Table A-1-8-35(3) Cargo Volume: by Items and by Month
Between Iloilo City and Bacolod
by Ferry Vessel in 1990

unit: Metric Ton

No.	Commodity Classification	January	February	March	April	May	June	July	August	September	October	November	December	sub-total	Total
1	Rice	258	630	954	362	144	292	2,640	109	38	10	56	204	1,232	1,649	4,289
2	Corn	0	0	13	201	77	8	299	0	0	0	0	0	0	0	299
3	Sugar	19	3	1	3	0	29	55	5	6	0	10	3	1	25	80
4	Copra	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Logs	0	0	0	0	22	0	22	2	0	0	0	0	0	2	24
6	Beer and Soft Drinks	0	0	4	9	2	0	15	0	0	0	0	7	0	7	22
7	Pulp and Paper	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Iron and Steel	1	0	0	0	0	0	1	1	3	1	0	1	3	9	10
9	Fertilizer	2	0	1	0	0	0	3	0	0	0	0	0	0	0	3
10	Cement	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Fruits and Vegetables	253	1,381	1,117	415	165	129	3,460	204	137	95	287	115	656	1,494	4,954
12	Mineral Oil	9	3	2	4	2	9	29	6	48	11	3	5	9	82	111
13	Rest Group	1,066	1,314	1,439	951	627	619	6,016	731	722	723	1,022	1,020	1,420	5,638	11,654
	Total	1,608	3,331	3,531	1,945	1,039	1,086	12,540	1,058	954	840	1,378	1,355	3,321	8,906	21,446
	Ratio							58							42	100

Source: JICA Study Team based on
PPA Monthly Report, Philippine Ports Authority

Table A-1-8-36 Cargo Volume: Items between Iloilo City and Bacolod by General Cargo Vessel and by Bulk Carrier in 1990

unit: Metric Ton

No.	Production	Total Volume January to June (A)	Total Volume January to December (B)
1	Rice	7,059	12,835
2	Corn	206	375
3	Sugar	17,368	31,578
	Molasses	12,130	22,055
4	Copra	0	0
5	Logs	58	105
6	Beer and Soft Drinks	780	1,418
7	Pulp and Paper	0	0
8	Iron and Steel	451	820
9	Fertilizer	35,541	64,620
10	Cement	1,297	2,358
11	Fruits and Vegetables	122	222
12	Mineral Oil	6	11
13	Rest Group	10,877	19,776
	Total	85,895	156,173

Note : (B) = (A)/55%

Soruce: JICA Study Team based on
PPA Monthly Report
Philippine Ports Authority

Table A-1-8-37(1) Population Estimation:
Growth Rates of Western Visayas Region

Province	Period 1990-1995	1996-2000	2001-2005	2006-2010
Aklan	1.50	1.08	0.93	1.03
Antique	1.66	1.27	1.11	1.18
Capiz	1.75	1.30	1.12	1.19
Iloilo	1.94	1.76	1.59	1.42
Guimalas	1.94	1.76	1.59	1.42
Negros Occidental	1.65	1.22	1.01	1.02

Source: JICA Study Team based on
Philippine Population Projections 1980-2030
National Economic and Development Authority

Table A-1-8-37(2) Population Estimation:
Panay Island

Panay Island	Year 1990	1995	1997	2000	2005	2010
Aklan	380,497	409,903	418,805	432,521	453,011	476,827
Antique	406,361	441,227	452,506	469,966	496,635	526,636
Capiz	584,091	637,019	653,689	679,516	718,431	762,207
Iloilo	1,647,486	1,813,614	1,878,015	1,978,930	2,141,338	2,297,752
Total	3,018,435	3,301,764	3,403,015	3,560,934	3,809,415	4,063,422

Source: JICA Study Team based on
Philippine Population Projections 1980-2030
National Economic and Development Authority

Table A-1-8-37(3) Population Estimation:
Negros Occidental Province

Province	Year 1990	1995	1997	2000	2005	2010
Negros Occidental	2,256,908	2,449,350	2,509,478	2,602,450	2,736,556	2,878,996

Source: JICA Study Team based on
Philippine Population Projections 1980-2030
National Economic and Development Authority

Table A-1-8-38(1) Forecast of Cargo Traffic Volume: Iloilo City - Bacolod Link

Iloilo City to Bacolod

No.	Production Classification	Cargo Volume (Metric Ton) 1990	Growth Rate of Cargo Traffic (Percent) 1990-1995	1996-2000	2001-2005	2006-2010	Cargo Volume (Metric Ton) 1995	2000	2005	2010
1	Rice	17,216	-	-	-	-	-	-	-	87,418
2	Fruits and Vegetables	5,776	7.28	6.94	7.35	7.88	8,208	11,480	16,366	23,914
3	Sugar	0	0.72	0.72	0.72	0.72	0	0	0	0
	Molasses	0	0.72	0.72	0.72	0.72	0	0	0	0
4	Fertilizer	64,670	0.72	0.72	0.72	0.72	67,032	69,480	72,018	74,648
5	Beer and Soft Drinks	1,444	7.28	6.94	7.35	7.88	2,052	2,870	4,092	5,979
6	Other Cargo	29,065	7.28	6.94	7.35	7.88	41,301	57,765	82,352	120,331
	Total	118,171	-	-	-	-	118,593	141,595	174,828	312,290

Soruce: JICA Study Team based on
1) Philippine Population Projections 1980 - 2030
National Economic and Development Authority
2) Long-Term Projections
National Economic and Development Authority
3) PPA Monthly Report, Philippine Ports Authority

Table A-1-8-38(2) Forecast of Cargo Traffic Volume: Iloilo City - Bacolod Link

Bacolod to Iloilo City

No.	Production Classification	Cargo Volume (Metric Ton) 1990	Growth Rate of Cargo Traffic (Percent) 1990-1995	1996-2000	2001-2005	2006-2010	Cargo Volume (Metric Ton) 1995	2000	2005	2010
1	Rice	0	-	-	-	-	-	-	-	0
2	Fruits and Vegetables	0	7.28	6.94	7.35	7.88	0	0	0	0
3	Sugar	31,779	0.72	0.72	0.72	0.72	32,940	34,143	35,390	36,683
	Molasses	22,055	0.72	0.72	0.72	0.72	22,860	23,695	24,560	25,457
4	Fertilizer	0	0.72	0.72	0.72	0.72	0	0	0	0
5	Beer and Soft Drinks	0	7.28	6.94	7.35	7.88	0	0	0	0
	New Bottled Cargo(beer)	10,368	1.94	1.76	1.59	1.42	11,196	12,217	13,219	14,185
6	Other Cargo	22,838	7.28	6.94	7.35	7.88	32,453	45,390	64,709	94,552
	Total	87,040	-	-	-	-	99,449	115,444	137,878	170,877

Soruce: JICA Study Team based on
1) Philippine Population Projections 1980 - 2030
National Economic and Development Authority
2) Long-Term Projections
National Economic and Development Authority
3) PPA Monthly Report, Philippine Ports Authority

Table A-1-8-39 MV Maharlica I Traffic Records (Passenger)

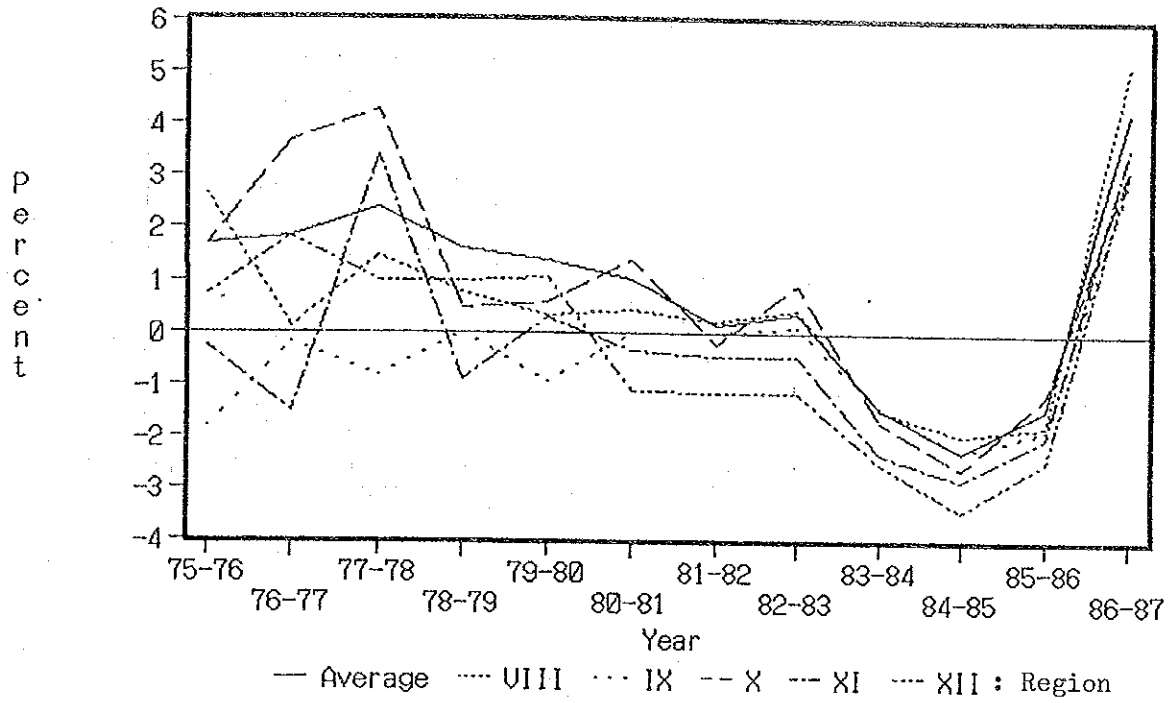
	1985		1986		1987		1988		1989		1990	
Jan	28,051	(133)	22,198	(85)	32,621	(99)	40,454	(117)	51,912	(128)	24,113	(70)
Feb	11,091	(53)	13,106	(50)	22,958	(70)	30,217	(87)	26,704	(58)	26,704	(78)
Mar	16,811	(80)	9,139	(35)	27,677	(84)	32,099	(93)	44,459	(109)	28,335	(82)
Apr	24,777	(118)	20,461	(79)	39,959	(131)	31,878	(92)	49,833	(123)	41,968	(121)
May	34,375	(163)	33,596	(129)	51,769	(157)	49,969	(144)	60,669	(149)	54,714	(158)
Jun	28,849	(137)	34,583	(133)	46,797	(142)	38,138	(110)	60,427	(149)	38,790	(112)
Jul	19,763	(94)	32,528	(125)	32,790	(100)	27,270	(79)	37,759	(93)	34,021	(98)
Aug	18,952	(90)	36,441	(140)	23,293	(71)	30,338	(88)	35,412	(87)	35,827	(104)
Sep	17,127	(81)	26,439	(102)	30,776	(94)	24,883	(72)	31,388	(77)	30,611	(89)
Oct	14,429	(68)	23,806	(92)	29,628	(90)	27,469	(79)	30,760	(76)	31,648	(92)
Nov	13,966	(66)	22,727	(87)	18,962	(58)	33,420	(96)	35,560	(80)	26,403	(76)
Dec	24,300	(66)	36,983	(142)	37,659	(114)	49,387	(142)	25,427	(63)	41,193	(119)
Total	252,491		312,007		394,887		415,522		487,310		414,536	

Source: St. Bernard Shipping Corp.

Table A-1-8-40 MV Maharlica I Traffic Records (Vehicles)

	1985		1986		1987		1988		1989		1990	
Jan	1,245	(120)	1,073	(90)	1,389	(97)	1,599	(102)	1,757	(107)	1,310	(68)
Feb	740	(72)	887	(74)	1,259	(88)	1,674	(107)	939	(57)	1,738	(90)
Mar	1,077	(104)	569	(48)	1,521	(107)	1,869	(119)	1,889	(115)	1,964	(102)
Apr	1,099	(106)	1,030	(87)	1,726	(121)	1,598	(102)	1,868	(114)	2,158	(112)
May	1,326	(128)	1,324	(111)	1,792	(126)	1,924	(123)	1,961	(119)	3,163	(164)
Jun	1,194	(115)	1,355	(114)	1,548	(108)	1,540	(98)	1,957	(119)	1,787	(93)
Jul	924	(89)	1,502	(126)	1,473	(103)	1,409	(89)	1,668	(101)	1,949	(101)
Aug	961	(93)	1,397	(118)	1,138	(80)	1,587	(101)	1,792	(109)	1,890	(98)
Sep	840	(81)	1,239	(104)	1,481	(104)	1,530	(98)	1,848	(112)	1,853	(96)
Oct	847	(82)	1,237	(104)	1,674	(117)	1,280	(82)	1,509	(92)	1,906	(99)
Nov	1,027	(99)	1,169	(98)	949	(66)	1,340	(86)	1,257	(76)	1,617	(84)
Dec	1,132	(109)	1,467	(124)	1,163	(82)	1,441	(92)	1,254	(76)	1,748	(91)
Total	12,412		14,239		394,887		18,791		19,699		23,038	

Source: St. Bernard Shipping Corp.



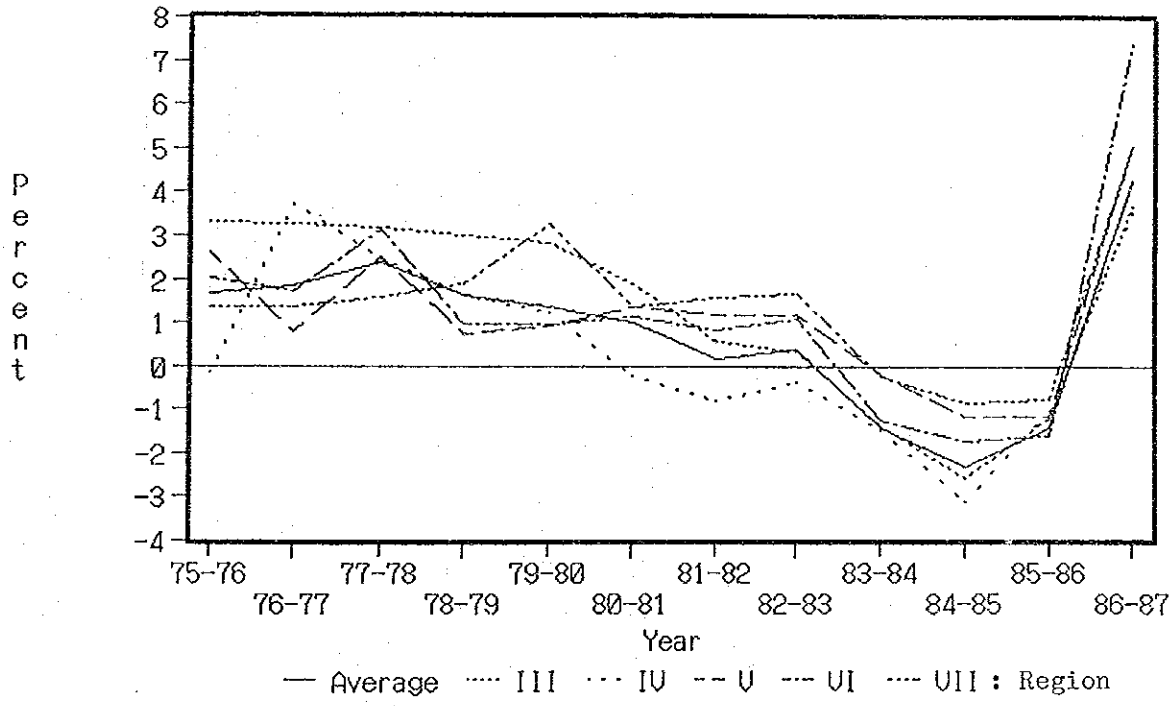
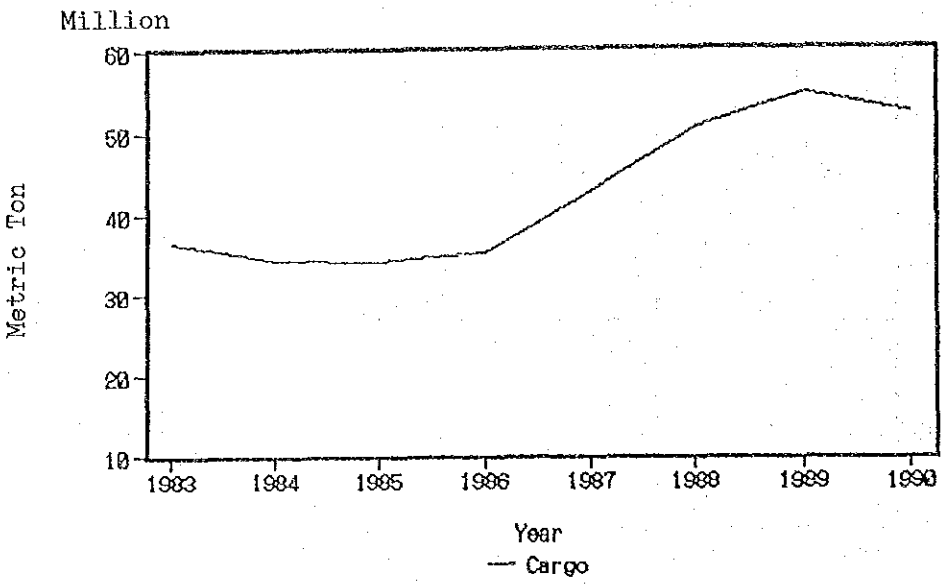


