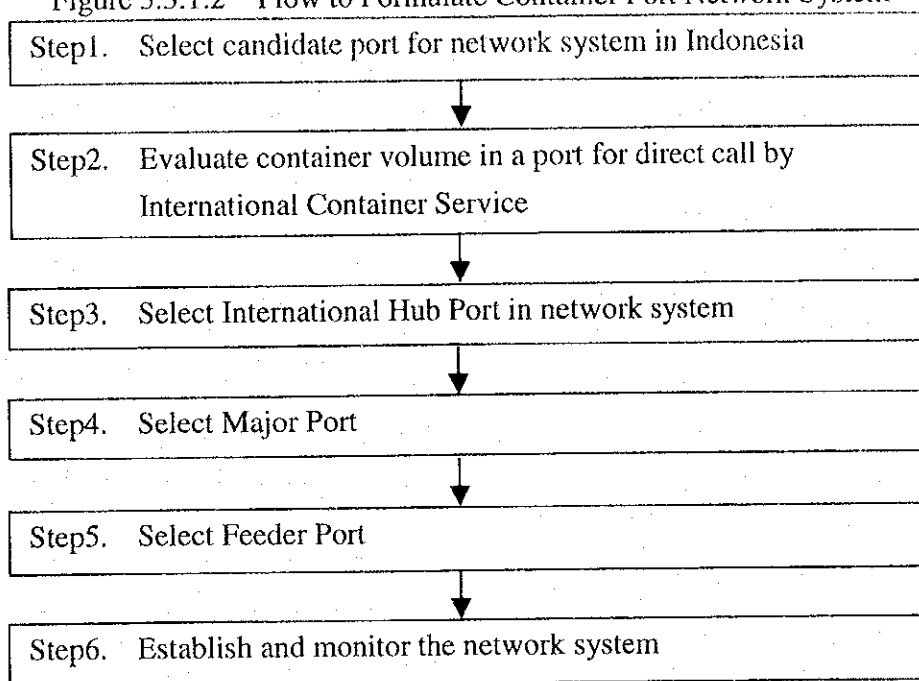
“Mother Port Type International Hub Port” and “Transshipment Port Type International Hub port” is quite different in nature. The International Hub Port in Indonesia should be selected based on direct benefit and indirect benefit as well as its ability to promote economic recovery. The criteria are summarized in Main Report Part 2 Table 5.3.1.6.

5.3.1.5 Procedure to Formulate International Container Port System

(1) Flow to Formulate Container Port Network System

In order to formulate the container port network system in Indonesia, the Study Team proposes the following flow. "Selection of International Hub Port" is the most important to formulate this system, because International Hub Port is substantial in the system and it takes a long time to establish such function and requires large investment.

Figure 5.3.1.2 Flow to Formulate Container Port Network System



(2) Selection of Candidate Container Port in Indonesia

The candidate ports are to be selected considering geographical condition, cargo condition, port development condition, port service condition and national and regional policy.

At least one port in one province should be selected as a candidate port to represent the present condition of each province

(3) Evaluation of Container Volume in a Port for International Direct Call

In conformity with the examination shown in Section 5.3.1.3, we propose the required container volume of each classification in international container port network system.

The volume of transshipment container in International Hub Port should be estimated considering competition with neighboring hub ports, market price and least operation cost. The distance between international hub ports at present, in general, is more than 1,000miles, which is especially important in selecting new "Transshipment Port Type" port.

Table 5.3.1.3 Required Container Volume for International Hub Port (Unit TEU/Year)

Classification	Location	Kind of Container	Europe/East-Asia Service
Mother Port Type	Northern part of Jawa Island	O/D Container	3,000,000
Transshipment Port Type*	Facing Malacca Strait	O/D Container	1,400,000
		Transshipment	2,100,000
		Total	3,500,000
	Others	O/D Container	1,680,000
		Transshipment	2,520,000
		Total	4,200,000

Note : * Share of transshipment container is assumed to be less than 60%

Table 5.3.1.4 Required O/D Container Volume for Major and Feeder Port (Unit TEU/Year)

Classification	Location	Transpacific Service	Intra-Asia and North-South
Major Container Port	Northern part of Jawa and the area facing Makassar Strait	1,500,000	450,000
	Eastern part of Sumatra	1,500,000	300,000
Feeder Container Port	All Indonesia	-	100,000

(4) Selection International Hub Port in Network System

For reducing total shipping cost, it is more effective to develop "Mother Port Type" based on volume of O/D container. On the other hand, for promoting regional development, rectifying regional disparity and improving the economic relations among neighboring countries, the development of "Transshipment Port Type" is more effective. These different factors should be weighed in deciding the location of International Hub Port in Indonesia.

(5) Selection of Major Port

Basically, Major Container Ports will be selected by evaluating the volume of O/D container but the service pattern of Intra-Asia Long Distance Route is, in general, round trip type at present and it is anticipated that similar pattern will continue in future. If a port situated near these service routes, the port has a higher possibility to be called by these services.

5.3.1.6 Conceptual Scenario for International Container Port Network System

(1) Basic Concept

According to the result of the foregoing examination, the following matters will be considered in formulating international container port network.

- a) Tg.Priok/Bojonegara will be an International Hub Port in Indonesia.
- b) Singapore, which is the main hub port of all Indonesia at present, will be an International Hub Port for eastern part of Sumatra and western part of Kalimantan in future.
- c) Batam port will be developed in good cooperation with Singapore.
- d) In the long term, one supplemental International Hub Port should be developed to support the economic activities in the eastern part of Indonesia, because this area is far away from the existing International Hub Port. (The distance between Tg.Priok and Jayapura and between Tg.Priok and Merauke is 2,193miles 2,130miles, respectively).

(2) Middle Term

Singapore is the main International Hub Port in the network and Batam port development, if possible, could start in cooperation with Singapore.

Tg.Priok/Bojonegara will be developed as a Major Container Port called by Transpacific Service vessel and in addition to Belawan Tg.Emas and Tg.Perak, a Major container Port should be developed in East Kalimantan and South Sulawesi, respectively.

Six locations are selected as Feeder Container Port development considering container volume in certain areas and the need to support the eastern part of Indonesia.

The conceptual scenario for international container port network in the middle term is shown in Figure 5.3.1.4

(3) Long Term

The Study Team proposed two scenarios considering the total shipping cost and future prosperity of the eastern part of Indonesia.

- Scenario1

The International Hub ports are (Singapore) +Tg.Priok/Bojonegara and Tg.Perak/Gresik

- Scenario2

The International Hub ports are (Singapore) +Tg.Priok/Bojonegara and a port in the eastern part of Indonesia

These conceptual scenarios for international container port network in the long term are shown in Figure 5.3.1.5 and Figure 5.3.1.6

After container volume in the eastern part of Indonesia sufficiently increases to justify International Hub Port development, the location of the port should be selected based on concept of promoting the competitiveness of international trade and sea transport.

Figure 5.3.1.3 Container Port Network in Indonesia (at Present)

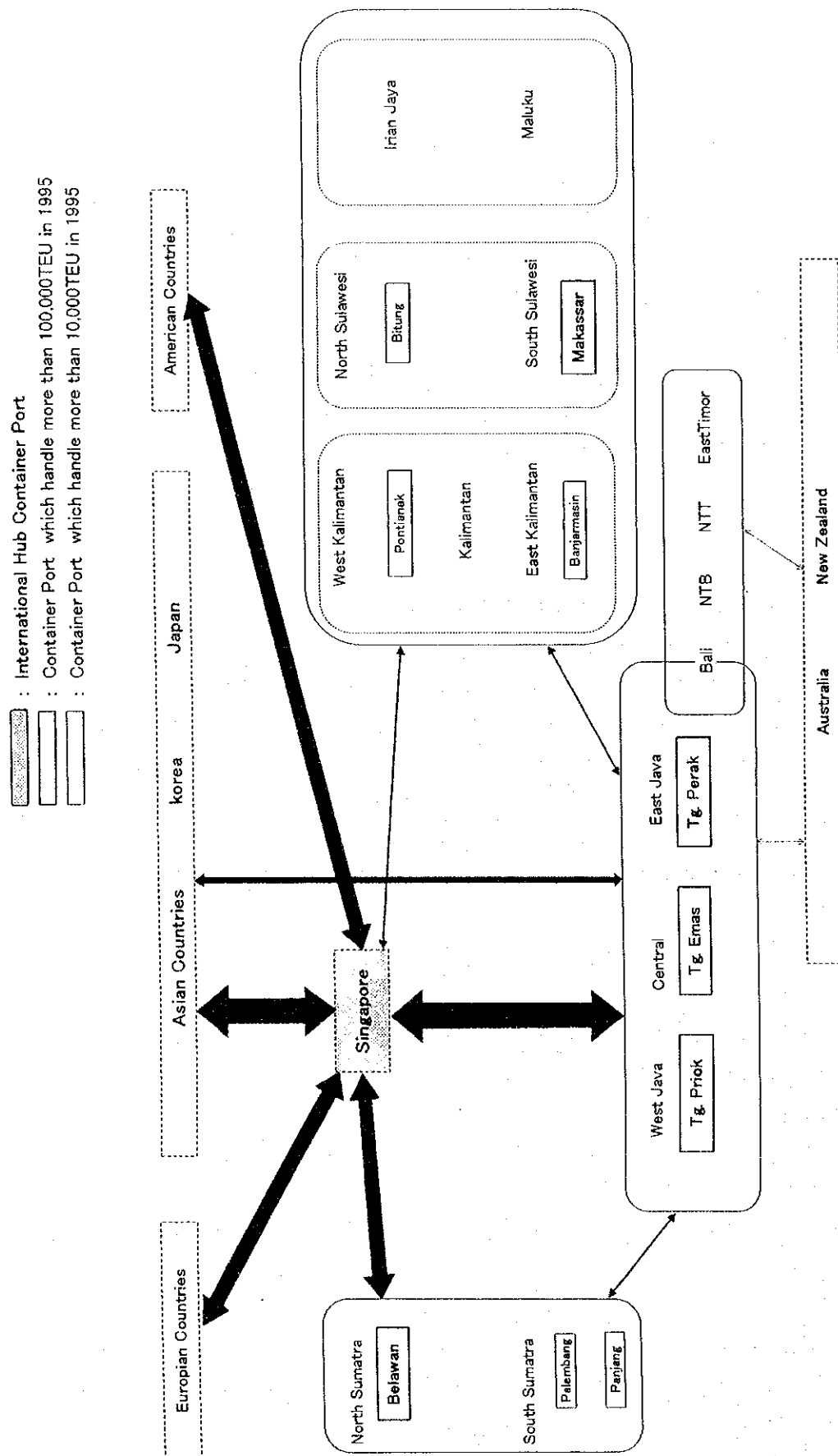


Figure 5.3.1.4 Container Port Network in Indonesia (Middle Term)

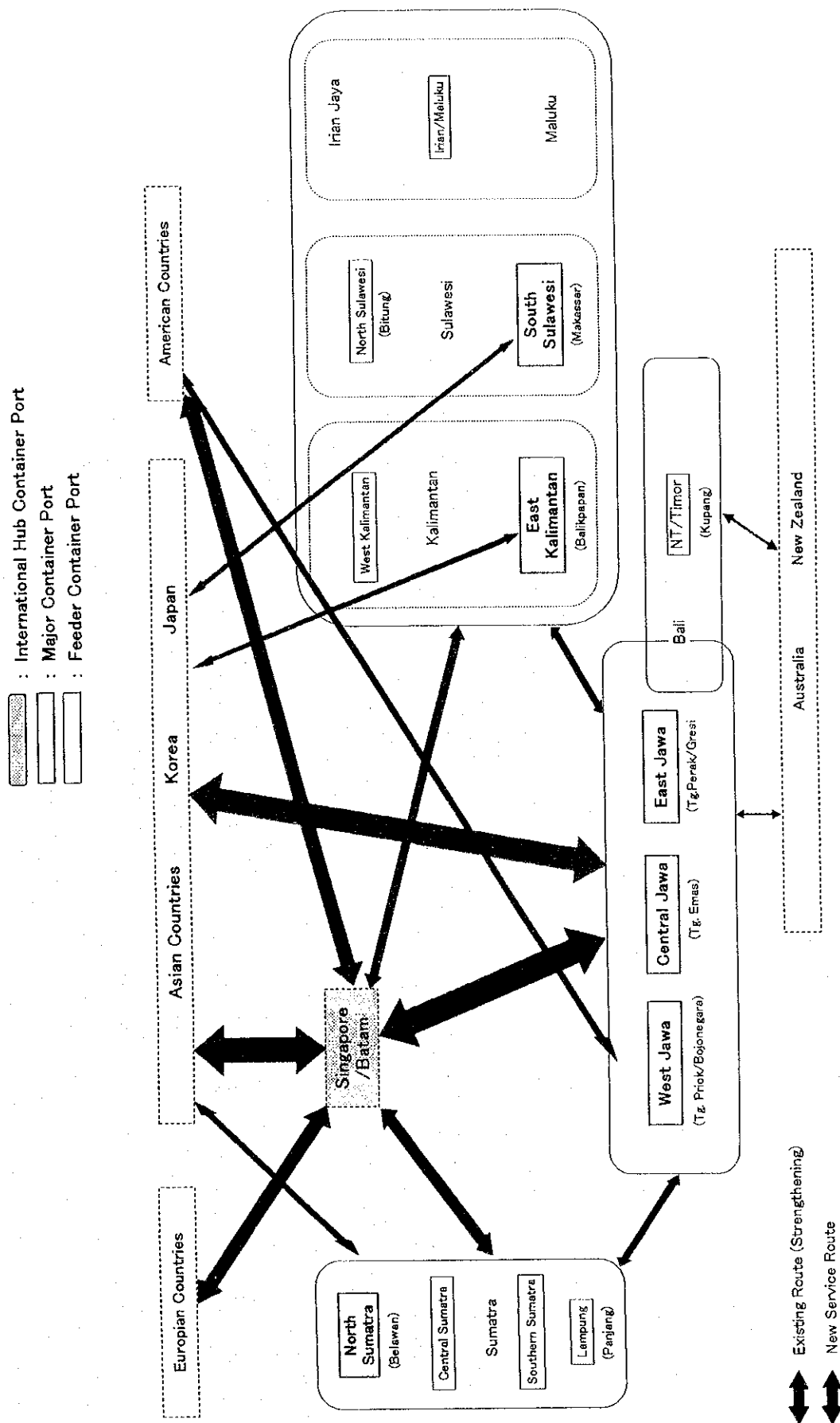


Figure 5.3.1.5 Container Port Network in Indonesia (Long Term, Scenario 1)

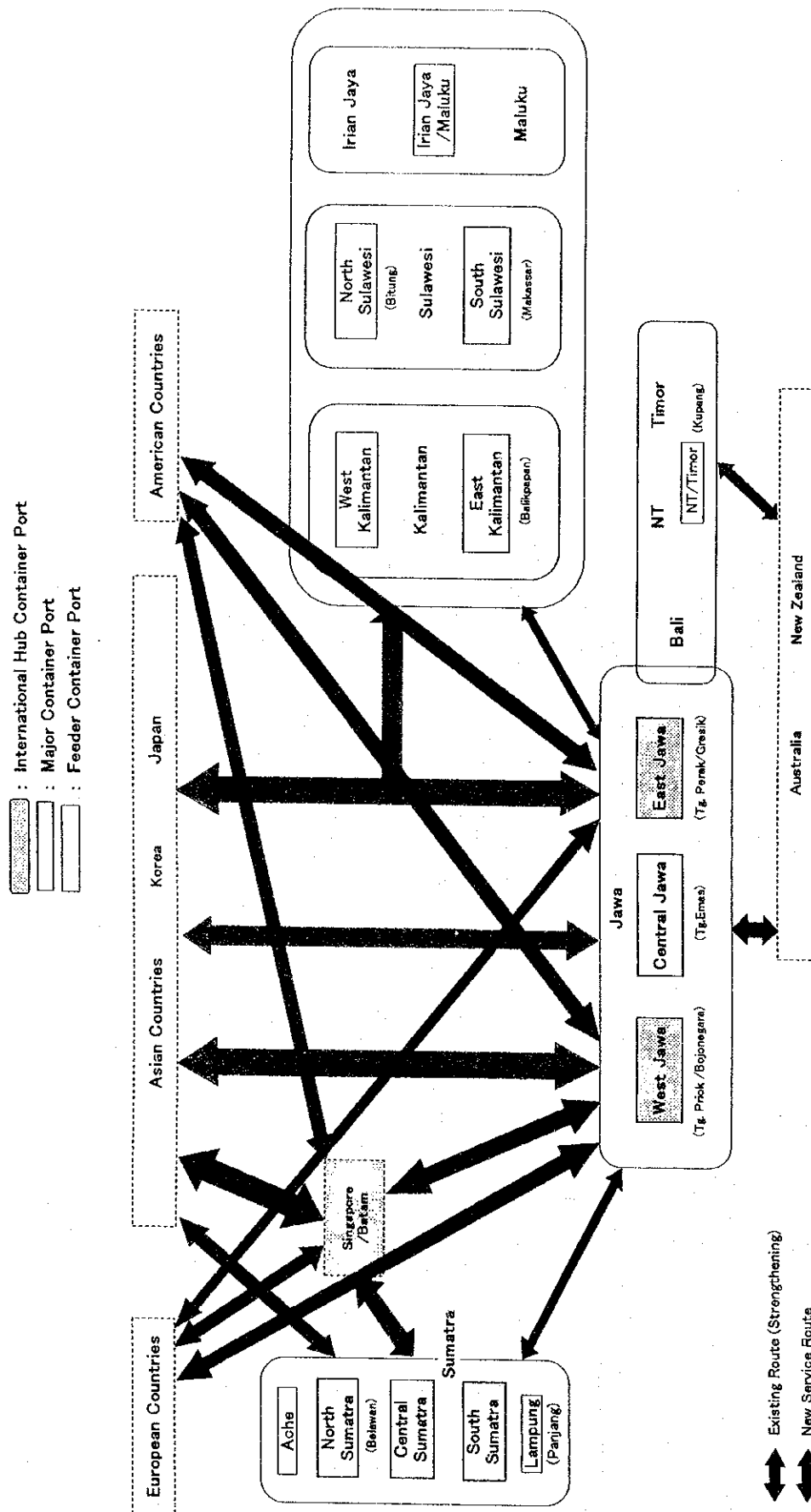
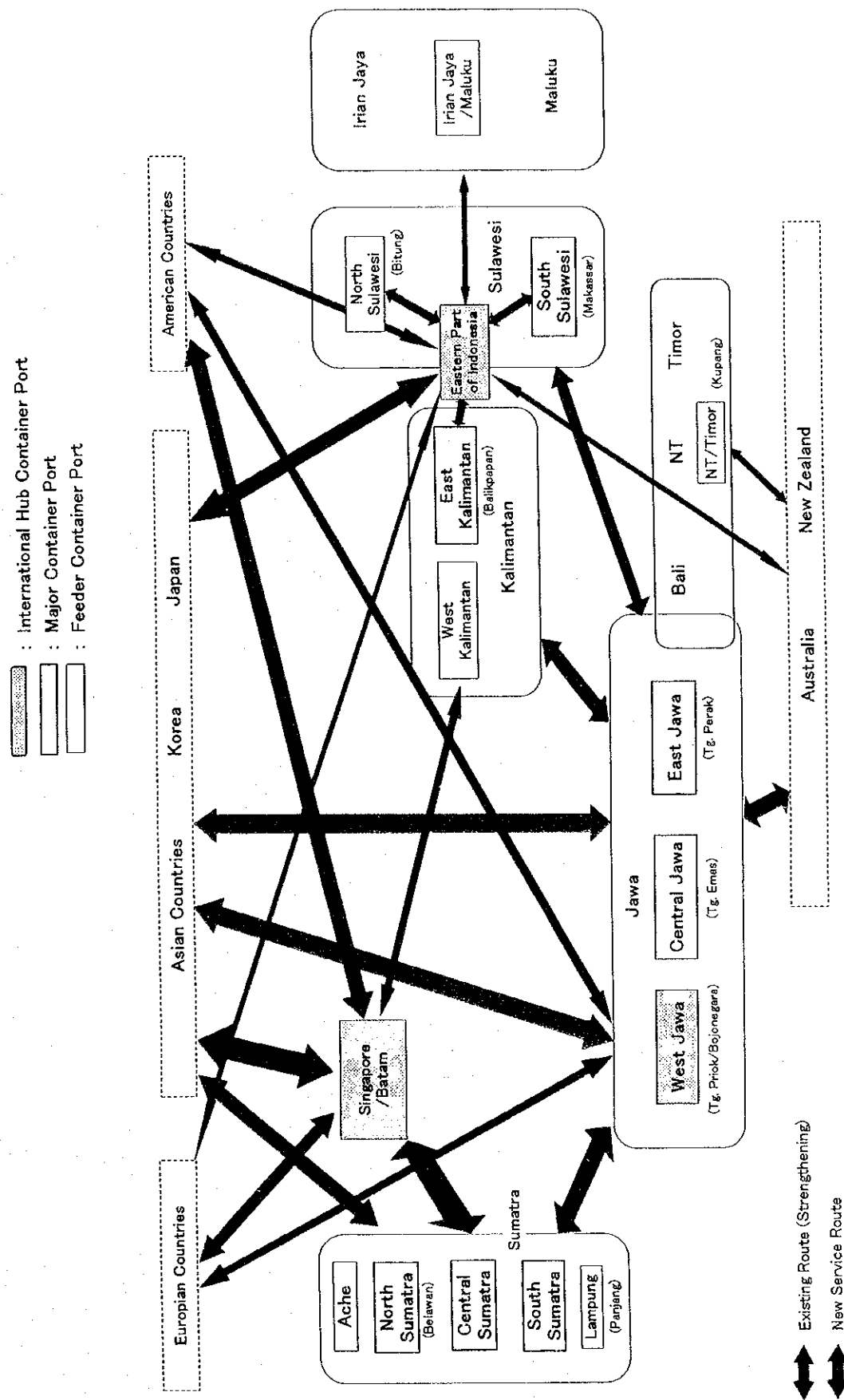