Figure A-1-8-1 Per Capita Personal Consumption Expenditure Growth Rates

Source: JICA Study Team based on Economic and Social Indicators



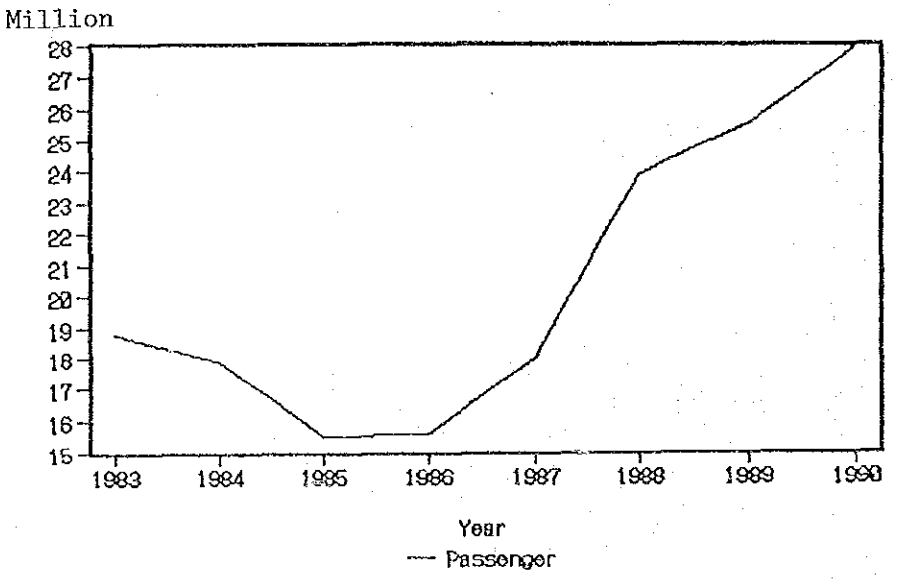
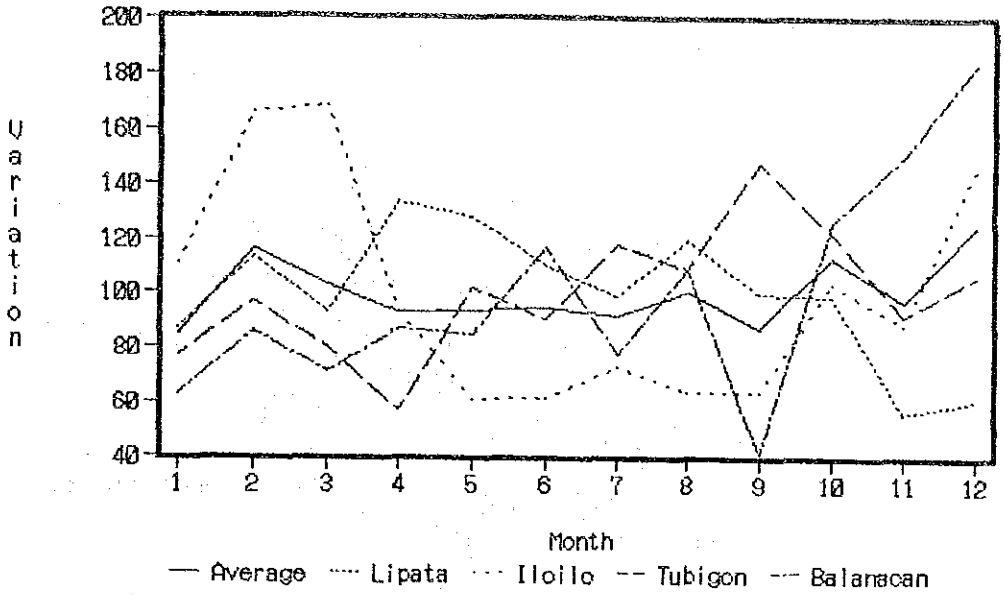
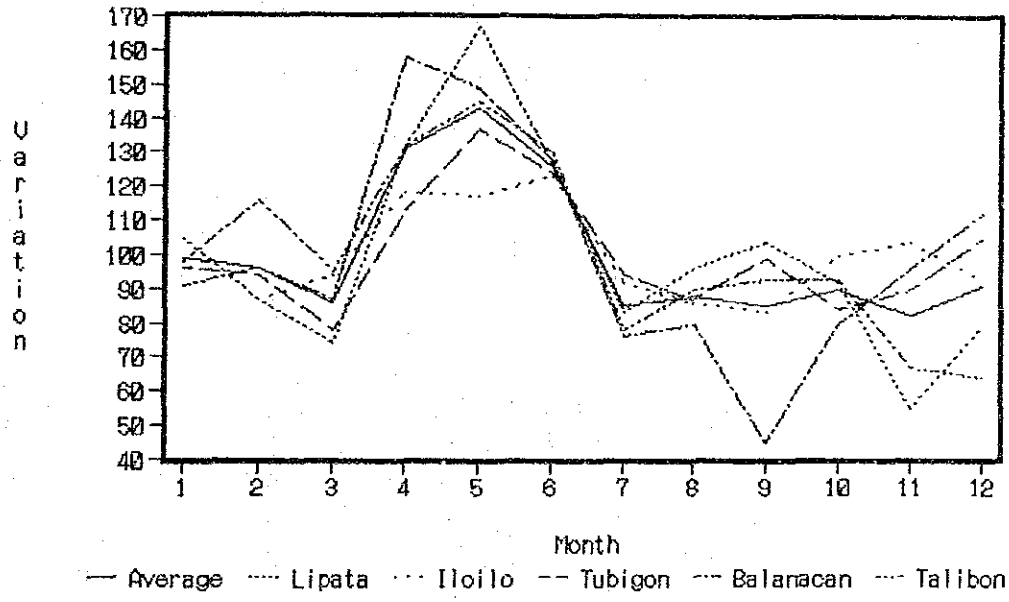


Figure A-1-8-2 Past Traffic Volume

Source: JICA Study Team based on

1) Profile of Philippine Ports
   Philippine Ports Authority
2) PPA Annual Statistical Report
   Philippine Ports Authority



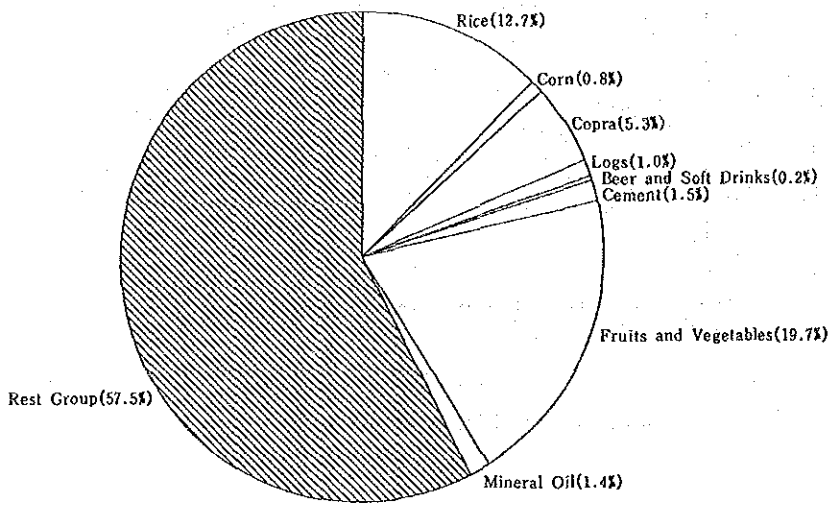


Passenger

Figure A-1-8-3 Seasonal Variation

Source: JICA Study team
based on PPA Monthly Report
Philippine Ports Authority

Batangas City ⟶ Calapan
(One Way Traffic)



Batangas City ⇄ Calapan
(Two Way Traffic)

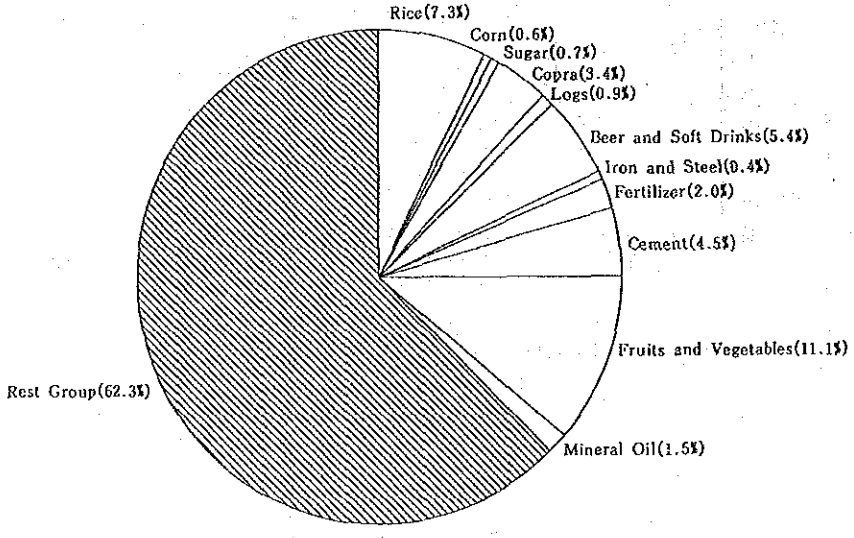
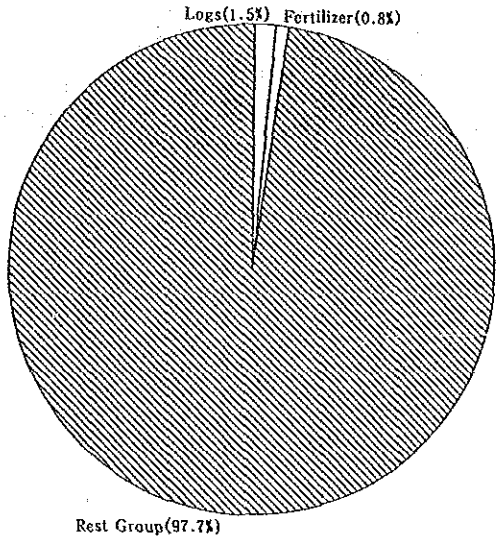


Figure A-1-8-4(1) Ratio of Cargo Traffic Volume:
No. 3 Batangas City - Calapan Link

Source: JICA Study Team based on
PPA Monthly Report
Philippine Ports Authority

Tandayag ←—— Bato

(One Way Traffic)



Tandayag ⇄ Bato

(Two Way Traffic)

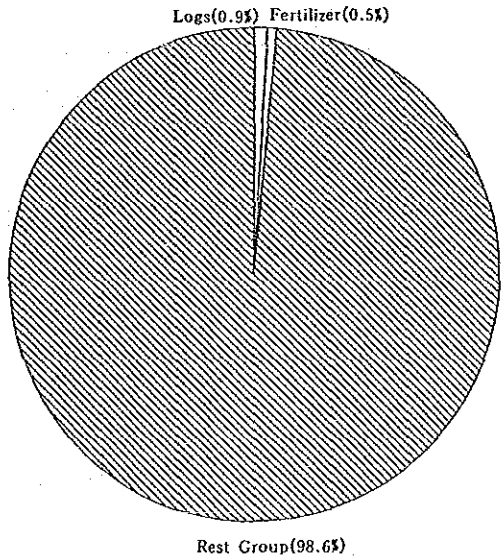
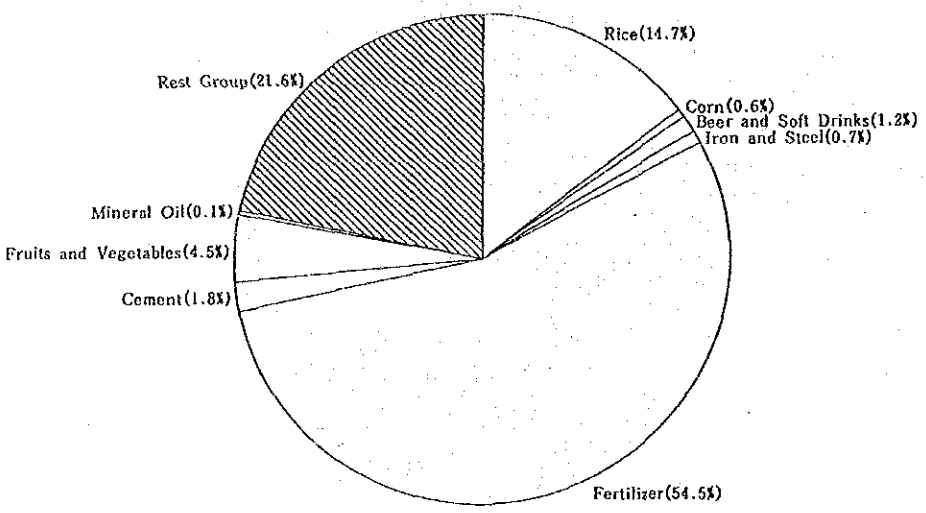


Figure A-1-8-4(2) Ratio of Cargo Traffic Volume:
No. 8 Tandayag - Bato Link

Source: JICA Study Team based on
PPA Monthly Report
Philippine Ports Authority

Iloilo City ⟶ Bacolod

(One Way Traffic)



Iloilo City ⇄ Bacolod

(Two Way Traffic)

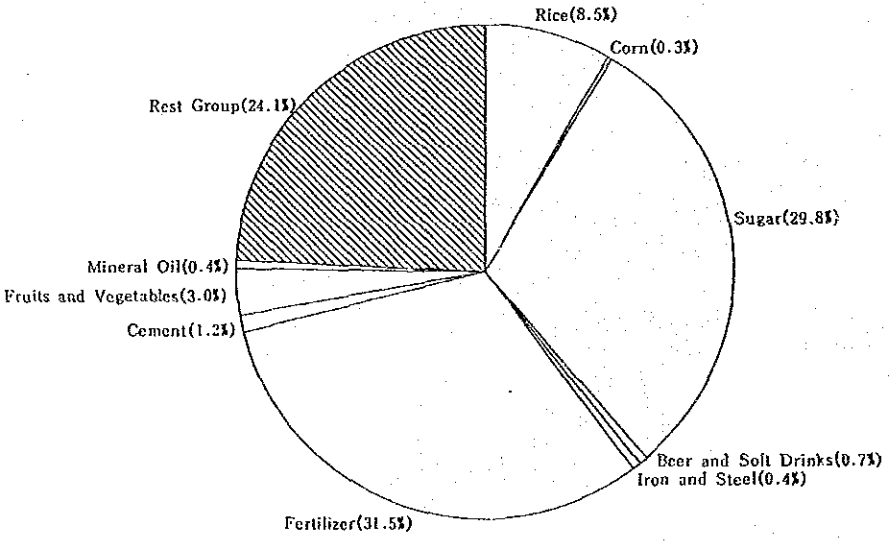
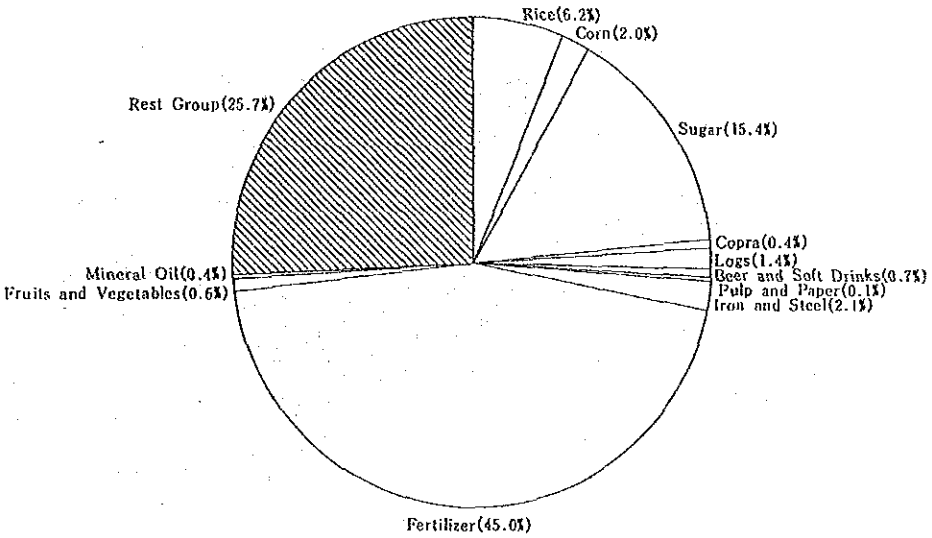


Figure A-1-8-4(3) Ratio of Cargo Traffic Volume:
No. 10 Iloilo City - Bacolod Link

Source: JICA Study Team based on
PPA Monthly Report
Philippine Ports Authority

Iloilo City ⟶ Pulupandan

(One Way Traffic)



Iloilo City ⇄ Pulupandan

(Two Way Traffic)

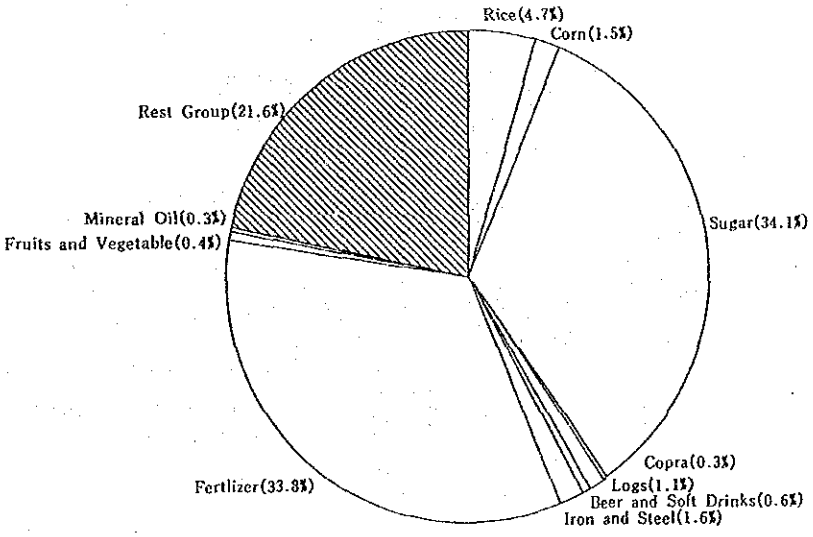
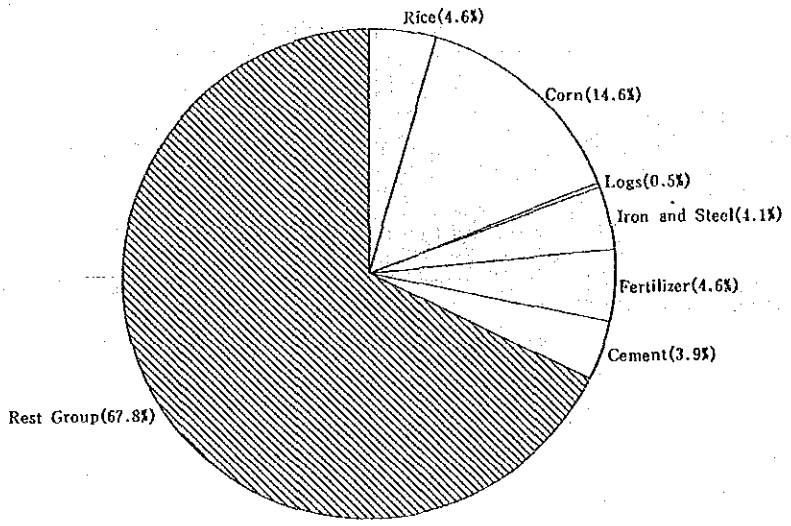


Figure A-1-8-4(4) Ratio of Cargo Traffic Volume:
No.11 Iloilo City - Pulupandan Link
Source: JICA Study Team based on
Cargo and Tonnage, Value and
Freight Charges of Items
Ports of Origin and Destination, 1989
National Statistics Office

Toledo ⟶ San Carlos

(One Way Traffic)



Toledo ⇄ San Carlos

(Two Way Traffic)

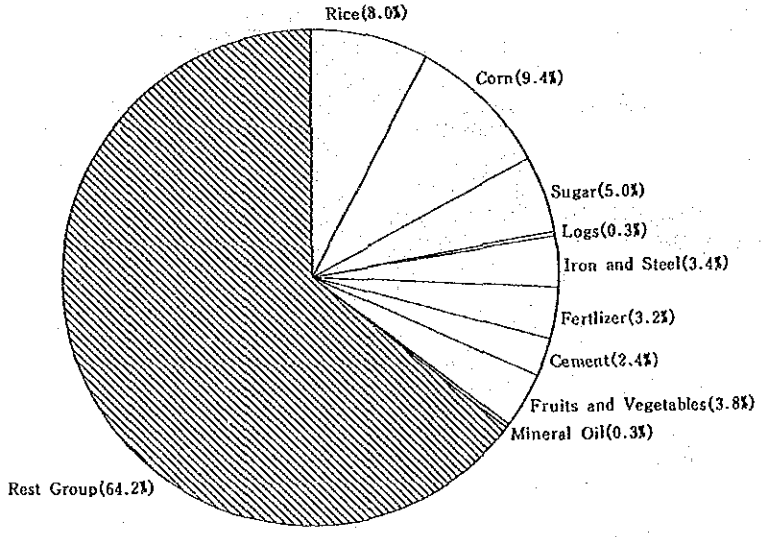
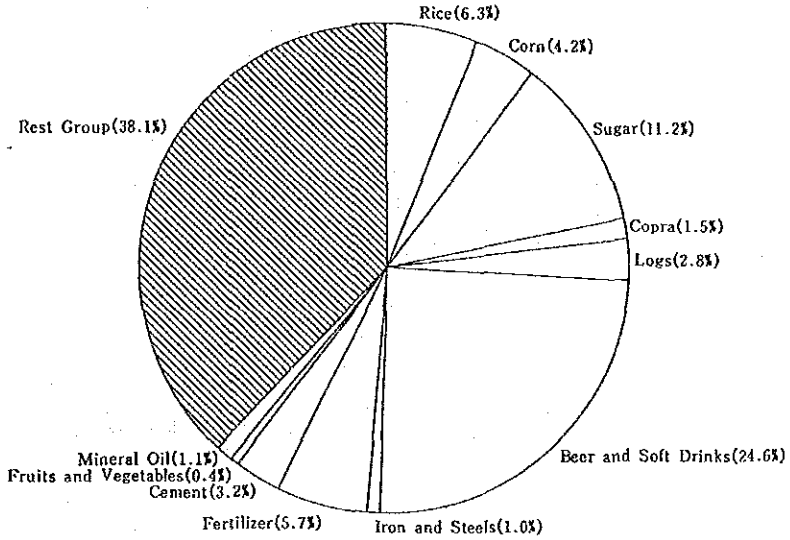


Figure A-1-8-4(5) Ratio of Cargo Traffic Volume:
No.13 Toledo - San Carlos Link

Source: JICA Study Team based on
PPA Monthly Report
Philippine Ports Authority

Cebu City ⟶ Tubigon

(One Way Traffic)



Cebu City ⇄ Tubigon

(Two Way Traffic)

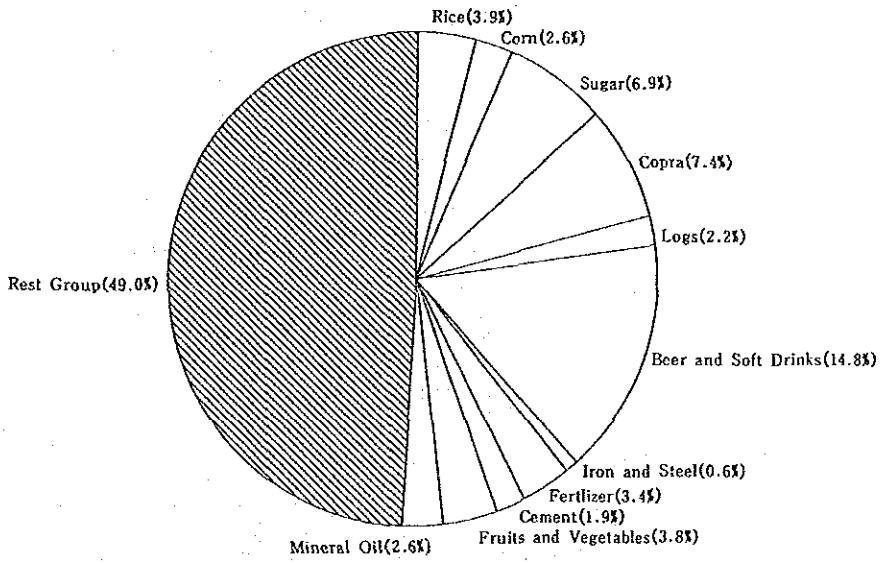
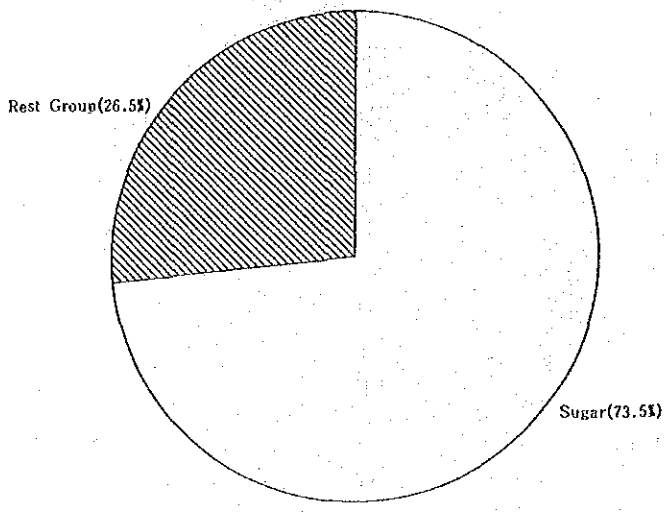


Figure A-1-8-4(6) Ratio of Cargo Traffic Volume:
No.14 Cebu City - Tubigon Link

Source: JICA Study Team based on
PPA Monthly Report
Philippine Ports Authority

Dumaguete ⟶ Dapitan

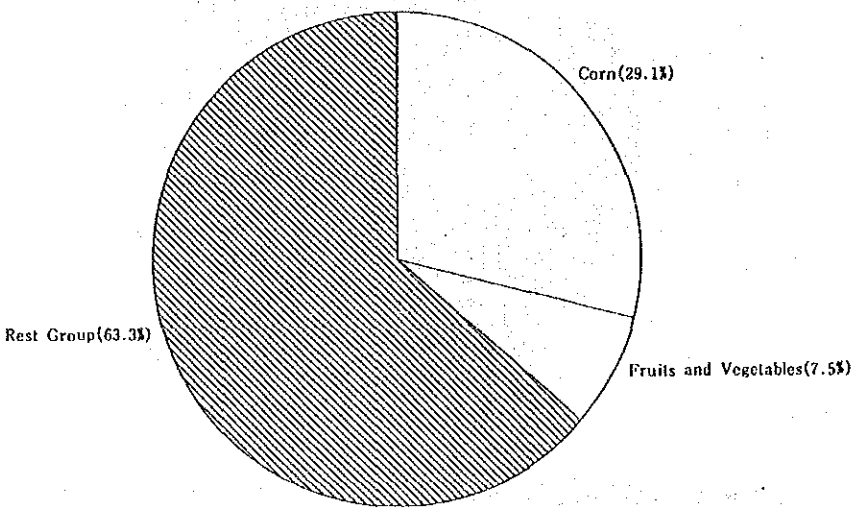
(One Way Traffic)



Source: JICA Study Team based on
Cargo and Tonnage, Value and
Freight Charges of Items
Ports of Origin and Destination, 1989
National Statistics Office

Dumaguete ⇄ Dapitan

(Two Way Traffic)

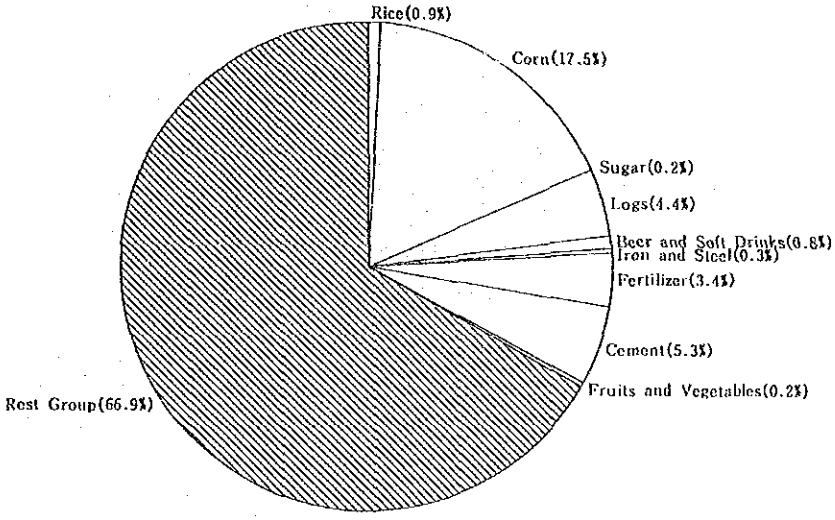


Source: JICA Study Team based on
PPA Monthly Report
Philippine Ports Authority

Figure A-1-8-4(7) Ratio of Cargo Traffic Volume:
No.16 Dumaguete - Dapitan Link

Jagna ←— Cagayan de Oro

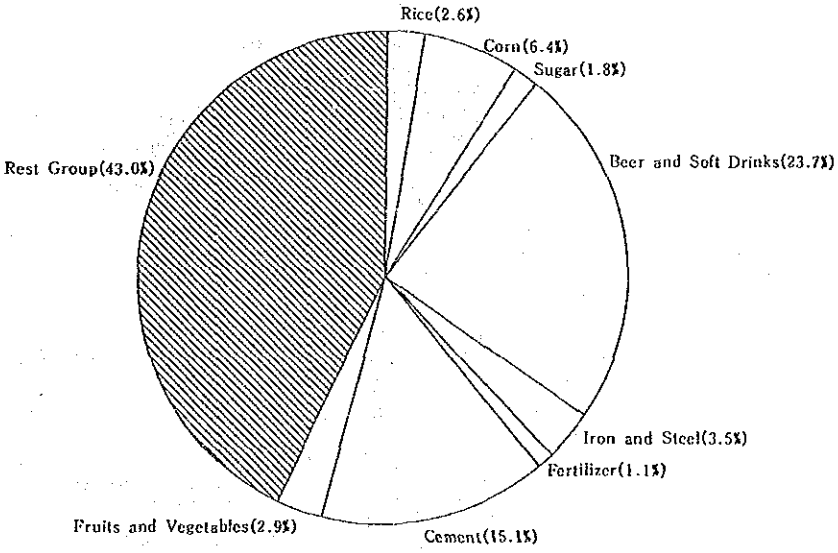
(One Way Traffic)



Source: JICA Study Team based on
Cargo and Tonnage, Value and
Freight Charges of Items
Ports of Origin and Destination, 1989
National Statistics Office

Jagna ⇄ Cagayan de Oro

(Two Way Traffic)

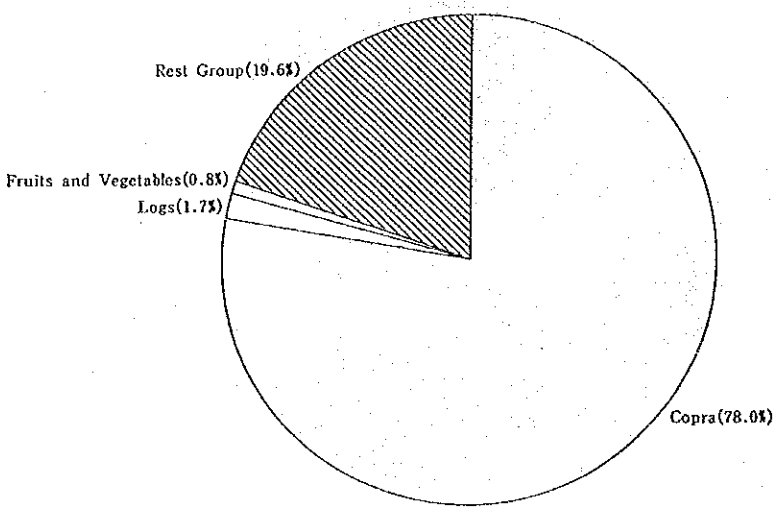


Source: JICA Study Team based on
PPA Monthly Report
Philippine Ports Authority

Figure A-1-8-4(8) Ratio of Cargo Traffic Volume:
No.17 Jagna - Cagayan de Oro Link