Figure 5.3.1.6 Container Port Network in Indonesia (Long Term, Scenario 2)

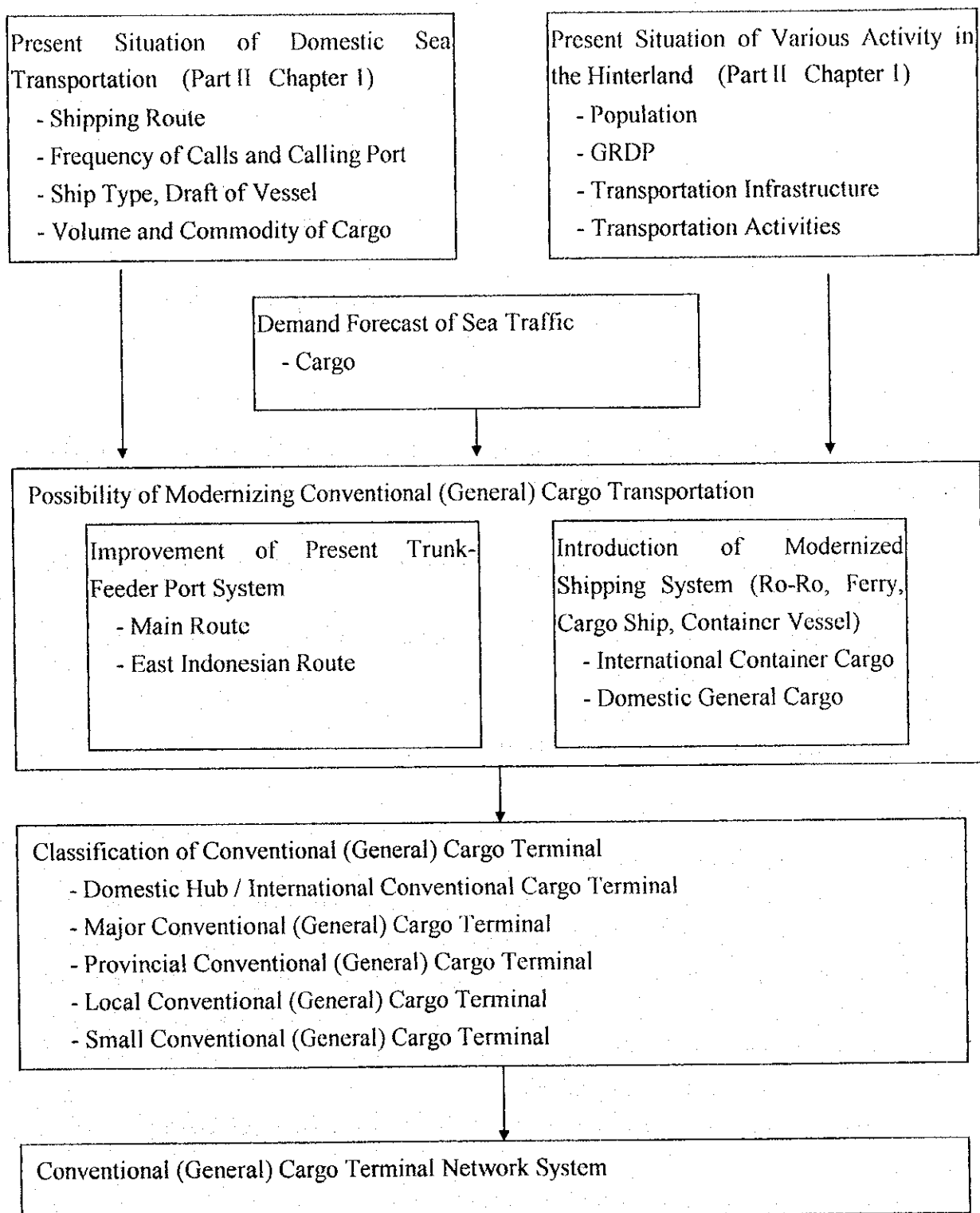


5.3.2 Policy for Conventional (General) Cargo Terminal

5.3.2.1 Outline

In this section, a main concept for formulating the conventional (general) cargo terminal network system is proposed. The procedure is comprised of “Possibility of Modernizing Conventional (General) Cargo Transportation”, “Classification of Conventional (General) Cargo Terminal” and “Conventional (General) Cargo Terminal Network System”. In particular, “Possibility of Modernizing Conventional Cargo Transportation” is vital in formulating this network system. (See Figure 5.3.2.1)

Figure 5.3.2.1 Procedure for Establishing Conventional (General) Cargo Terminal Network System



5.3.2.2 Possibility of Modernizing Conventional (General) Cargo Transportation

(1) Present conventional (general) cargo transportation

1) OD distribution of cargo traffic

Based on the OD data (in 1994, excluding oil, gas and coal), major domestic cargo moves around Java Island. Approximately 30.5 % of the total outbound cargoes originates from Java and 27.0 % of the total inbound cargoes enters to Java. (See Figure 5.3.2.2~5.3.2.3)

In particular, the major cargo traffic, which exceeds 500,000 tons/year, is transported from/to Java to/from Sumatra, the East and West Kalimantan. Even in OD distribution, where volume exceeds 200,000 tons/year, cargoes are dominantly transported within Java, Sumatra and Kalimantan.

2) Shipping route

Domestic shipping in Indonesia is comprised of Inter-island shipping, local shipping, pioneer shipping and Rakyat shipping. At present domestic cargoes are distributed to the regional areas by combining inter-island shipping, pioneer shipping and Rakyat shipping. Mainly an inter-island shipping plays a role of a trunk shipping route and a pioneer shipping plays a role of a feeder shipping.

Among those shipping types, the inter-island shipping plays a major role for domestic cargo distribution in Indonesia.

(2) Improvement of present Trunk- Feeder Port System

In order to attain further effective and efficient sea transportation system, review of the Trunk-Feeder Port System is important.

As one trial for reviewing the Trunk-Feeder Port System, the Study Team estimated the appropriate distance between trunk ports and feeder ports by comparing sea transportation cost with land transportation cost for transporting same volume of cargoes. Based on the result of this cost comparison, when the origin/destination of cargo is apart from the nearest trunk port by more than 250 km, sea transportation cost for transporting the same volume of cargoes is cheaper than land transportation cost.

The result of this examination can be utilized to justify development of feeder ports.

(3) Introduction of modernized shipping system

In order to distribute/collect international container cargo to/from consignees all over Indonesia efficiently and rapidly, domestic container shipping routes, which is utilized to

transport international container cargoes from/to major container ports systematically, shall be established.

Unitization of domestic general cargoes is one means for modernizing domestic shipping. It prevents damage to cargo and enables quick cargo handling. Unitization is composed of several styles, such as container transportation system, Ro/Ro system and ferry system. However, unitization remains at a low level at present.

The main reason why the unitization of domestic cargo handling remains at a low level is attributed to the limitation of road and rail transportation capacity, particularly in rural areas of Indonesia. In order to let the consignors/consignees in Indonesia enjoy the merit of the above domestic unitized cargo transportation, unitization of the domestic general cargoes should be examined. This will result in motivating the land transportation side to implement the necessary road or rail development for transporting domestic cargoes.

However, at present, the commodities of the domestic cargoes in Indonesia are not so time conscious. Therefore demand for unitization of domestic cargoes has not been intensified much. In the future, after economic activities in regions other than Java grow, it will be possible to apply more modernized sea transportation system, such as Ro/Ro system for the routes which have large cargo traffic.

In order to examine the possibility of introducing a modernized shipping system in terms of economic aspect, transport cost comparison among conventional cargo vessel, semi-container vessel, full-container vessel and Ro/Ro vessel was conducted. (See Table 5.3.2.1)

From this analysis, it can generally be said that the transport cost of conventional cargo vessel is cheaper than any other shipping system vessel. The reason why the cost of other modernized shipping system vessels is higher, is mainly attributed to the high ship operation cost.

However, containerization or other type unitization of the general cargo is inevitable as the need to protect cargoes and to provide swift and reliable door to door cargo transportation which has become worldwide trends. So in the near future, semi-container vessel shall have an advantage, since its cost is not much higher than a conventional cargo vessel but it can accommodate containers within a certain volume.