Zamboanga City ← Basilan

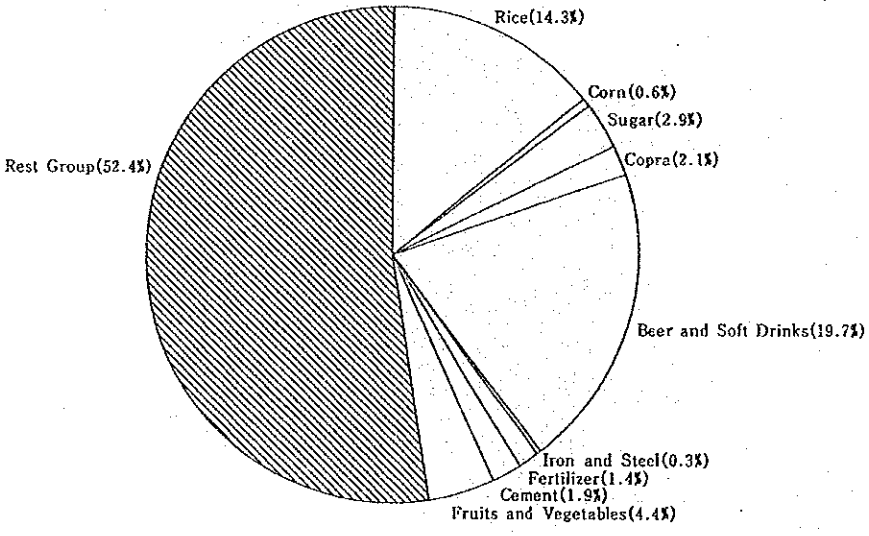
(One Way Traffic)



Source: JICA Study Team based on
Cargo and Tonnage, Value and
Freight Charges of Items
Ports of Origin and Destination, 1989
National Statistics Office

Zamboanga City ⇄ Basilan

(Two Way Traffic)



Source: JICA Study Team based on
PPA Monthly Report
Philippine Ports Authority

Figure A-1-8-4(9) Ratio of Cargo Traffic Volume:
No.18 Zamboanga City - Basilan Link

Zamboanga City ⇄ Jolo

(Two Way Traffic)

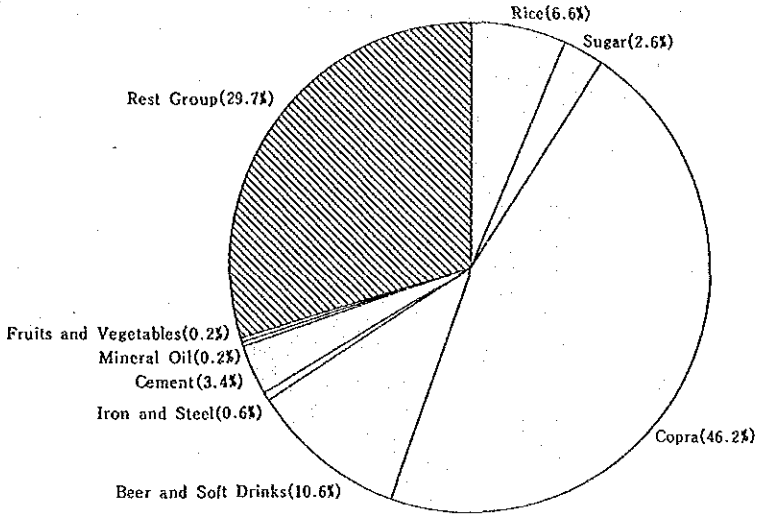
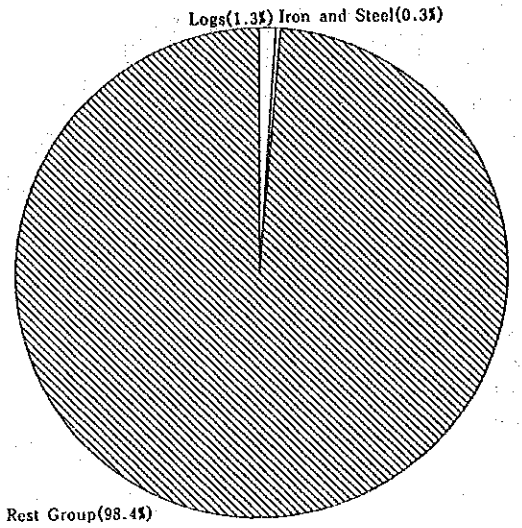


Figure A-1-8-4(10) Ratio of Cargo Traffic Volume:
No.19 Zamboanga City - Jolo Link

Source: JICA Study Team based on
PPA Monthly Report
Philippine Ports Authority

San Jose ⟶ Puerto Princesa

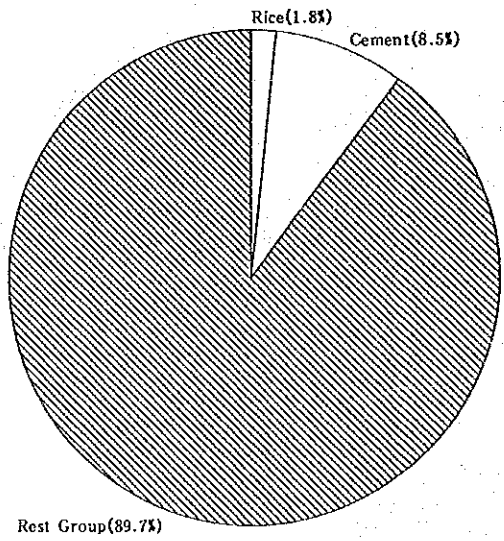
(One Way Traffic)



Source: JICA Study Team based on
Cargo and Tonnage, Value and
Freight Charges of Items
Ports of Origin and Destination, 1989
National Statistics Office

San Jose ⇄ Puerto Princesa

(Two Way Traffic)

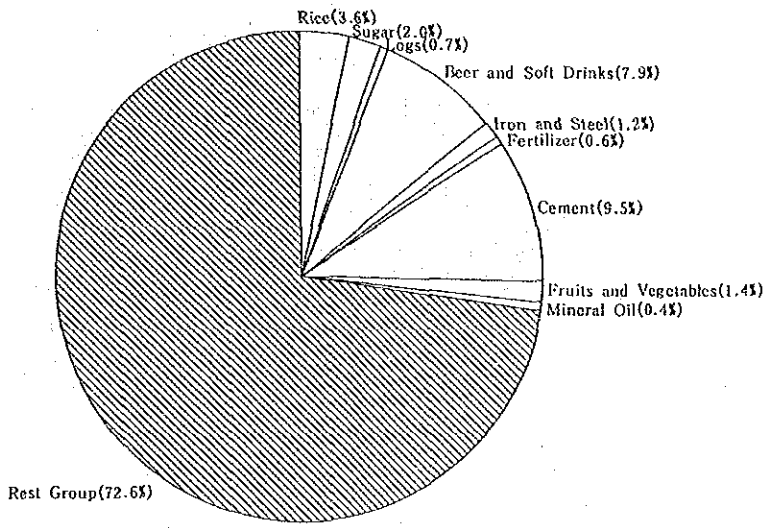


Source: JICA Study Team base on
PPA Monthly Report
Philippine Ports Authority

Figure A-1-8-4(11) Ratio of Cargo Traffic Volume:
No.20 San Jose - Puerto Princesa Link

Lucena City ⟶ Balanacan

(One Way Traffic)



Lucena City ⇄ Balanacan

(Two Way Traffic)

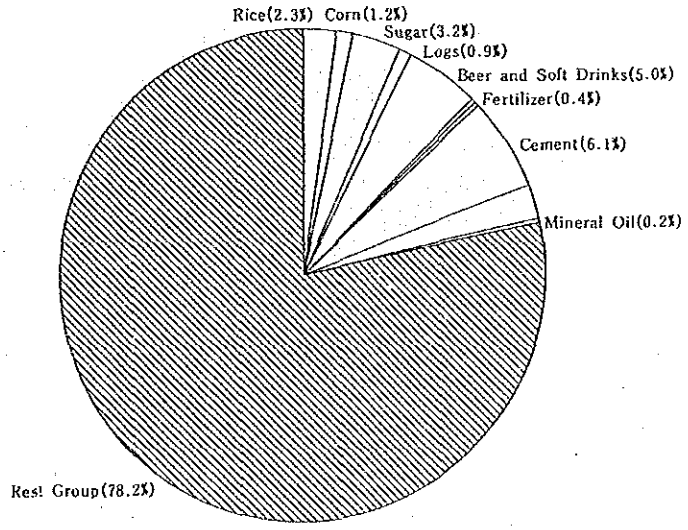
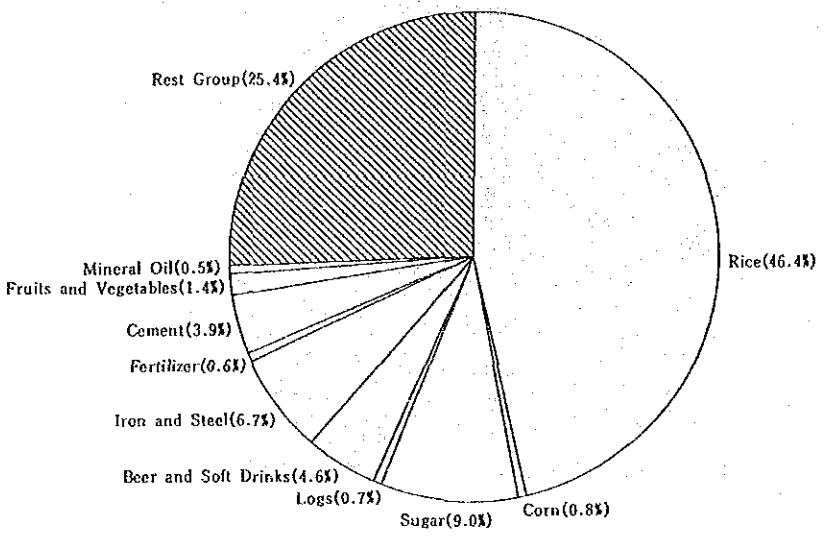


Figure A-1-8-4(12) Ratio of Cargo Traffic Volume:
No.23 Lucena City - Balanacan Link

Source: JICA Study Team based on
PPA Monthly Report
Philippine Ports Authority

Tabaco ⟶ Virac

(One Way Traffic)



Tabaco ⇄ Virac

(Two Way Traffic)

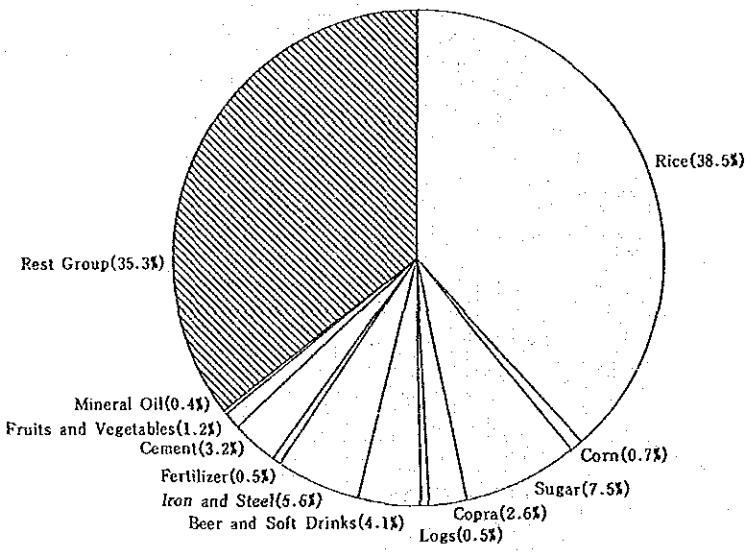
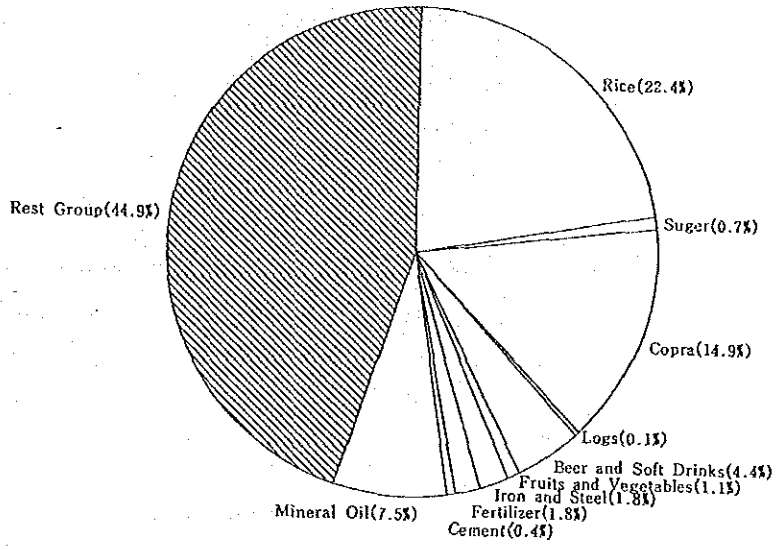


Figure A-1-8-4(13) Ratio of Cargo Traffic Volume:
No.24 Tabaco - Virac Link

Source: JICA Study Team based on
PPA Monthly Report
Philippine Ports Authority

Bulan ⟶ Masbate

(One Way Traffic)



Bulan ⇄ Masbate

(Two Way Traffic)

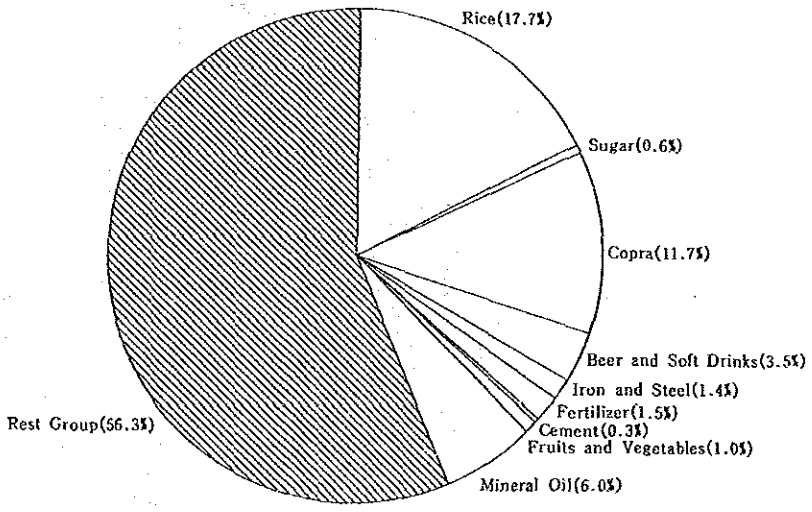
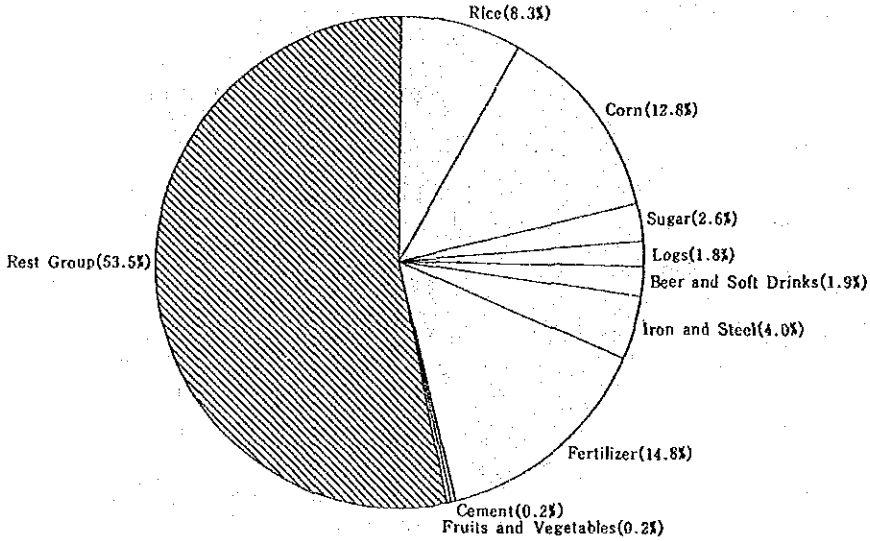


Figure A-1-8-4(14) Ratio of Cargo Traffic Volume:
No.25 Bulan - Masbate Link

Source: JICA Study Team based on
PPA Monthly Report
Philippine Ports Authority

Cebu City ⟶ Ormoc
(One Way Traffic)



Cebu City ⇄ Ormoc
(Two Way Traffic)

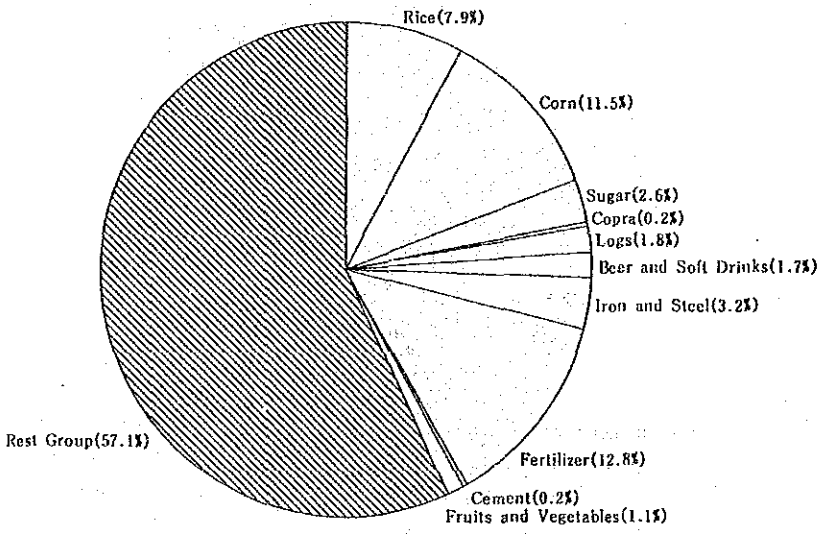
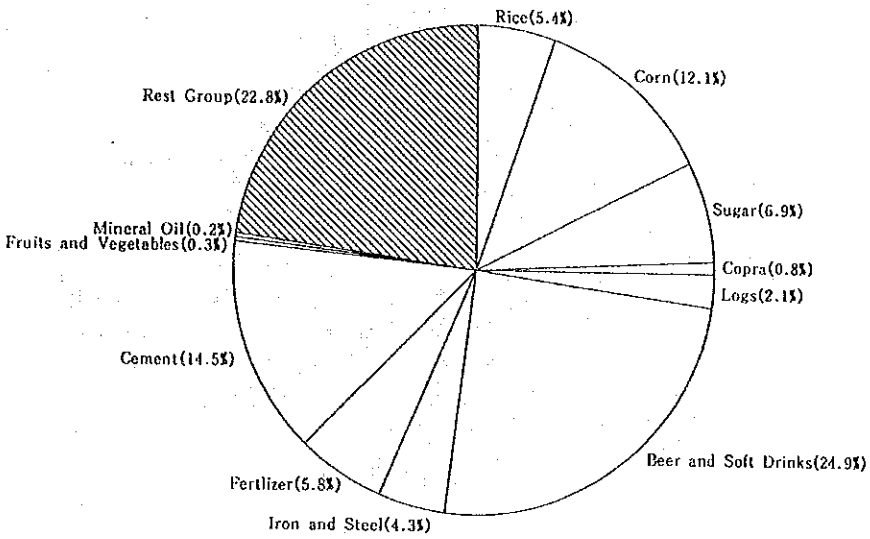


Figure A-1-8-4(15) Ratio of Cargo Traffic Volume:
No.28 Cebu City - Ormoc Link

Source: JICA Study Team based on
PPA Monthly Report
Philippine Ports Authority

Cebu City ⟶ Talibon

(One Way Traffic)



Cebu City ⇄ Talibon

(Two Way Traffic)

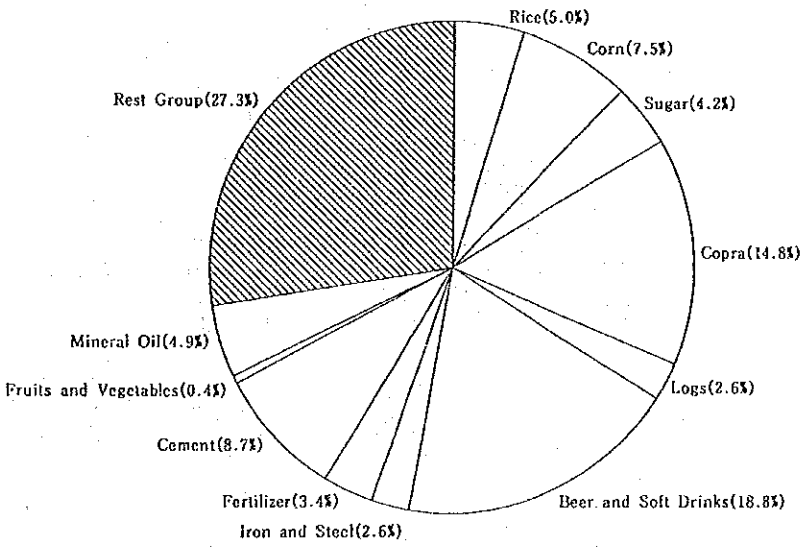
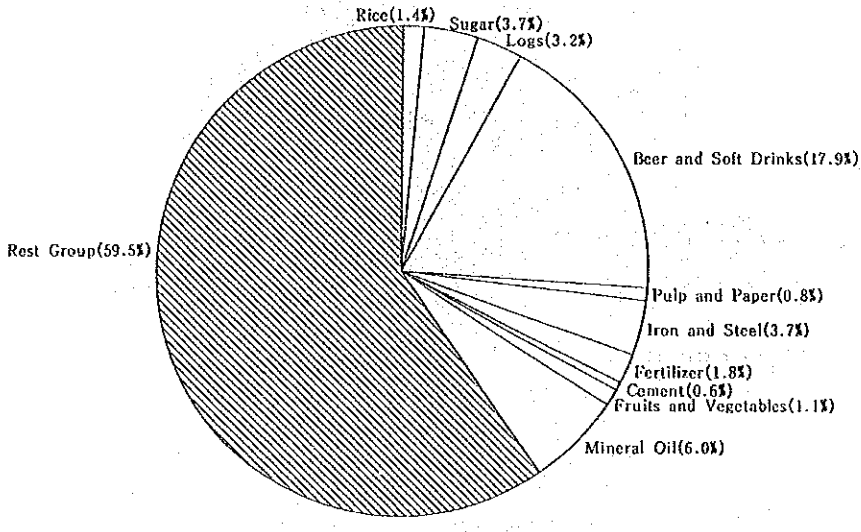


Figure A-1-8-4(16) Ratio of Cargo Traffic Volume:
No.34 Cebu City - Talibon Link
Source: JICA Study Team based on
PPA Monthly Report
Philippine Ports Authority

Cebu City ⟶ Tagbilaran

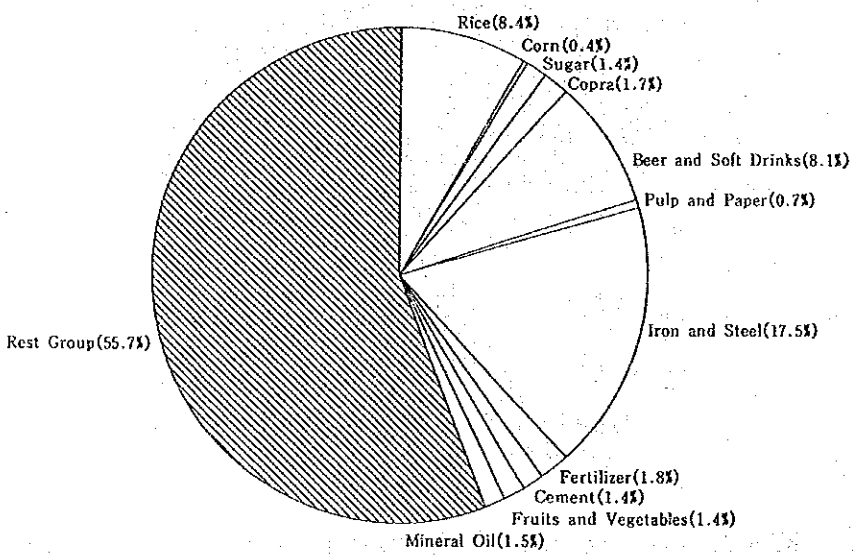
(One Way Traffic)



Source: JICA Study Team based on
Cargo and Tonnage, Value and
Freight Charges of Items
Ports of Origin and Destination, 1989
National Statistics Office

Cebu City ⇄ Tagbilaran

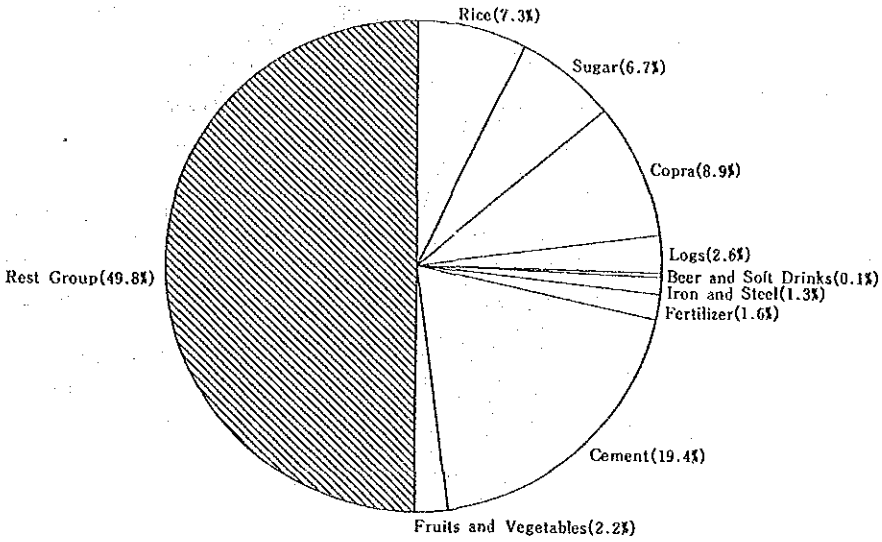
(Two Way Traffic)



Source: JICA Study Team based on
PPA Monthly Report
Philippine Ports Authority

Figure A-1-8-4(17) Ratio of Cargo Traffic Volume:
No.38 Cebu City - Tagbilaran Link

Lucena City ⟶ Sta. Cruz
(One Way Traffic)



Lucena City ⇄ Sta. Cruz
(Two Way Traffic)

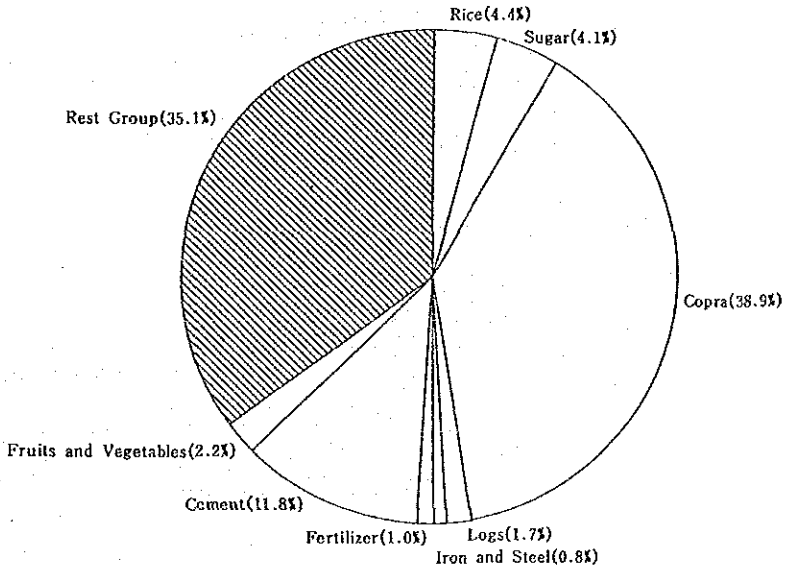
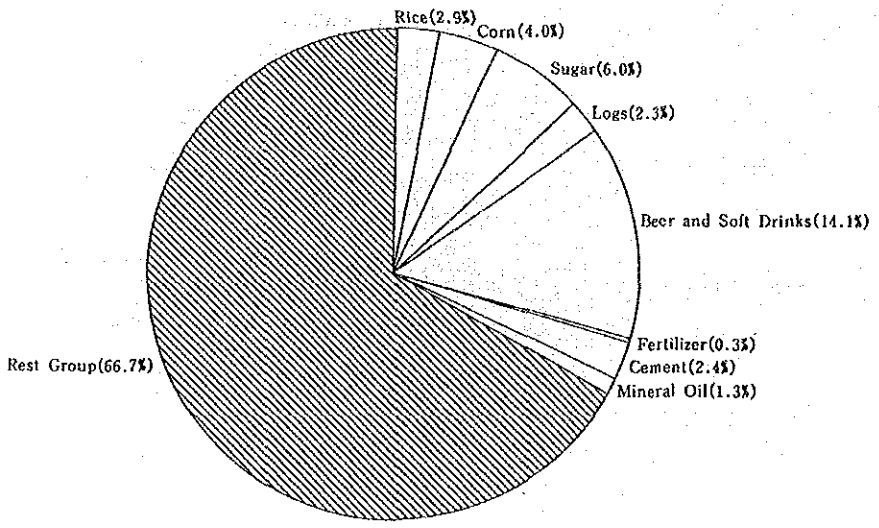


Figure A-1-8-4(18) Ratio of Cargo Traffic Volume:
No.39 Lucena City - Sta. Cruz Link

Source: JICA Study Team based on
PPA Monthly Report
Philippine Ports Authority

Dumaguete ⟶ Larena
(One Way Traffic)



Dumaguete ⇄ Larena
(Two Way Traffic)

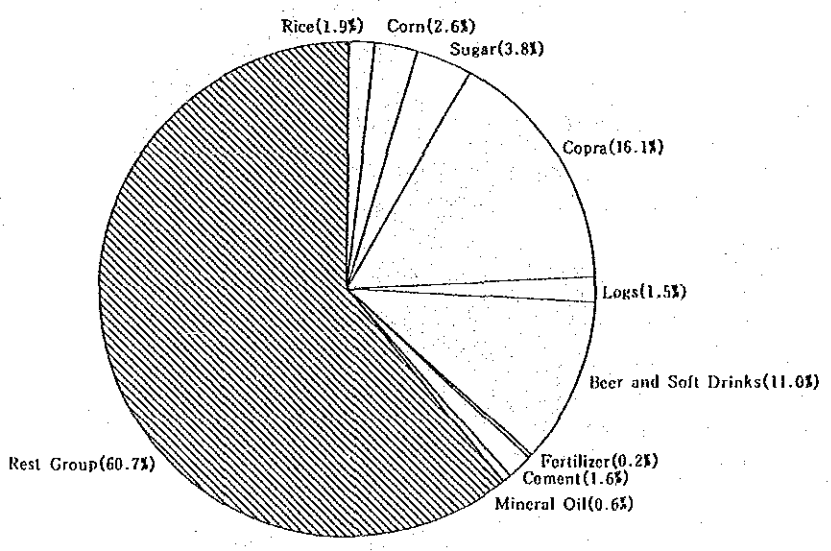
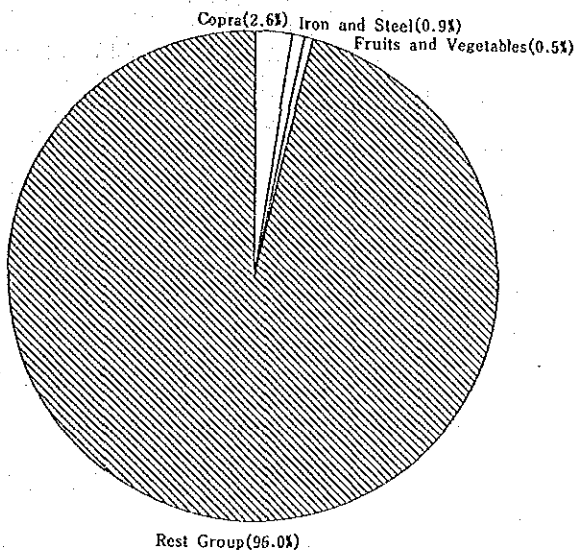


Figure A-1-8-4(19) Ratio of Cargo Traffic Volume:
No.40 Dumaguete - Larena Link

Source: JICA Study Team based on
PPA Monthly Report
Philippine Ports Authority

Guihulngan ⟶ Dumanjug

(One Way Traffic)



Guihulngan ⇄ Dumanjug

(Two Way Traffic)

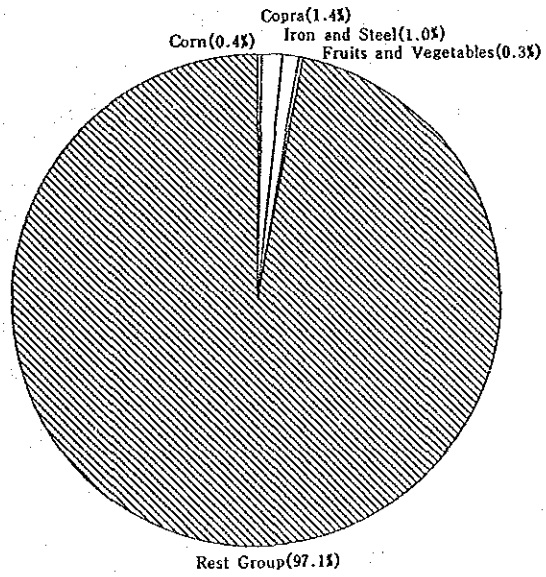


Figure A-1-8-4(20) Ratio of Cargo Traffic Volume:
No.41 Guihulngan - Dumanjug Link

Source: JICA Study Team based on
PPA Monthly Report
Philippine Ports Authority

Note A-1-8-1 Cargo Traffic Volume of Short Distance Link of Solitary Island Link

1. The gravity model of solitary island link is based on link No. 18, 19, 24 and 39. Distances between origin and destination of these links range from 16 nautical miles to 83 nautical miles. However, distance of link No. 12 is 4.5 nautical miles and link No.30 is 6 nautical miles. In this study, when estimating cargo traffic volume by the gravity model based on long distance links, for short distance solitary island link between origin and destination as Iloilo City - Jordan link, it is considered that the estimated value by the gravity model method is less than the actual traffic volume. Therefore, the cargo traffic volumes of the Iloilo City - Jordan link, Davao City - Babak link and Benoni - Balingoan link are estimated according to the required cargo volume per capita and population number.