Figure 5.3.2.2 Cargo Movement (Commodities without Oils)

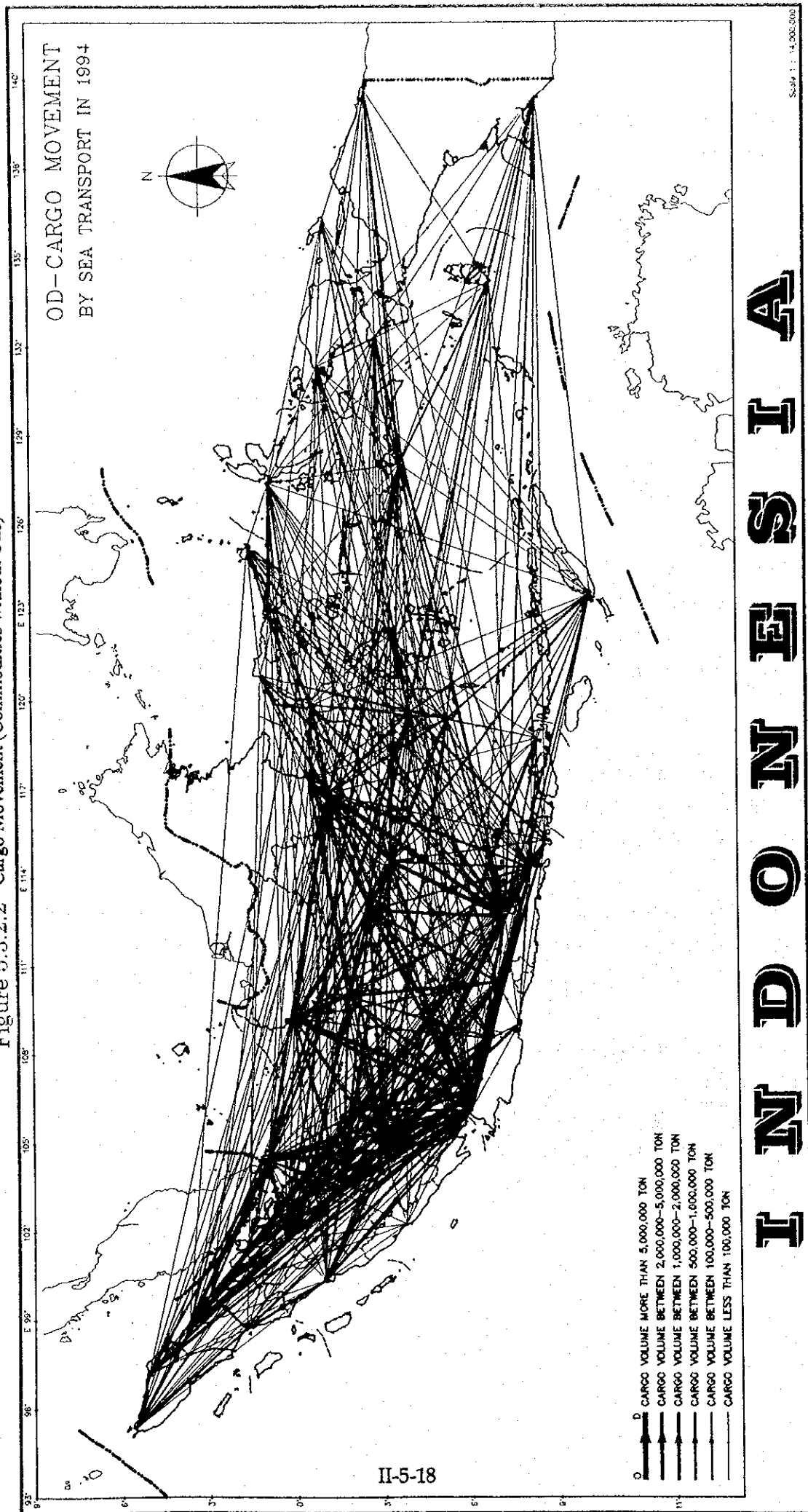
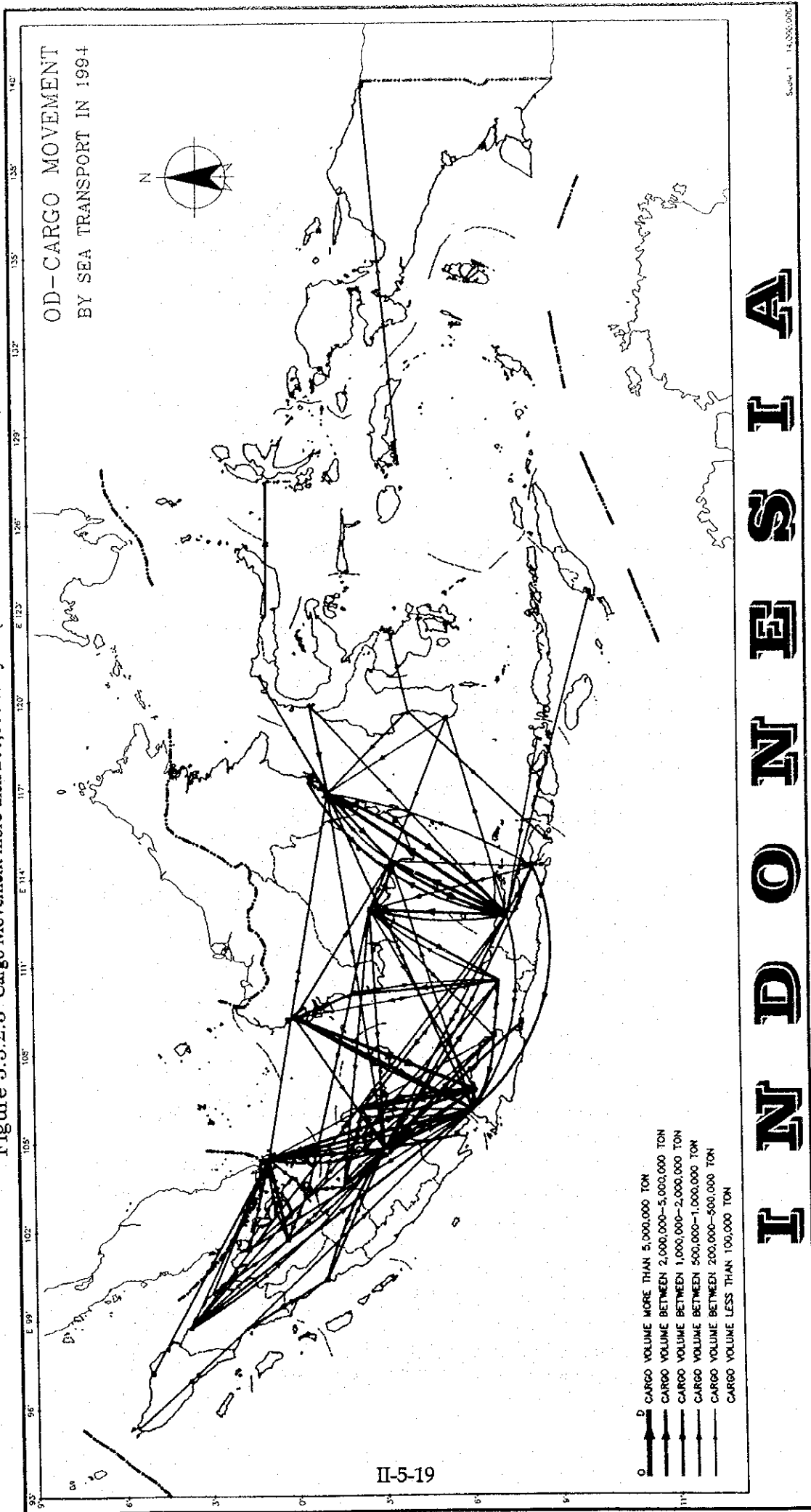


Figure 5.3.2.3 Cargo Movement more than 200,000 ton/year (Commodities without Oils)



I N D O N E S I A

Table 5.3.2.1 Cost Comparison by Inter-Island Shipping Type
(Cost Comparison by Weight Ton)

Vessel Assignment Plan (Average load 1000-2400K/T)				
	POSSIBLE VESSELS TO BE ASSIGNED			
Distance between Major O-D Ports	Convent'nal 3000DWT	Semi-cont 2500DWT	Full-cont 1000DWT	RO/RO 14000DWT
300 Miles	100	105	115	123
500 Miles	100	106	122	136
1000 Miles	100	109	138	168
1500 Miles	100	111	149	193

INDEX 100=The figure indicates the total voyage cost per K/T of 3000DWT conventional vessel in each distance

REMARK:

(A) Assumptive cargo quantity : General cargo loaded by each vessel
80 % of each vessel's full load

(B) Cargo movement : Between two ports in Indonesia

(C) Total voyage cost includes (a), (b), (c) and (d)

(a) Ship's operating cost or Charterage

Per day Conventional 3000DWT US\$2500

Semi-Container 2500DWT US\$2500

Full-Container 2500DWT US\$6500

RO/RO 14000DWT US\$11000

Ship's operating cost includes the following items

(1) Managing fee, ship's store fee, crew fee, lubricating oil fee, repair fee and P.I. Insurance fee etc.

(2) Capital fee including loan money and interest

(b) Port charge

Port dues, Berth dues, Wharfage on cargo, Pilot dues, Towage are applied to the tariff of Ministerial decree of Indonesia KM 65/1994

(Port tariff for services to domestic vessels)

(c) Cargo charges

Stevedoring, cargodoring (Assorting), receiving and delivering etc.

Container handling, Stacking fee etc.

(d) Fuel cost

(1) Marine fuel consumption per day (Unit: Kilo ton)

Conventional 12 K/T Full-Container 43K/T

Semi-container 13 K/T RO/RO vessel 43K/T

(2) Average speed 11 miles per hour, 264 miles per day at sea

(3) Marine diesel oil at port 1.5~2 K/T per day at port

(D) Stevedoring production

(1) Conventional per gang per shift about 200 K/T

(2) Semi-container vessel 18TEU~20TEU per hour

5.3.2.3 Conventional (General) Cargo Terminal Network System

(1) Classification of Conventional (General) Cargo Terminal

The Study Team proposes to classify the conventional cargo terminal into 5 categories; “Hub Conventional Cargo Terminal”, “Major Conventional Cargo Terminal”, “Provincial Conventional Cargo Terminal”, “Local Conventional Cargo Terminal” and “Small Conventional Cargo Terminal”.