2. Actual cargo traffic volumes of solitary island links and the cargo traffic volume per capita are shown in the following table. Where, The total population of link No.18, 19, 24 and 39 is total population of each municipality and the total population of link No.23 is total population of Lucena City and Marinduque Island.

Table N-1-8-1.1 Actual cargo Traffic Volume and Population

No.	Link	Cargo Volume (Metric Ton)	Total Population	Cargo/person (Metric Ton)
18	Zamboanga City - Basilan	18,092	59,482	0.30
19	Zamboanga City - Jolo	25,310	53,055	0.48
20	Lucena - Balanacan	33,944	185,524	0.18
24	Tabaco - Virac	14,808	45,523	0.33
39	Lucena - Sta. Cruz	15,261	52,926	0.29

Source: JICA Study Team based on

1) PPA Monthly Report, Philippine Ports Authority

2) 1990 Census of Population and Housing National Statistics Office

The cargo traffic volume per capita fluctuates with the industry of each island. However, considering only the particular rest cargo group, the cargo traffic volume per capita can be assumed as 0.3 metric tons.

3. The cargo traffic volume estimated by the hinterland population of each port and by the gravity model is shown in the following table.

Table N-1-8-1.2 Cargo Traffic Volume

No.	Link	Total Population of Hinterland	Cargo/person (Metric Ton)	Cargo Volume (Metric Ton)
12	Iloilo City - Jordan	45,852	0.3	13,756
30	Davao City - Babak	24,824	0.3	7,447
31	Roxas - Odiongan	32,498	0.3	9,749
35	Jagna - Mambajao	25,207	0.3	7,562
36	Benoni - Balingoan	11,313	0.3	3,394

Source: 1) 1990 Census of Population and Housing
National Statistics Office
2) JICA Study Team

4. Based on results of calculation, the cargo traffic volume of Iloilo City - Jordan link is assumed to be 20,000 metric tons, and that of Davao City - Babak link is assumed to be 10,000 metric tons.

Note A-1-8-2 Cargo Traffic Volume of Tubod - Tangub Link

1. The cargo traffic volume of Tubod - Tangub link is estimated using the actual traffic data. The cargo capacity of vehicle by type, based on the field survey of Batangas City - Calapan link, is shown in Table N-1-8-2.1.

Table N-1-8-2.1 Cargo Capacity of Vehicle

Type of Vehicle	Full Load Cargo capacity (Metric Ton)	Ratio of Empty	Load Factor	Estimated Cargo Capacity (Metric Ton)
Jeep	2.0	0.5	1.0	1.0
Pick up/Van	0.5	1.0	1.0	0.5
Trick(2Axle)	10.0	0.5	0.6	3.0
Truck(3Axle)	13.0	0.5	0.6	4.0

Source: JICA Study Team based on JICA Field Survey

2. Based on the field survey of Tubod - Tangub link which was carried out on 10th and 11th August 1991, the cargo traffic volume is estimated by the type of vehicle and the number of vehicles as follows:

Table N-1-8-2.2 Actual Carried Vehicle on Tubod - Tangub Link

Month	Day	Name of Vessel	Type of Vehicle	Number of Vehicle Tubod to Tangub	Tangub to Tubod
August	10th	ANTONIO JR.	1	1	3
			3	4	3
			4	3	7
			8	4	7
			9	8	10
			10		1
			11		6
		LORENZ	4	3	
			8	8	
			9	2	
	11th	ANTONIO JR.	1	2	7
			3	7	5
			4	7	15
			8	7	3
			9	13	8
			11	5	2
		LORENZ	1		3
			3	5	3
			4	4	11
			8	3	7
			9	7	4
			11	2	6
			1		3
			4		5
			8		2
			9		1
			10		1
			11		1

Remark: Type of Vehicle
1: Car
3: Jeep
4: Pick up/ Van
8: Truck(2Axle)
9: TRUCK(3Axle)
10: Articulated Truck
11: Motorcycle/Bicycle

Source: JICA Study Team based on JICA Field Survey

Table N-1-8-2.3 Actual Cargo Volume on Tubod - Tangub Link

unit: Metric Ton

Month	Day	Name of Vessel	Number of Vehicle Tubod to Tangub	Tangub to Tubod
August	10th	ANTONIO JR.	49.5	69.5
		LORENZ	33.5	-
	11th	ANTONIO JR.	83.5	53.5
		LORENZ	-	45.5
			44.0	16.5
Total			210.5	185.0

Source: JICA Study Team based on JICA Field Survey

3. The cargo traffic volume in August is as follows:

from Tubod to Tangub

210.5 metric ton x 1/2 x 31 days = 3,262.75 metric ton

from Tangub to Tubod

185.0 metric ton x 1/2 x 31 days = 2,876.5 metric ton

4. Considering the seasonal variation, the one way cargo traffic volume of base year is estimated as follows:

from Tubod to Tangub

3,262.75 metric ton / 0.08 = 40,784 metric ton

5. The cargo traffic volume calculated by the gravity model is 39,083 metric ton and the actual cargo traffic volume is 40,784 metric ton. Therefore, for the estimation of the traffic volume of the short cut link, Cavite City - Mariveles link, it is possible to utilize the gravity model method.

Note A-1-8-3 Conversion of "Transport Equipment" into Cargo Volume

1. Almost all of the carried commodity on the following links is recorded as transport equipment.

Matnog	- Allen
Matnog	- San Isidro
Batangas City	- Calapan
Liloan	- Lipata
Argao	- Loon
Escalante	- Tuburan
Tandayag	- Bato

2. When collecting the data on cargo volume, the transport equipment should be converted and included as part of the cargo volume. The conversion value of transportation equipment into cargo volume can be estimated as follows based on the actual traffic data of Batangas City - Calapan link:

Table N-1-8-3.1(1) Shipping Traffic Statistics

unit: Metric Ton

GRT	Cargo Tonnage		Empty Vehicles		Net Cargo	
	Discharged	Loaded	In	Out	In	Out
464.88	4.77	36.05	4.20	12.70	0.57	23.35
464.88	17.63	57.53	13.80	21.00	3.83	36.53
464.88	66.95	32.08	31.90	12.40	35.05	19.68
464.88	117.46	60.48	48.00	27.00	69.46	33.48
464.88	70.47	33.24	32.30	18.60	38.17	14.64
464.88	42.85	44.07	23.10	26.70	19.75	17.37
464.88	82.15	28.62	31.90	11.50	50.25	17.12
464.88	17.90	69.97	11.70	31.40	6.20	38.57
464.88	49.60	48.79	15.20	21.50	34.40	27.29
464.88	62.17	95.17	28.20	36.90	33.97	58.27
476.55	44.15	111.02	21.00	64.44	23.15	46.58
464.88	44.69	49.02	16.83	21.50	27.86	27.70
464.88	24.53	61.80	14.20	28.10	10.33	33.70
464.88	79.48	39.34	39.95	11.00	39.53	28.34
Sub Total	724.80	767.34	332.28	344.70	392.52	422.64
Total	1,492.16		676.98		422.64	

Source: JICA Study Team based on
PPA Monthly Report, Philippine Ports Authority

Table N-1-8-3.1(2) Shipping Traffic Statistics

unit: Metric Ton

GRT	Cargo Tonnage		Empty Vehicles		Net Cargo	
	Discharged	Loaded	In	Out	In	Out
924.72	44.63	83.80	20.60	30.00	24.03	53.80
794.65	96.32	78.60	54.70	27.83	41.62	50.77
942.72	148.73	242.14	71.50	108.50	77.23	133.64
794.65	155.12	175.97	78.90	67.40	76.22	108.57
924.72	110.01	57.74	63.00	29.40	47.01	28.34
794.65	204.41	16.51	99.00	10.70	105.41	5.81
924.72	74.91	134.24	46.60	63.70	28.31	70.54
794.65	124.30	237.38	57.30	93.70	67.00	143.68
924.72	95.50	163.47	49.40	73.60	46.10	89.87
794.65	121.47	4.70	51.20	2.70	70.27	2.00
924.72	148.22	120.01	75.40	68.40	72.82	51.61
794.65	112.71	275.22	48.70	125.10	64.01	150.12
924.72	81.01	68.26	52.10	32.90	28.91	35.36
794.65	133.64	56.77	68.20	21.40	65.44	35.37
924.72	166.81	106.64	71.20	64.20	95.61	42.44
794.65	122.41	197.80	64.40	81.90	58.01	115.90
924.72	101.94	72.45	85.00	27.45	16.94	45.00
794.65	185.90	17.21	95.20	10.40	90.30	6.81
924.72	203.22	125.39	74.00	48.45	129.22	76.94
794.65	148.61	213.76	61.90	88.80	86.71	124.96
924.72	201.94	144.35	111.70	84.53	90.24	59.82
794.65	155.53	26.30	83.70	20.80	71.83	5.50
924.72	121.11	154.72	52.60	68.50	68.51	86.22
794.65	118.69	182.07	54.10	92.40	64.59	89.67
924.72	75.66	43.69	46.20	19.79	29.46	23.90
794.65	120.36	36.35	72.90	23.15	47.46	13.20
Sub Total	3,372.76	3,035.54	1,709.50	1,385.70	1,663.37	1,649.84
Total	6,408.30		3,095.20		3,313.21	

Source: JICA Study Team based on

PPA Monthly Report, Philippine Ports Authority

Table N-1-8-3.1(3) Shipping Traffic Statistics

unit: Metric Ton

GRT	Cargo Tonnage		Empty Vehicles		Net Cargo	
	Discharged	Loaded	In	Out	In	Out
1,447.55	103.60	78.68	50.93	28.40	52.67	50.28
1,447.55	60.94	265.73	23.40	84.90	37.54	180.83
1,447.55	94.83	95.24	38.70	46.30	56.13	48.94
1,447.55	103.18	163.30	29.20	52.20	73.98	111.10
1,447.55	170.23	1.80	69.40	1.50	100.83	0.30
1,447.55	32.20	110.48	15.90	34.50	16.30	75.98
1,447.55	173.48	90.71	62.40	31.90	111.08	58.81
1,447.55	55.90	198.35	29.80	79.60	26.10	118.75
1,447.55	126.10	26.12	50.20	13.10	75.90	13.02
1,447.55	232.83	56.45	97.50	28.00	135.33	28.45
1,477.55	21.65	48.97	11.60	16.10	10.05	32.87
Sub Total	1,174.94	1,135.83	479.03	416.50	695.91	719.33
Total	2,310.77		895.53		1,415.24	

Source: JICA Study Team based on
PPA Monthly Report, Philippine Ports Authority

Table N-1-8-3.2 Conversion Value

Class of Ro/Ro Vessel	Cargo Tonnage (Metric ton)	Net Cargo (Metric Ton)	Net Cargo/ Cargo Tonnage
500 GRT	1,492.16	422.64	0.28
1,000 GRT	6,408.30	3,313.21	0.52
1,500 GRT	2,310.77	1,415.24	0.61
Total	10,211.23	5,151.09	0.50
Average	-	-	0.47

Source: JICA Study Team based on
PPA Monthly Report, Philippine Ports Authority

From Table N-1-8-3.2, the net cargo per cargo tonnage is considered nearly equal 0.5. Thus the cargo tonnage of the transport equipment can be converted into cargo volume as follows:

Cargo Volume of Transport Equipment
= Cargo Tonnage of Transport Equipment x 50 percent

Table A-1-10-1 Prioritization Criteria

(1)	**Mobility in the Hinterland**	**(25 points)**
1.	Car ownership	(10 points)
	More than 23 vehicles/thousand population	10
	23 - 20 vehicles	8
	20 - 15 vehicles	6
	15 - 10 vehicles	4
	less than 10 vehicles	2
2.	Road condition in the hinterland	(5 points)
	Good	5
	Fair	3
	Poor	1
3.	Through-traffic rate	(5 points)
	More than 80%	5
	80 - 60 %	3
	less than 60%	1
4.	Development stage of shipping	(5 points)
	Ro/Ro operation	5
	Ferry	3
	Banca	1
	No regular services	0
(2)	**Traffic Demand**	**(35 points)**
1.	Cargo	(25 points)
	More than 150,000 M.T.	25
	150,000 - 80,000	20
	80,000 - 50,000	15
	50,000 - 20,000	10
	less than 20,000	5
2.	Passenger	(10 points)
	More than 1,000,000	10
	1,000,000 - 500,000	8
	500,000 - 300,000	6
	300,000 - 100,000	4
	less than 100,000	2
(3)	**Cost**	**(20 points)**
1.	Passenger's Request	(5 points)
	More than 20%	5
	10% - 20%	3
	Less than 10%	1
2.	Links with Ro/Ro Ramps at Ports	(5 points)
	Completed/on going	5
	No plan	0
3.	Preliminary Cost Estimate	(10 points)
	Low	10
	Medium	5
	High	0
(4)	**Formation of Transport Network**	**(20 points)**
1.	Development Policy on Ro/Ro Ferry Network	(15 points)
	National trunk link	15
	Other inter-province link	10
	Detached island link	5
	Short-cut link	3
2.	Promotion of Regional Center Development	(5 points)
	Cities with population of 200,000 or more	5
	Others	0

Source: JICA Study Team

Table A-1-10-2 Car Ownership

(Unit: vehicles/1000 population)

Car Ownership	Existing and Possible Ro/Ro Links		Car Ownership	Ave. Car Ownership	Points
6.41	1. Matnog	Allen	3.46	4.94	2
6.41	2. Matnog	San Isidro	3.46	4.94	2
21.72	3. Batangas City	Calapan	7.96	14.84	4
11.37	4. Liloan	Lipata	5.76	8.57	2
30.70	5. Argao	Loon	10.81	20.76	8
16.09	6. Escalante	Tuburan	30.70	23.40	10
30.70	7. Carmen	Isabel	10.84	20.77	8
15.61	8. Tandayag	Bato	30.70	23.16	10
13.50	9. Tubod	Tangub	16.88	15.19	6
14.77	10. Iloilo City	Bacolod	16.09	15.43	6
14.77	11. Iloilo City	Pulupandan	16.09	15.43	6
14.77	12. Iloilo City	Jordan	14.77	14.77	4
30.70	13. Toledo	San Carlos	16.09	23.40	10
30.70	14. Cebu City	Tubigon	10.81	20.76	8
15.61	15. Dumaguete	Santander	30.70	23.16	10
15.61	16. Dumaguete	Dapitan	9.76	12.69	4
10.81	17. Jagna	Cagayan de Oro	24.78	17.80	6
15.88	18. Zamboanga City	Basilan	9.26	12.57	4
15.88	19. Zamboanga City	Jolo	1.96	8.92	2
30.32	21. Cavite City	Mariveles	23.33	26.83	10
21.72	22. Batangas City	Abra de Ilog	10.77	16.25	6
9.75	23. Lucena City	Balanacan	7.82	8.79	2
11.12	24. Tabaco	Virac	10.17	10.65	4
6.41	25. Bulan	Masbate	2.94	4.68	2
2.94	26. Milagros	Estancia	14.77	8.86	2
10.77	27. San Jose	New Washington	13.57	12.17	4
30.70	28. Cebu City	Ormoc	10.84	20.77	8
10.81	29. Ubay	Maasin	11.37	11.09	4
28.17	30. Davao	Babak	12.63	20.40	8
7.96	31. Roxas	Odiongan	4.99	6.48	2
7.96	32. Roxas	New Washington	13.57	10.77	4
6.41	33. Matnog	Masbate	2.94	4.68	2
30.70	34. Cebu City	Talibon	10.81	20.76	8
10.81	35. Jagna	Mambajao	11.88	11.35	4
11.88	36. Benoni	Balingoan	24.78	18.33	6
10.77	37. San Jose	El Nido	10.96	10.87	4
30.70	38. Cebu City	Tagbilaran	10.81	20.76	8
9.75	39. Lucena City	Sta. Cruz	7.82	8.79	2
15.61	40. Dumaguete	Larena	17.25	16.43	6
15.61	41. Guihulngan	Dumanjug	30.70	23.16	10
14.77	42. Ajuy	Manapla	16.09	15.43	6

Source: JICA Study Team

Table A-1-10-3 Road Condition

Points	Existing and Possible Ro/Ro Links		Points	Ave. Points
5	1. Matnog	Allen	5	5
5	2. Matnog	San Isidro	5	5
5	3. Batangas City	Calapan	3	4
5	4. Liloan	Lipata	5	5
3	5. Argao	Loon	3	3
5	6. Escalante	Tuburan	1	3
3	7. Carmen	Isabel	1	2
5	8. Tandayag	Bato	1	3
5	9. Tubod	Tangub	1	3
5	10. Iloilo City	Bacolod	5	5
5	11. Iloilo City	Pulupandan	5	5
5	12. Iloilo City	Jordan	3	4
3	13. Toledo	San Carlos	5	4
5	14. Cebu City	Tubigon	1	3
5	15. Dumaguete	Santander	1	3
5	16. Dumaguete	Dapitan	1	3
3	17. Jagna	Cagayan de Oro	5	4
1	18. Zamboanga City	Basilan	1	1
1	19. Zamboanga City	Jolo	1	1
1	20. San Jose	Puerto Princesa	1	1
5	21. Cavite City	Mariveles	5	5
5	22. Batangas City	Abra de Ilog	1	3
5	23. Lucena City	Balanacan	1	3
5	24. Tabaco	Virac	1	3
5	25. Bulan	Masbate	1	3
1	26. Milagros	Estancia	1	1
1	27. San Jose	New Washington	3	2
5	28. Cebu City	Ormoc	1	3
1	29. Ubay	Maasin	1	1
5	30. Davao	Babak	1	3
1	31. Roxas	Odiongan	1	1
1	32. Roxas	New Washington	3	2
5	33. Matnog	Masbate	1	3
5	34. Cebu City	Talibon	1	3
3	35. Jagna	Mambajao	1	2
1	36. Benoni	Balingoan	5	3
1	37. San Jose	El Nido	1	1
5	38. Cebu City	Tagbilaran	3	4
5	39. Lucena City	Sta. Cruz	1	3
3	40. Dumaguete	Larena	1	2
3	41. Guihulngan	Dumanjug	1	2
1	42. Ajuy	Manapla	5	3

Source: JICA Study Team

Table A-1-10-4 Through Traffic Rate

Existing and Possible Ro/Ro Links		Through Traffic Rate (%)	Points
1. Matnog	Allen	96.70	5
2. Matnog	San Isidro	97.80	5
3. Batangas City	Calapan	84.90	5
4. Liloan	Lipata	87.20	5
5. Argao	Loon	-	3
6. Escalante	Tuburan	88.30	5
7. Carmen	Isabel	-	3
8. Tandayag	Bato	97.00	3
9. Tubod	Tangub	66.10	3
10. Iloilo City	Bacolod	53.70	1
11. Iloilo City	Pulupandan	-	3
12. Iloilo City	Jordan	24.10	1
13. Toledo	San Carlos	71.60	3
14. Cebu City	Tubigon	77.60	3
15. Dumaguete	Santander	-	3
16. Dumaguete	Dapitan	70.00	3
17. Jagna	Cagayan de Oro	87.50	5
18. Zamboanga City	Basilan	69.50	3
19. Zamboanga City	Jolo	9.00	1
20. San Jose	Puerto Princesa	-	3
21. Cavite City	Mariveles	-	3
22. Batangas City	Abra de Ilog	70.00	3
23. Lucena City	Balanacan	96.20	5
24. Tabaco	Virac	96.20	5
25. Bulan	Masbate	70.40	3
26. Milagros	Estancia	74.00	3
27. San Jose	New Washington	-	3
28. Cebu City	Ormoc	63.40	3
29. Ubay	Maasin	74.20	3
30. Davao	Babak	6.50	1
31. Roxas	Odiongan	58.10	1
32. Roxas	New Washington	-	3
33. Matnog	Masbate	-	3
34. Cebu City	Talibon	52.80	1
35. Jagna	Mambajao	-	3
36. Benoni	Balingoan	97.90	5
37. San Jose	El Nido	-	3
38. Cebu City	Tagbilaran	56.00	1
39. Lucena City	Sta. Cruz	56.60	1
40. Dumaguete	Larena	55.90	1
41. Guihulngan	Dumanjug	95.80	5
42. Ajuy	Manapla	0.00	1

Source: JICA Study Team

Table A-1-10-5 Development Stage of Shipping

Existing and Possible Ro/Ro Links		Points
1. Matnog	Allen	5
2. Matnog	San Isidro	5
3. Batangas City	Calapan	5
4. Liloan	Lipata	5
5. Argao	Loon	0
6. Escalante	Tuburan	5
7. Carmen	Isabel	0
8. Tandayag	Bato	5
9. Tubod	Tangub	5
10. Iloilo City	Bacolod	3
11. Iloilo City	Pulupandan	0
12. Iloilo City	Jordan	1
13. Toledo	San Carlos	3
14. Cebu City	Tubigon	3
15. Dumaguete	Santander	0
16. Dumaguete	Dapitan	3
17. Jagna	Cagayan de Oro	3
18. Zamboanga City	Basilan	3
19. Zamboanga City	Jolo	3
20. San Jose	Puerto Princesa.	0
21. Cavite City	Mariveles	0
22. Batangas City	Abra de Ilog	0
23. Lucena City	Balanacan	5
24. Tabaco	Virac	3
25. Bulan	Masbate	3
26. Milagros	Estancia	3
27. San Jose	New Washington	0
28. Cebu City	Ormoc	3
29. Ubay	Maasin	3
30. Davao	Babak	1
31. Roxas	Odiongan	1
32. Roxas	New Washington	0
33. Matnog	Masbate	0
34. Cebu City	Talibon	3
35. Jagna	Mambajao	0
36. Benoni	Balingoan	3
37. San Jose	El Nido	0
38. Cebu City	Tagbilaran	5
39. Lucena City	Sta. Cruz.	3
40. Dumaguete	Larena	1
41. Guihulngan	Dumanjug	3
42. Ajuy	Manapla	1

Source: JICA Study Team

Table A-1-10-6 Forecast Cargo Traffic

Existing and Possible Ro/Ro Links		(M.T.)	Points
1. Matnog	Allen	157,017	25
2. Matnog	San Isidro	97,740	20
3. Batangas City	Calapan	824,315	25
4. Liloan	Lipata	61,271	15
5. Argao	Loon	30,416	10
6. Escalante	Tuburan	46,990	10
7. Carmen	Isabel	6,947	5
8. Tandayag	Bato	20,226	10
9. Tubod	Tangub	128,522	20
10. Iloilo City	Bacolod	523,324	25
11. Iloilo City	Pulupandan	51.481	15
12. Iloilo City	Jordan	86,950	20
13. Toledo	San Carlos	160,732	25
14. Cebu City	Tubigon	99,446	20
15. Dumaguete	Santander	67,691	15
16. Dumaguete	Dapitan	22,246	10
17. Jagna	Cagayan de Oro	20,153	10
18. Zamboanga City	Basilan	46,847	10
19. Zamboanga City	Jolo	69,492	15
20. San Jose	Puerto Princesa.	9,872	5
21. Cavite City	Mariveles	59,445	15
22. Batangas City	Abra de Ilog	28,226	10
23. Lucena City	Balanacan	104,716	20
24. Tabaco	Virac	57,966	15
25. Bulan	Masbate	25,825	10
26. Milagros	Estancia	9,106	5
27. San Jose	New Washington	13,242	5
28. Cebu City	Ormoc	70,916	15
29. Ubay	Maasin	32,849	10
30. Davao	Babak	29,135	10
31. Roxas	Odiongan	6,863	5
32. Roxas	New Washington	9,432	5
33. Matnog	Masbate	17,606	5
34. Cebu City	Talibon	48,433	10
35. Jagna	Mambajao	3,850	5
36. Benoni	Balingoan	9,926	5
37. San Jose	El Nido	5,190	5
38. Cebu City	Tagbilaran	176,818	25
39. Lucena City	Sta. Cruz.	47,080	10
40. Dumaguete	Larena	6,733	5
41. Guihulngan	Dumanjug	65,296	15
42. Ajuy	Manapla	43,289	10

Source: JICA Study Team

Table A-1-10-7 Forecast Passenger Traffic

Existing and Possible Ro/Ro Links		Number of Passengers	Points
1. Matnog	Allen	1,009,386	10
2. Matnog	San Isidro	1,178,004	10
3. Batangas City	Calapan	2,237,295	10
4. Liloan	Lipata	380,818	6
5. Argao	Loon	47,562	2
6. Escalante	Tuburan	355,023	6
7. Carmen	Isabel	28,623	2
8. Tandayag	Bato	457,077	6
9. Tubod	Tangub	105,793	4
10. Iloilo City	Bacolod	4,268,976	10
11. Iloilo City	Pulupandan	383,823	6
12. Iloilo City	Jordan	2,790,401	10
13. Toledo	San Carlos	1,028,960	10
14. Cebu City	Tubigon	836,952	8
15. Dumaguete	Santander	390,552	6
16. Dumaguete	Dapitan	257,198	4
17. Jagna	Cagayan de Oro	233,625	4
18. Zamboanga City	Basilan	1,259,686	10
19. Zamboanga City	Jolo	132,253	4
20. San Jose	Puerto Princesa	36,982	2
21. Cavite City	Mariveles	335,652	6
22. Batangas City	Abra de Ilog	143,079	4
23. Lucena City	Balanacan	501,843	8
24. Tabaco	Virac	283,608	4
25. Bulan	Masbate	105,504	4
26. Milagros	Estancia	39,297	2
27. San Jose	New Washington	61,617	2
28. Cebu City	Ormoc	877,833	8
29. Ubay	Maasin	173,633	4
30. Davao	Babak	99,367	2
31. Roxas	Odiongan	48,314	2
32. Roxas	New Washington	41,017	2
33. Matnog	Masbate	85,162	2
34. Cebu City	Talibon	229,529	4
35. Jagna	Mambajao	103,931	4
36. Benoni	Balingoan	573,095	8
37. San Jose	El Nido	19,914	2
38. Cebu City	Tagbilaran	663,363	8
39. Lucena City	Sta. Cruz	255,523	4
40. Dumaguete	Larena	79,269	2
41. Guihulngan	Dumanjug	105,817	4
42. Ajuy	Manapla	239,820	4

Source: JICA Study Team

Table A-1-10-8 Passenger's Assessment

Existing and Possible Ro/Ro Links		Points
1. Matnog	Allen	1
2. Matnog	San Isidro	1
3. Batangas City	Calapan	1
4. Liloan	Lipata	1
5. Argao	Loon	3
6. Escalante	Tuburan	3
7. Carmen	Isabel	3
8. Tandayag	Bato	1
9. Tubod	Tangub	1
10. Iloilo City	Bacolod	1
11. Iloilo City	Pulupandan	1
12. Iloilo City	Jordan	3
13. Toledo	San Carlos	3
14. Cebu City	Tubigon	5
15. Dumaguete	Santander	3
16. Dumaguete	Dapitan	5
17. Jagna	Cagayan de Oro	3
18. Zamboanga City	Basilan	5
19. Zamboanga City	Jolo	5
20. San Jose	Puerto Princesa	3
21. Cavite City	Mariveles	1
22. Batangas City	Abra de Ilog	5
23. Lucena City	Balanacan	1
24. Tabaco	Virac	3
25. Bulan	Masbate	3
26. Milagros	Estancia	5
27. San Jose	New Washington	1
28. Cebu City	Ormoc	5
29. Ubay	Maasin	3
30. Davao	Babak	5
31. Roxas	Odiongan	5
32. Roxas	New Washington	3
33. Matnog	Masbate	3
34. Cebu City	Talibon	3
35. Jagna	Mambajao	3
36. Benoni	Balingoan	3
37. San Jose	El Nido	3
38. Cebu City	Tagbilaran	3
39. Lucena City	Sta. Cruz	5
40. Dumaguete	Larena	3
41. Guihulngan	Dumanjug	1
42. Ajuy	Manapla	3

Source: JICA Study Team

Table A-1-10-9 Ro/Ro Ramp

Points	Existing and Possible Ro/Ro Links		Points	Ave. Points
5	1. Matnog	Allen	5	5
5	2. Matnog	San Isidro	5	5
5	3. Batangas City	Calapan	5	5
5	4. Liloan	Lipata	5	5
0	5. Argao	Loon	0	0
5	6. Escalante	Tuburan	2	3.5
0	7. Carmen	Isabel	0	0
5	8. Tandayag	Bato	0	2.5
5	9. Tubod	Tangub	5	5
0	10. Iloilo City	Bacolod	0	0
0	11. Iloilo City	Pulupandan	0	0
0	12. Iloilo City	Jordan	0	0
5	13. Toledo	San Carlos	5	5
0	14. Cebu City	Tubigon	0	0
5	15. Dumaguete	Santander	0	2.5
5	16. Dumaguete	Dapitan	0	2.5
0	17. Jagna	Cagayan de Oro	5	2.5
0	18. Zamboanga City	Basilan	0	0
0	19. Zamboanga City	Jolo	0	0
5	20. San Jose	Puerto Princesa	0	2.5
0	21. Cavite City	Mariveles	0	0
5	22. Batangas City	Abra de Ilog	5	5
0	23. Lucena City	Balanacan	0	0
0	24. Tabaco	Virac	0	0
0	25. Bulan	Masbate	5	2.5
0	26. Milagros	Estancia	0	0
5	27. San Jose	New Washington	0	2.5
0	28. Cebu City	Ormoc	0	0
0	29. Ubay	Maasin	0	0
0	30. Davao	Babak	0	0
0	31. Roxas	Odiongan	0	0
0	32. Roxas	New Washington	0	0
5	33. Matnog	Masbate	5	5
0	34. Cebu City	Talibon	2	1.0
0	35. Jagna	Mambajao	0	0
0	36. Benoni	Balingoan	0	0
5	37. San Jose	El Nido	0	2.5
0	38. Cebu City	Tagbilaran	5	2.5
0	39. Lucena City	Sta. Cruz	0	0
5	40. Dumaguete	Larena	0	2.5
0	41. Guihulngan	Dumanjug	0	0
0	42. Ajuy	Manapla	0	0

Source: JICA Study Team

Table A-1-10-10 Construction Cost

Existing and Possible Ro/Ro Links		Points
1. Matnog	Allen	5
2. Matnog	San Isidro	10
3. Batangas City	Calapan	5
4. Liloan	Lipata	10
5. Argao	Loon	0
6. Escalante	Tuburan	5
7. Carmen	Isabel	0
8. Tandayag	Bato	10
9. Tubod	Tangub	10
10. Iloilo City	Bacolod	0
11. Iloilo City	Pulupandan	5
12. Iloilo City	Jordan	10
13. Toledo	San Carlos	0
14. Cebu City	Tubigon	5
15. Dumaguete	Santander	5
16. Dumaguete	Dapitan	10
17. Jagna	Cagayan de Oro	5
18. Zamboanga City	Basilan	5
19. Zamboanga City	Jolo	10
21. Cavite City	Mariveles	0
22. Batangas City	Abra de Ilog	5
23. Lucena City	Balanacan	0
24. Tabaco	Virac	5
25. Bulan	Masbate	5
26. Milagros	Estancia	0
27. San Jose	New Washington	5
28. Cebu City	Ormoc	5
29. Ubay	Maasin	0
30. Davao	Babak	5
31. Roxas	Odiongan	10
32. Roxas	New Washington	5
33. Matnog	Masbate	10
34. Cebu City	Talibon	0
35. Jagna	Mambajao	5
36. Benoni	Balingoan	10
38. Cebu City	Tagbilaran	10
39. Lucena City	Sta. Cruz	5
40. Dumaguete	Larena	10
41. Guihulngan	Dumanjug	10
42. Ajuy	Manapla	0

Source: JICA Study Team

Table A-1-10-11 Development Policy

Existing and Possible Ro/Ro Links		Points
1. Matnog	Allen	15
2. Matnog	San Isidro	15
3. Batangas City	Calapan	15
4. Liloan	Lipata	15
5. Argao	Loon	10
6. Escalante	Tuburan	15
7. Carmen	Isabel	15
8. Tandayag	Bato	15
9. Tubod	Tangub	3
10. Iloilo City	Bacolod	15
11. Iloilo City	Pulupandan	15
12. Iloilo City	Jordan	5
13. Toledo	San Carlos	15
14. Cebu City	Tubigon	10
15. Dumaguete	Santander	15
16. Dumaguete	Dapitan	15
17. Jagna	Cagayan de Oro	10
18. Zamboanga City	Basilan	5
19. Zamboanga City	Jolo	5
20. San Jose	Puerto Princesa	10
21. Cavite City	Mariveles	3
22. Batangas City	Abra de Ilog	15
23. Lucena City	Balanacan	5
24. Tabaco	Virac	5
25. Bulan	Masbate	10
26. Milagros	Estancia	10
27. San Jose	New Washington	15
28. Cebu City	Ormoc	15
29. Ubay	Maasin	10
30. Davao	Babak	5
31. Roxas	Odiongan	5
32. Roxas	New Washington	15
33. Matnog	Masbate	10
34. Cebu City	Talibon	10
35. Jagna	Mambajao	5
36. Benoni	Balingoan	5
37. San Jose	El Nido	10
38. Cebu City	Tagbilaran	10
39. Lucena City	Sta. Cruz	5
40. Dumaguete	Larena	5
41. Guihulngan	Dumanjug	15
42. Ajuy	Manapla	15