(2) Concept of Conventional (general) Cargo Terminal Network

1) Procedure

“Hub Conventional Cargo Terminal” plays an important role as a national level center. For selecting terminals of this category, cargo volume, present situation of the base ports in inter-island shipping and pioneer shipping, regional balance and future regional development and so on shall be considered.

Considering the role of “Major Conventional Cargo Terminal” as a regional level distribution center, at least one port in each province should be selected which has this categorized terminal or “Hub Conventional Cargo Terminal”.




2) Conceptual conventional cargo terminal network

The conceptual conventional cargo terminal network are shown in Table 5.3.2.2 and Figure 5.3.2.4~5.3.2.5.

Table 5.3.2.2 Conceptual Scenario for Conventional (General) Terminal Network

Classification of the Conventional Cargo Terminal	Timing	Conceptual Development Scenario of Ports which have Conventional Cargo Terminal
Hub Conventional Cargo Terminal	By the year 2018	<p>[Criteria a]) (Cargo volume in a province is more than 50,000,000t/year.) Tg.Priok, Tg.Perak, Tg.Emas, Belawan, Dumai, Balikpapan,</p> <p>[Criteria b]) (Cargo volume in a province is more than 10,000,000t/year and distance between major ports is longer than 500 miles.) Makassar, Bitung, Sorong</p>
Major Conventional Cargo Terminal	By the year 2018	<p>(One port in one province) Lhok Seumawe, Jambi, Teluk Bayur, Palembang(Tg Api-Api), Bengkulu, Panjang, Benoa, Bima, Dilli, Pontianak, Sampit, Banjarmasin, Pantoloan, Kendari, Ambon, Kupang,</p> <p>(Additional port which play a role as regional level center) Kumai, Tarakan, Ternate, Biak, Jayapura</p>

Figure 5.3.2.4 Conventional Cargo Terminal Network in Indonesia
(at present)

-  : Conventional Cargo Terminal which handle more than 3 million ton of conventional cargo a
-  : Conventional Cargo Terminal which handle more than 500 thousand and less than 3 million ton of conventional cargo year
-  : Other Conventional Cargo Terminal which play an important role

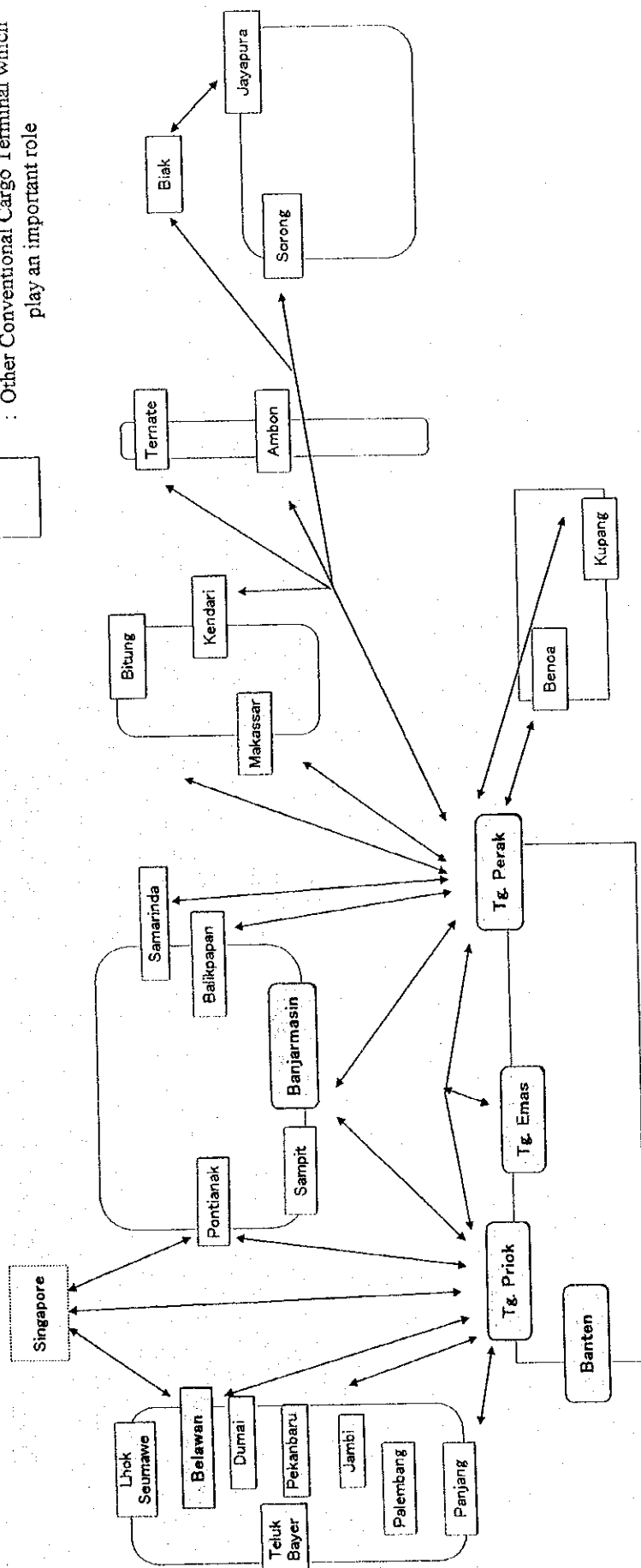
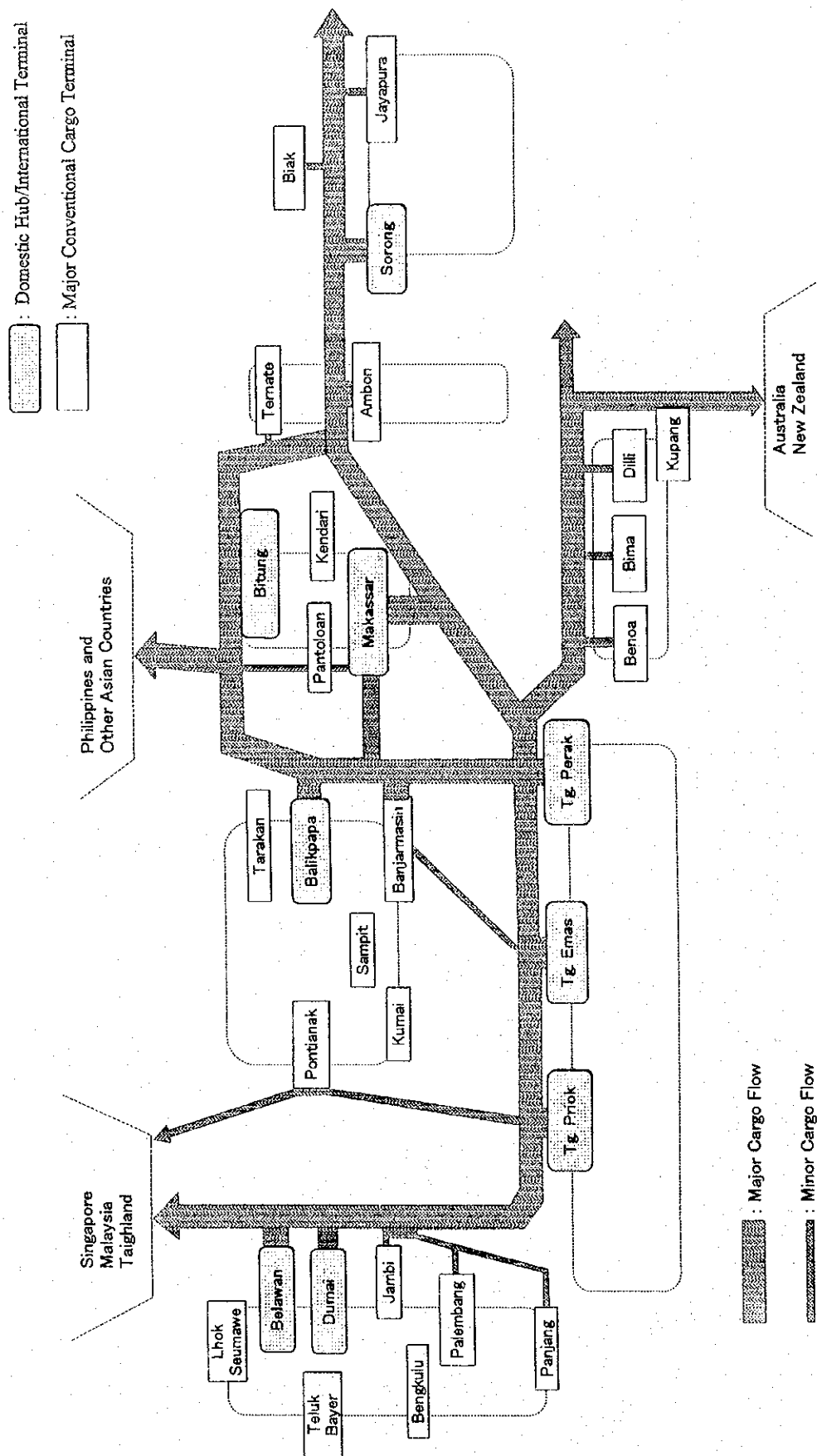


Figure 5.3.2.5 Conventional Cargo Terminal Network in Indonesia
(Future Image)



5.3.3 Policy for Terminal for Other Port Traffic Demand

5.3.3.1 Bulk Cargo Terminal System

For realizing efficient and effective bulk cargo terminal system, preliminary ideas of the policy for bulk cargo terminal system by the public sector are as follows.

(a) Formulating the comprehensive port plan including special port/wharf and public port facilities

In order to strengthen the international competitiveness of the private port users, reduction of the transportation cost and securing the effective activity in the port area are the crucial factors. The government should formulate and authorize the comprehensive port plan which supports the private port user to minimize the transportation cost and secures the appropriate space and conditions for their activities.

(b) Development of the conventional cargo terminal which accommodates break-bulk cargo

Many bulk cargoes are currently transported by conventional cargo vessels in a form of break-bulk. But some part of bulk cargo shall be containerized and the other part shall be transported by specialized vessels.

The government should develop the conventional cargo terminal which can accommodate the anticipated volume of bulk cargo in the form of break-bulk. On the other hand, for the specialized bulk terminal, the government should let the private sector develop and manage/operate it without unreasonable restrictions

(c) Developing the bulk cargo terminal in cooperation with private sector

When the development of a bulk terminal is identified as an important facility based on the formulated master plan, public sector including IPCs may joint the joint venture development in cooperation with private sectors.

(d) Supporting the private sector in developing and operating the special port/wharf

In order to promote the activity of private sector related to the special port/wharf which will fuel economic recovery and improvement, the government should support the private sector in developing and operating the special port/wharf.

5.3.3.2 Passenger Terminal System

(1) General

It is necessary that a lot of modes are available in passenger transportation, for example air, road, rail, sea and river. Passenger often selects the most appropriate transportation means or a combination of several means after considering time, cost, convenience, comfort, pleasure and so on, depending on the purpose, terms and conditions. It is desirable that several competitive modes are in service on the same O/D, so passengers can select a proper mode.

In general, passenger shipping consists of ferry service and passenger vessel service. Ferry service is effective in rather short distance trunk route on which not only passenger but also a certain volume of consumption goods moves. Passenger vessel service is effective in long distance service or round trip pattern

It is essential to formulate an appropriate passenger shipping service pattern in combination with ferry service, considering characteristics and competitiveness of these two means.

(2) Classification of Port Facilities

We have classified passenger terminals into 5 categories; Hub, Major, Provincial, Local and Small Passenger Terminal.

“Hub Passenger Terminal” plays a role as a national level center, in which not only domestic trunk route services but also international trunk route services call and very large numbers of passengers with various nationwide destinations are accommodated. Transition of passengers is a main function of the terminal and therefore good accessibility is essential for a hub terminal. Connection to international airport will be especially important in future.

“Major Passenger Terminal” plays a role as a regional level center for a trunk route of domestic passengers and/or that of international passengers and large numbers of passengers with various destinations in certain region are accommodated.

“Small Passenger Terminal” plays a role for transporting passengers to support the peoples’ daily life in isolated areas and remote areas. Such terminal may have multi-function such as passenger terminal, consumption goods handling and fishery etc.

(3) Main Policies for Passenger Terminal System

- Effective Use : While the number of the passengers is not so large, it is possible for the passenger ships to use conventional cargo terminal. After the number of passengers and passenger ships increase, allocation of passenger ships to conventional cargo berths shall cause problems in view of safety of the passengers, efficiency of cargo handling and so on. When the passenger traffic becomes substantial, it is preferable to allocate a specialized separate berth or terminal with appropriate facilities including connection to other passenger transport mode.

- International Exchange : Recently International economic cooperation with neighboring countries, such as IMT-GT, IMS-GT, BIMP-EAGA and AIDA is becoming active, especially in the regions which face neighboring countries, and passenger traffic are increasing steadily. Considering this trend, an increase in international passenger traffic shall be considered in formulating the national transportation system.
- Cooperation between DGSC and DGLT : Ferry is an effective sea transportation system, which has the function of transporting passengers as well as cargoes. But coordination between passenger shipping and ferry service has been inadequate, because passenger shipping is administrated by DGSC and ferry service is by DGLT under the control of MOC.

(4) Passenger Terminal Network System

1) Criteria for Selecting Each Class Port

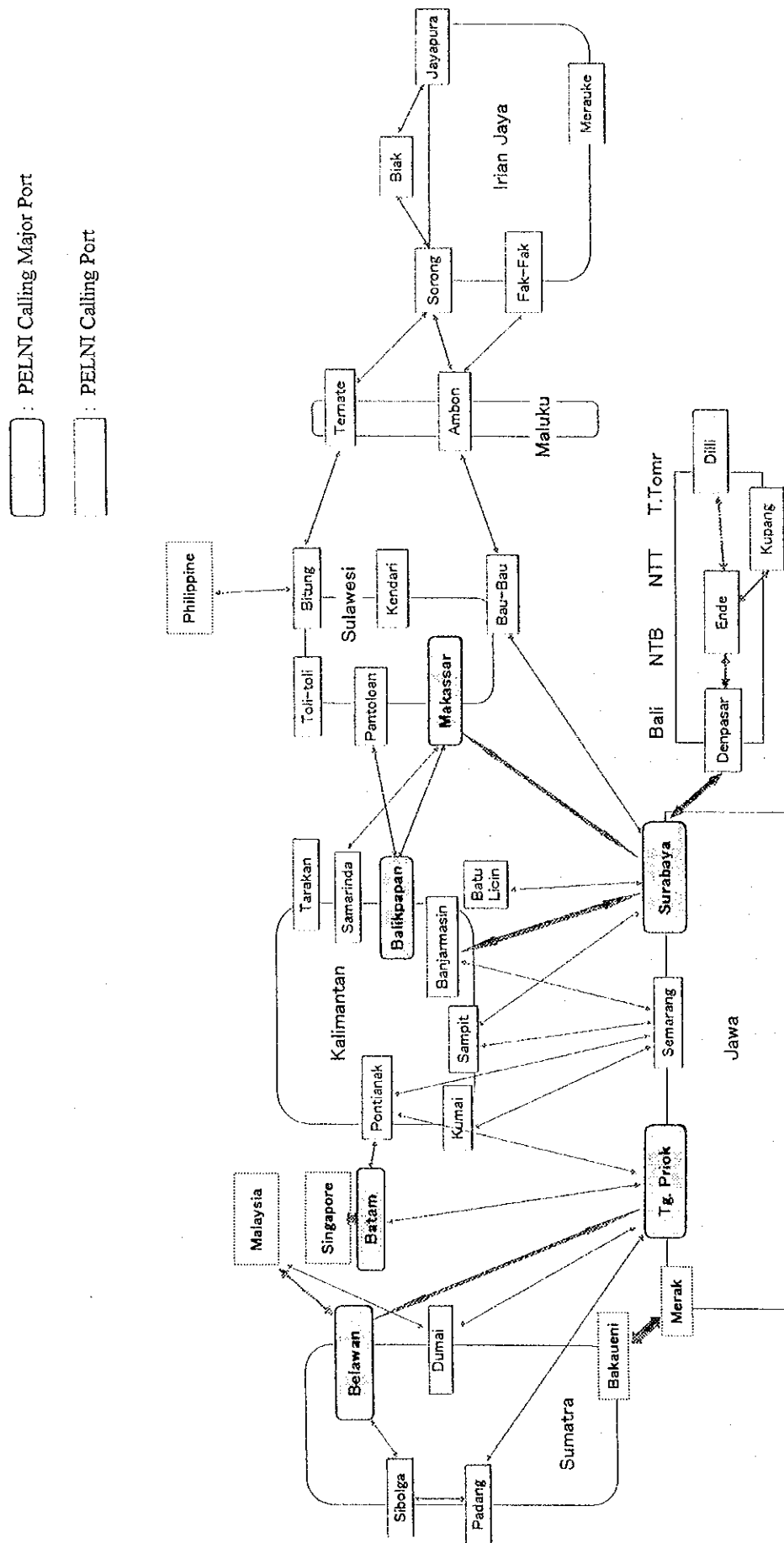
The role of hub passenger terminal is national level center of passenger transportation, respectively. For selecting this class terminal, number of international and domestic passengers, present situation of passenger shipping route and ferry route, location of international airport, national development policy, future regional development plan and so on shall be considered. In case that a port is located apart from adjacent Hub Terminal by about 500 miles and is sufficiently connected to land and/or local sea transportation. The port should be designated as a Hub Passenger Terminal.




The role of major passenger terminal is a regional level center of passenger transportation. At least one port in each province should be selected as a Hub or Major Passenger Terminal. When there are several ports within one province, which play important role as regional level centers, one or two additional Major Passenger Terminals are to be selected as an exceptional case subject to the condition that the terminals are located apart from adjacent Hub or Major terminals by more than 250 miles.

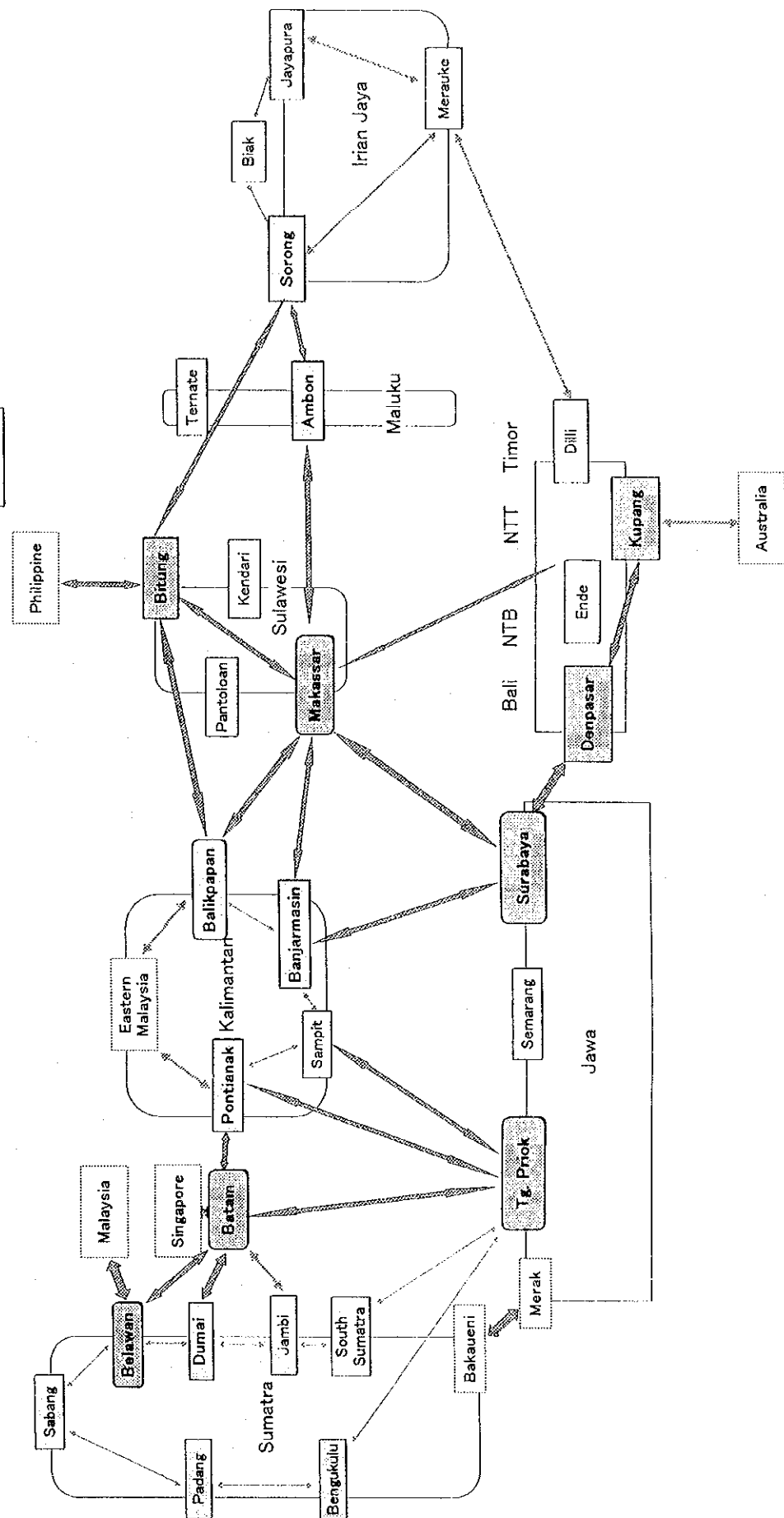
2) Conceptual passenger terminal network

Based on the above-mentioned criteria, the characteristics of candidate port are summarized and evaluated in conjunction with national development policy. The conceptual passenger terminal network in Indonesia by the year 2018. (See Figure 5.3.3.1~5.3.3.2)

Figure 5.3.3.1 Passenger Terminal Network in Indonesia
(at present)



 : Hub Terminal (mainly for international route)
 : Hub Terminal (mainly for domestic route)
 : Major Terminal



5.3.3.3 Policy for Supporting Tourism Development

We classified tourism ports into two categories; one is “Main Strategic Port” for attracting many foreign tourists, and the other is “Internal Network Port” for widening the combination of tourist destinations, which have high potential for tourism. (See Figure 5.3.3.3)

Accordingly, we propose the policy for supporting tourism as follows.

- In order to support tourism, port sector should promote development of tourism port (terminal for sightseeing boat, cruiser and yacht) and provision of sites for commercial zone (restaurant, souvenir shop, park, etc.) in potential tourist areas.
- We consider that Tg. Priok, Belawan, Batam, Manado, Benoa and Biak will become the central area for tourism in the central part, western, northern, southern and eastern Indonesia respectively. We defined these important ports as “Main Strategic Port”, and the other high-potential ports as “Internal Network Port”. The development policy for the two kinds of categorized ports is as follows.

“Main Strategic Port” should be sufficiently developed for tourism and play an important role as the front gate for foreign tourists.

“Internal Network Port” should be developed to more heighten the potential and shape the internal tourism network on the basis of the cooperation with the neighboring high-potential port, by means of making good use of the character of each tourism resource.

5.3.3.4 Policy for Supporting Regional Development

Supporting regional development means to promote various regional industries in the port surrounding area and the hinterland, on the basis of the port development and port activities. According to the progress of regional development, the role of port for promoting regional industries is respectively different. In this report, we propose the policy for supporting regional development in 3 classified types as follows.

- (1) Supporting primary industries
- (2) Supporting processing industries for primary products
- (3) Supporting industrial complexes (Formation of industrial complexes by accumulating manufacturing industries, heavy industries, etc.)

Conceptual image of these types of port are shown in Figure 5.3.3.4-5.3.3.6.

Figure 5.3.3.3 Conceptual Image of Main Strategic Port and Internal Network Port for Tourism

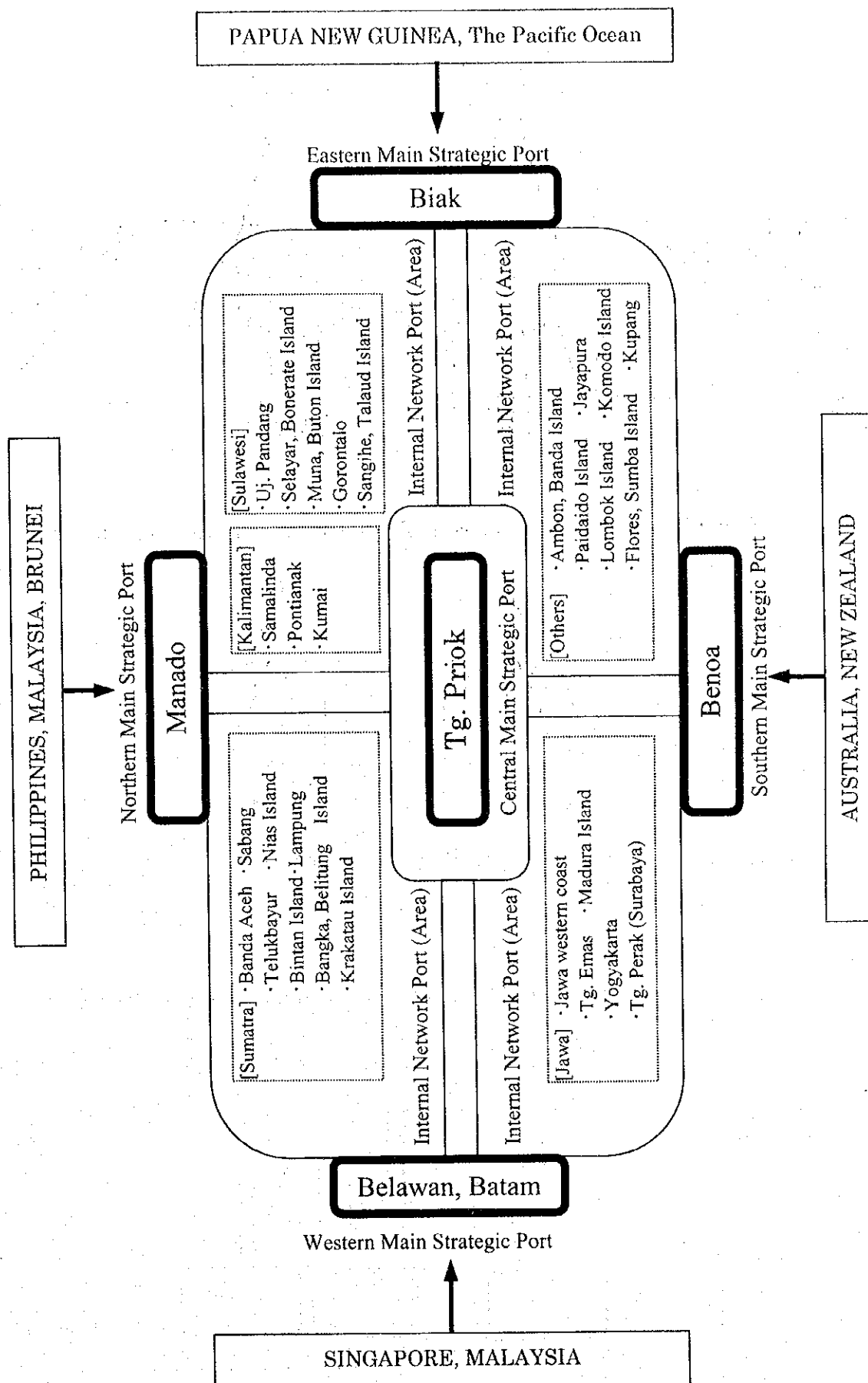


Figure 5.3.3.4 Conceptual Image of Port Supporting Primary Industries

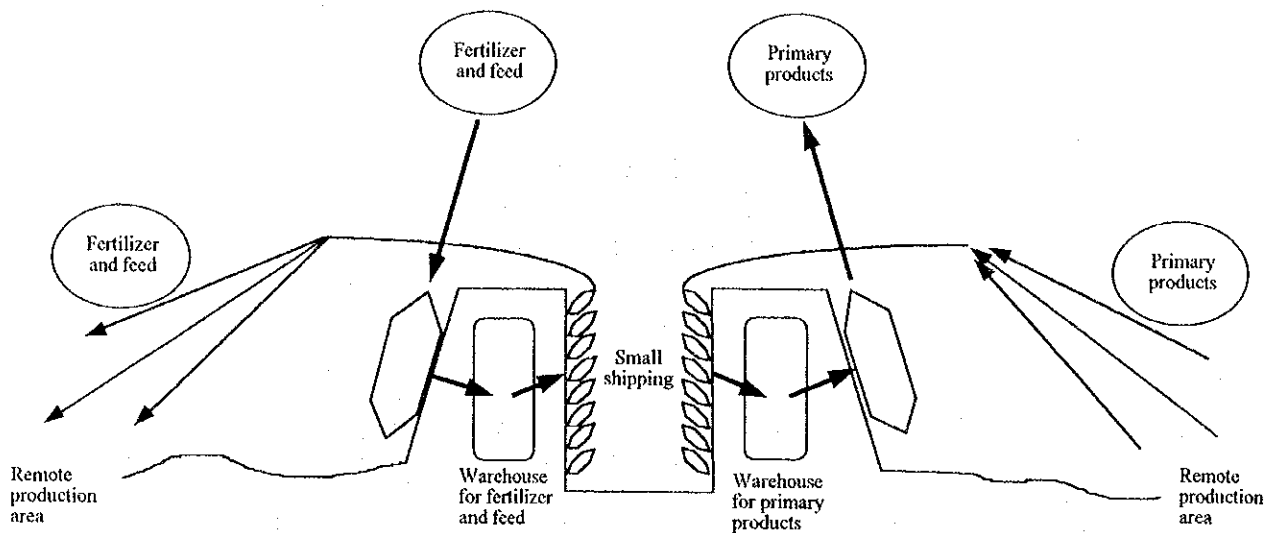


Figure 5.3.3.5 Conceptual Image of Port Supporting Processing Industries

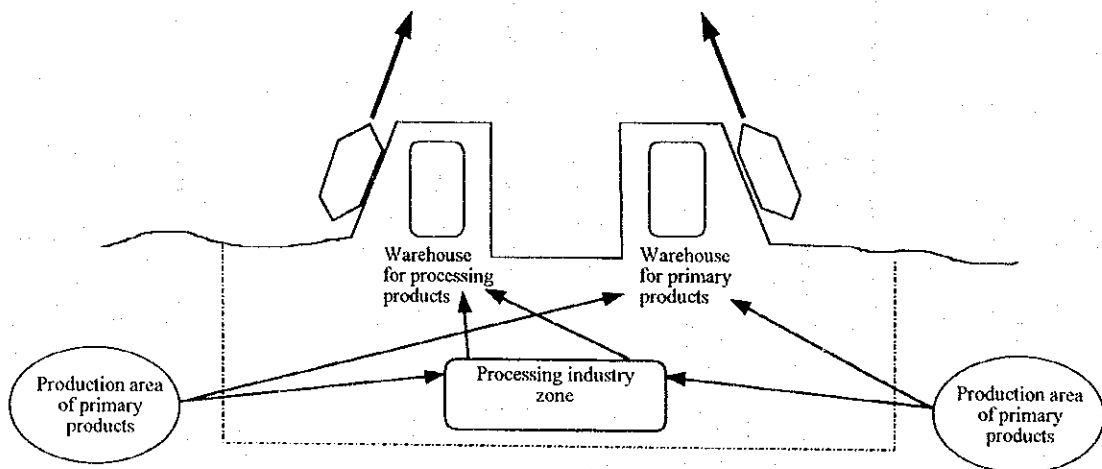
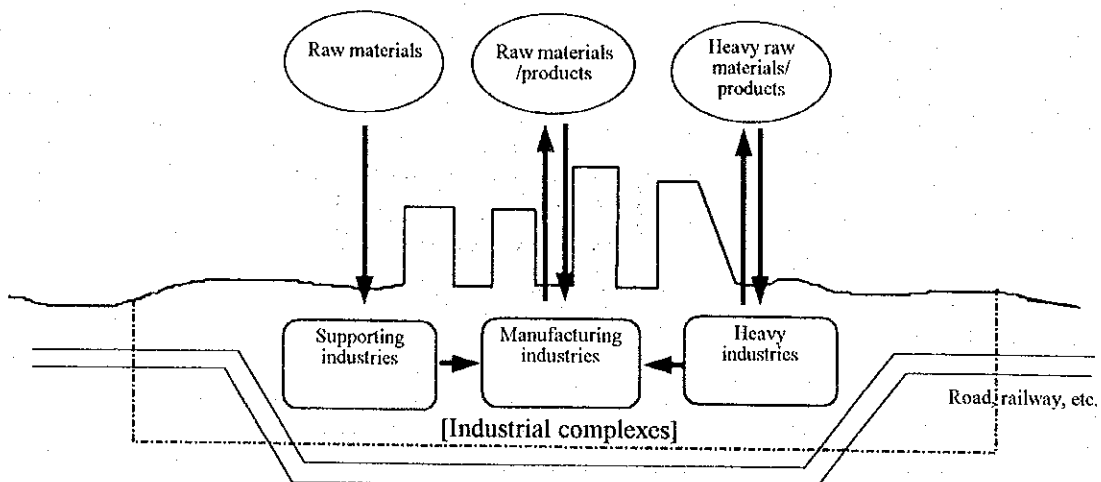


Figure 5.3.3.6 Conceptual Image of Port Supporting Industrial Complexes



5.3.3.5 Supporting People's Livelihood

(1) Present situation

At present the number (656) of public ports is much smaller than in Japan (1,102) and the Philippines (851) in spite of the great importance of public ports in Indonesia.

Table 5.3.3.1 Number of Public Ports in Indonesia, Japan and the Philippines and other relevant figures

		Number of the public ports	Number of the islands	Size of the country (Thousand km ²)	Population (in 1995) (Million Person)	GNP Par Capita (US\$/Person)
Indonesia		656	about 17,000	1,920	194.757	714
	Par Port		25.9 /Port	2.93 /Port	0.30 /Port	1.09 /Port
Japan		1,102	about 4,000	370	125.210	24,105
	Par Port		3.6 /Port	0.34 /Port	0.11 /Port	21.87 /Port
Philippines		about 700	7,100	320	68.595	630
	Par Port		10.1 /Port	0.46 /Port	0.10 /Port	0.9 /Port

Source : Prepared by OCDI

(2) Policy for supporting people's livelihood

1) Developing and maintaining the port facilities for securing the civil minimum

The regions having disadvantages in transportation conditions such as isolated islands, depend almost solely on ports for public transportation means, industrial infrastructure and the supply of daily necessities. To achieve well balanced national and regional development, port facilities shall be constructed or improved especially in the less advanced regions for securing the civil minimum requirement.

Concerning the above objective, national government shall play an initiative role in those developments by using the national budget, since securing civil minimum is basic task of the national government which cannot be conducted by private sectors.

2) Strengthening the development of port facilities which accommodate pioneer and

passenger liner shipping vessels

In ports called by inter-island, pioneer and passenger (PT. PELNI) liner shipping vessels, necessary port facility development should be given the first priority, because the hinterland population of those ports is larger than at ports which are not called by these liner shipping vessels.

3) Construction of multipurpose port facilities

In the isolated and remote areas, the liner cargo and passenger shipping is infrequent. In order to utilize the port facilities effectively, in the first stage, multipurpose port facility shall be developed. In the same terminal, passenger ships, cargo ships and ferry ships including rakyat ships can be accommodated.

After the activity of the concerned port becomes active, new facility shall be constructed in order to specify the function of each facilities and originally constructed facility shall be allocated for a certain purpose.

4) Playing a role as the central place and space for activities of the regional community

In isolated islands and remote areas, ports are located in the center of the various activities of municipalities. The community center, exhibition center and other facilities are constructed in the port area. By promoting various activities held in the port area together with port development, quality of life in remote and isolated areas will be improved.

5) Utilization of rakyat shipping

In the Eastern Indonesia, especially Maluku, rakyat shipping plays an important role for transporting cargoes and passengers. Pioneer shipping and passenger shipping (PELNI) shall play a major role in connecting ports located in relatively big islands, which are recognized as the gate way ports of the region. On the other hand, rakyat shipping shall play a supplementary but crucial role in connecting ports located on the big islands with ports on small islands.

When the frequency of not only rakyat but also inter-island, pioneer and passenger shipping services is high, rakyat terminal shall be separated from the conventional cargo, passenger and bulk terminals in order to secure the maritime safety and increase the efficiency.

5.3.4 Policy for River Port Development

(1) General

Among 25 Strategic Ports in which 70% of general cargo in Indonesian public ports are handled, six ports are situated along riversides, so called river port. These six ports are handling more than 15% of cargoes handled at the Strategic Ports. The ports are located at eastern side of Sumatra Island and Kalimantan Island and they are main distribution centers of these areas where natural resources are rich and great possibility for industrial prosperity is expected. Port should be, in general, expanded, rebuilt or relocated to satisfy necessary demands. But especially for river port, there are some cases that those measures are restricted by physical reasons.

(2) Policy for River Port Development

In order to improve the capacity and the reliability of sea and river transportation and to alleviate the current burden of initial and maintenance dredging of DGSC, the Study Team proposes following two alternative measures.

- a) Improving existing river ports with resolving the current obstacles of the siltation at port basins and approach channels.
- b) Developing a new port to satisfy future trend of international transportation and to avoid the siltation at port basins and approach channels.

Further studies are required to understand present condition and improve the existing water surface transportation system.

In order to improve the function of the existing river port, the countermeasures for reducing siltation and suitable dredging method should be examined, based on the result of field survey. On the other hand, economical method of sea and river transportation, such as an advanced shipping system with shallow draft inner/ocean vessel, should be examined considering the present condition and future improvement of each river port.

In case that such improvement will not satisfy some requirements, new seaport might be developed, considering characteristic differences between the new seaport and the existing river port.

5.3.5 Policy for Notable Ports Development

Dealing with rapid growth of containerization and increase in container cargo volume, the role of Tg.Priok/Bojonegara will be crucially important and the Indonesian government classified Batam Port as the international hub port in National Transportation System.

Regional economic disparity in Indonesia, particularly in east and west, has been a urgent problem

for a long time, even though various kinds of countermeasures for tackling this problem have been conducted. In recent years, regional cooperation with neighboring countries, such as IMT-GT, IMS-GT, BIMP-EAGA and AIDA is becoming active.

We reviewed the role of Batam, Tg.Priok/Bojonegara, Bitung, Kupang and Sabang and recommended the conceptual future development policies.

1) Batam Port

We evaluated two scenarios of Batam port development and recommends that the role of Singapore was essential for the development of Batam Island and an international hub container terminal in Kabil port should be also developed in cooperation with Singapore.

2) Tg.Priok/Bojonegara Port

The Study Team recommends the improvement of the function of Tg.Priok, including administration, management and operation of the port, to support the economical recovery in short term. We also recommend that the integrated cargo transportation system including sea and land transportation in the western part of Jawa Island should be examined with separate study to be conducted in near future. The study should include not only to define the role of Tg.Priok but also to evaluate the development plans of Bojonegara and other ports located in the area. Particularly, in order to formulate an efficient and effective container port network, higher priority is expected to be given to the development of Bojonegara port in middle and long term.

3) Bitung Port

We evaluated future development scenario of Bitung port and recommends that the port should be developed to support the economic activity of North Sulawesi Province and promote deep relation among eastern part of Indonesia and BIMP-EAGA in the near future. If the socio-economic activity in hinterland and neighboring area would mature in certain level, an International Container Hub Port in this area including Bitung port should be developed to improve sea transportation system.

4) Kupang Port

We recommends that Kupang port should be developed to support natural resource oriented industries. But environmental conservation in the area should be considered appropriately because marine tourism is another important resource.

5) Sabang Port

We recommends that the development of Sabang port should be evaluated thoroughly, considering future demand of sea and land transport in the western part of Sumatra and between neighboring countries.