Source: JICA Study Team

Table A-1-10-12 Regional Center Development

Points	Existing and Possible Ro/Ro Links		Points	Ave. Points
0	1. Matnog	Allen	0	0
0	2. Matnog	San Isidro	0	0
0	3. Batangas City	Calapan	0	0
0	4. Liloan	Lipata	0	0
0	5. Argao	Loon	0	0
0	6. Escalante	Tuburan	0	0
0	7. Carmen	Isabel	0	0
0	8. Tandayag	Bato	0	0
0	9. Tubod	Tangub	0	0
5	10. Iloilo City	Bacolod	5	5
5	11. Iloilo City	Pulupandan	0	2.5
5	12. Iloilo City	Jordan	0	2.5
0	13. Toledo	San Carlos	0	0
5	14. Cebu City	Tubigon	0	2.5
0	15. Dumaguete	Santander	0	0
0	16. Dumaguete	Dapitan	0	0
0	17. Jagna	Cagayan de Oro	5	2.5
5	18. Zamboanga City	Basilan	0	2.5
5	19. Zamboanga City	Jolo	0	2.5
0	20. San Jose	Puerto Princesa	0	0
0	21. Cavite City	Mariveles	0	0
0	22. Batangas City	Abra de Ilog	0	0
0	23. Lucena City	Balanacan	0	0
0	24. Tabaco	Virac	0	0
0	25. Bulan	Masbate	0	0
0	26. Milagros	Estancia	0	0
0	27. San Jose	New Washington	0	0
5	28. Cebu City	Ormoc	0	2.5
0	29. Ubay	Maasin	0	0
5	30. Davao	Babak	0	2.5
0	31. Roxas	Odiongan	0	0
0	32. Roxas	New Washington	0	0
0	33. Matnog	Masbate	0	0
5	34. Cebu City	Talibon	0	2.5
0	35. Jagna	Mambajao	0	0
0	36. Benoni	Balingoan	0	0
0	37. San Jose	El Nido	0	0
5	38. Cebu City	Tagbilaran	0	2.5
0	39. Lucena City	Sta. Cruz	0	0
0	40. Dumaguete	Larena	0	0
0	41. Guihulngan	Dumanjug	0	0
0	42. Ajuy	Manapla	0	0

Source: JICA Study Team

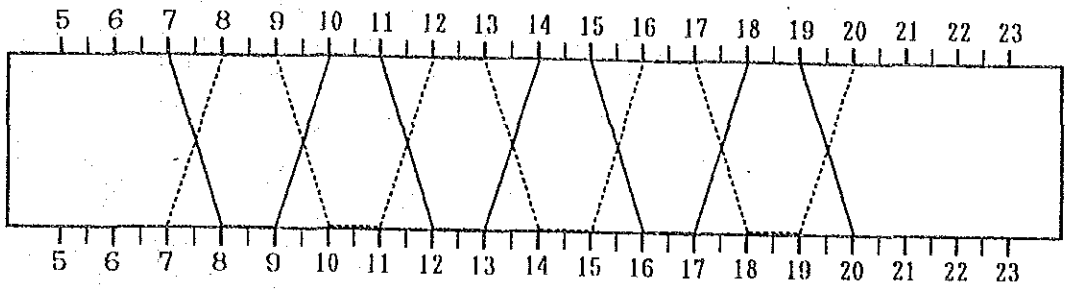
Table A-1-10-13 Priority Ranking of the Study Ports

Existing and Possible Ro/Ro Links		Car Ownership	Road Condition	Through Traffic	Shipping	Cargo	Passenger	Passenger's Request	Ro/Ro Ramps	Const. Cost	Sub Total	Dev't. Policy	Regional Center	Total Points
1. Matnog	Allen	2	5	5	5	25	10	1	5	5	63.0	15	0	78.0
2. Matnog	San Isidro	2	5	5	5	20	10	1	5	10	63.0	15	0	78.0
3. Batangas City	Calapan	4	4	5	5	25	10	1	5	5	64.0	15	0	79.0
4. Liloan	Lipata	2	5	5	5	15	6	1	5	10	54.0	15	0	69.0
5. Argao	Loon	8	3	3	0	10	2	3	0	0	29.0	10	0	39.0
6. Escalante	Tuburan	10	3	5	5	10	6	3	3.5	5	50.5	15	0	65.5
7. Carmen	Isabel	8	2	3	0	5	2	3	0	0	23.0	15	0	38.0
8. Tandayag	Bato	10	3	3	5	10	6	1	2.5	10	50.5	15	0	65.5
9. Tubod	Tangub	6	3	3	5	20	4	1	5	10	57.0	3	0	60.0
10. Iloilo City	Bacolod	6	5	1	3	25	10	1	0	0	51.0	15	5	71.0
11. Iloilo City	Pulupandan	6	5	3	0	15	6	1	0	5	41.0	15	2.5	58.5
12. Iloilo City	Jordan	4	4	1	1	20	10	3	0	10	53.0	5	2.5	60.5
13. Toledo	San Carlos	10	4	3	3	25	10	3	5	0	63.0	15	0	78.0
14. Cebu City	Tubigon	8	3	3	3	20	8	5	0	5	55.0	10	2.5	67.5
15. Dumaguete	Santander	10	3	3	0	15	6	3	2.5	5	47.5	15	0	62.5
16. Dumaguete	Dapitan	4	3	3	3	10	4	5	2.5	10	44.5	15	0	59.5
17. Jagna	Cagayan de Oro	6	4	5	3	10	4	3	2.5	5	42.5	10	2.5	55.0
18. Zamboanga City	Basilan	4	1	3	3	10	10	5	0	5	41.0	5	2.5	48.5
19. Zamboanga City	Jolo	2	1	1	3	15	4	5	0	10	41.0	5	2.5	48.5
21. Cavite City	Mariveles	10	5	3	0	15	6	1	0	0	40.0	3	0	43.0
22. Batangas City	Abra de Ilog	6	3	3	0	10	4	5	5	5	41.0	15	0	56.0
23. Lucena City	Balanacan	2	3	5	5	20	8	1	0	0	44.0	5	0	49.0
24. Tabaco	Virac	4	3	5	3	15	4	3	0	5	42.0	5	0	47.0
25. Bulan	Masbate	2	3	3	3	10	4	3	2.5	5	35.5	10	0	45.5
26. Milagros	Estancia	2	1	3	3	5	2	5	0	0	21.0	10	0	31.0
27. San Jose	New Washington	4	2	3	0	5	2	1	2.5	5	24.5	15	0	39.5
28. Cebu City	Ormoc	8	3	3	3	15	8	5	0	5	50.0	15	2.5	67.5
29. Ubay	Maasin	4	1	3	3	10	4	3	0	0	28.0	10	0	38.0
30. Davao	Babak	8	3	1	1	10	2	5	0	5	35.0	5	2.5	42.5
31. Roxas	Odiongan	2	1	1	1	5	2	5	0	10	27.0	5	0	32.0
32. Roxas	New Washington	4	2	3	0	5	2	3	0	5	24.0	15	0	39.0
33. Matnog	Masbate	2	3	3	0	5	2	3	5	10	33.0	10	0	43.0
34. Cebu	Talibon	8	3	1	3	10	4	3	1.0	0	33.0	10	2.5	45.5
35. Jagna	Mambajao	4	2	3	0	5	4	3	0	5	26.0	5	0	31.0
36. Benoni	Balingoan	6	3	5	3	5	8	3	0	10	43.0	5	0	48.0
38. Cebu City	Tagbilaran	8	4	1	3	25	8	3	2.5	10	64.5	10	2.5	77.0
39. Lucena City	Sta. Cruz	2	3	1	3	10	4	5	0	5	33.0	5	0	38.0
40. Dumaguete	Larena	6	2	1	1	5	2	3	2.5	10	32.5	5	0	37.5
41. Guihulngan	Dumanjug	10	2	5	3	15	4	1	0	10	50.0	15	0	65.0
42. Ajuy	Manapla	6	3	1	1	10	4	3	0	0	28.0	15	0	43.0

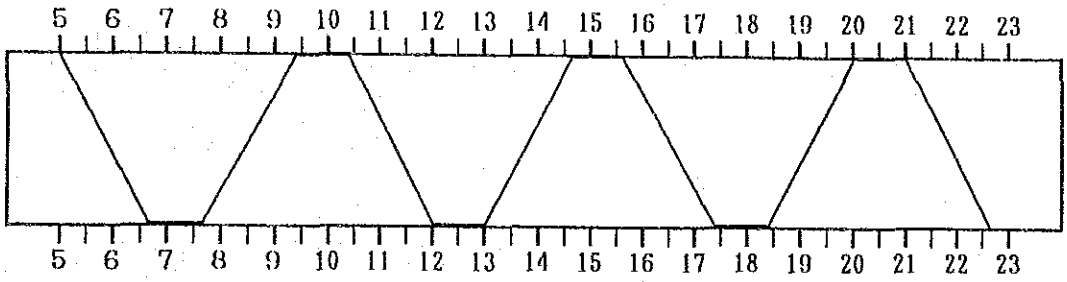
Source: JICA Study Team

Table A-1-11-1(1) Diagram for Each Link

1. Matnog / Allen (13.5 nm) 2,000 G/T×2

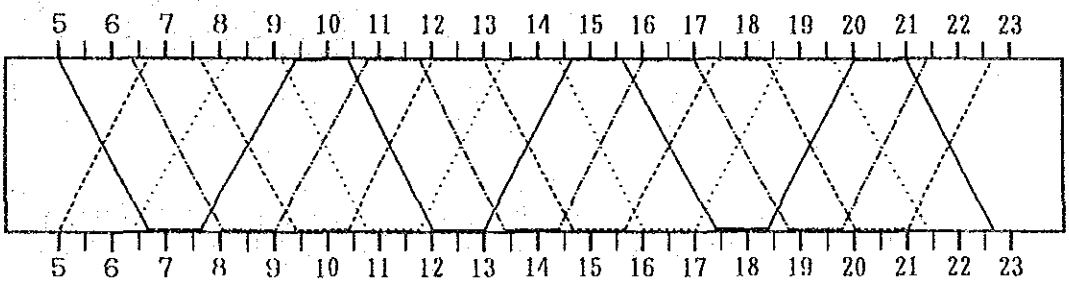


2. Matnog / San Isidro (22.0 nm) 2,000 G/T×1

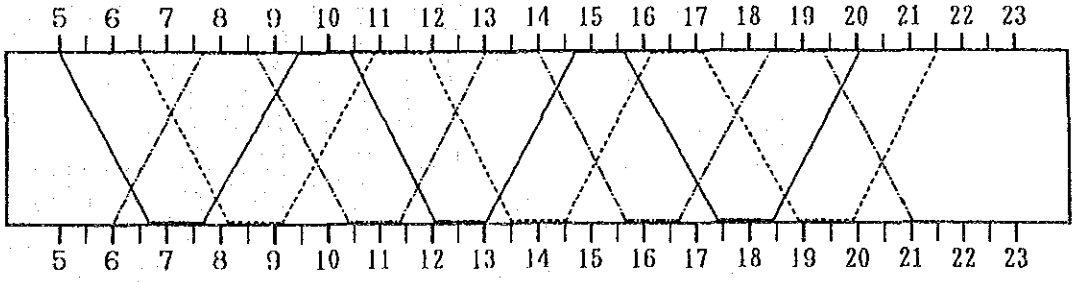


3. Batangas / Calapan (22.0 nm) 2,000 G/T×10

Berth No. 1 2,000 G/T×4 (4V×1+3V×3=13V)



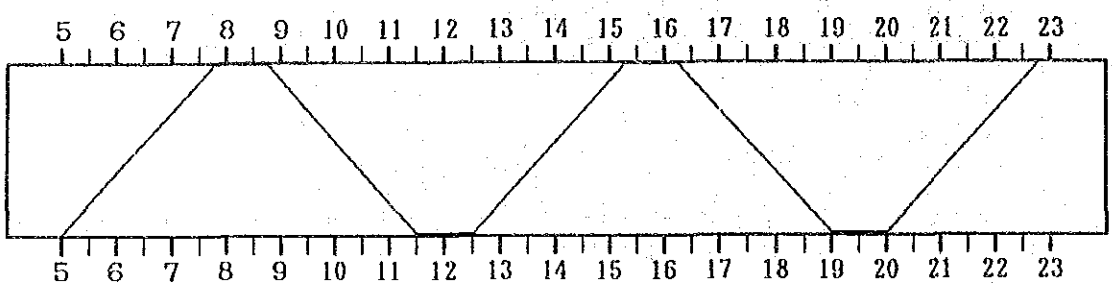
Berth No. 2, No. 3 2,000 G/T×6 (3V×3×2 Berths=18V)



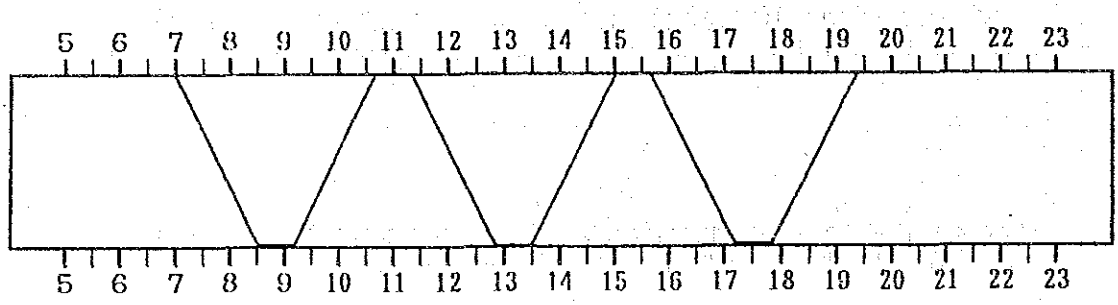
Source: JICA Study Team

Table A-1-11-1(2) Diagram for Each Link

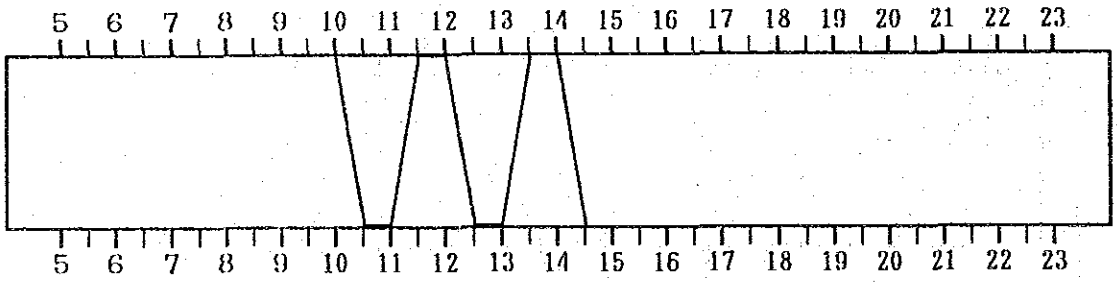
4. Liloan / Lipata (38.0 nm) 2,000 G/T×1



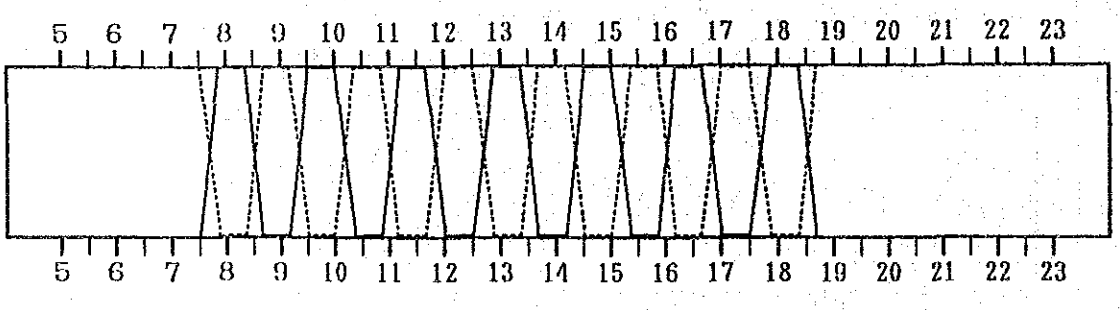
6. Escalante / Tuburan (18.0 nm) 1,000 G/T×1



8. Tandayag / Bato (4.5 nm) 300 G/T×1



9. Tubod / Tangub (3.0 nm) 300 G/T×2

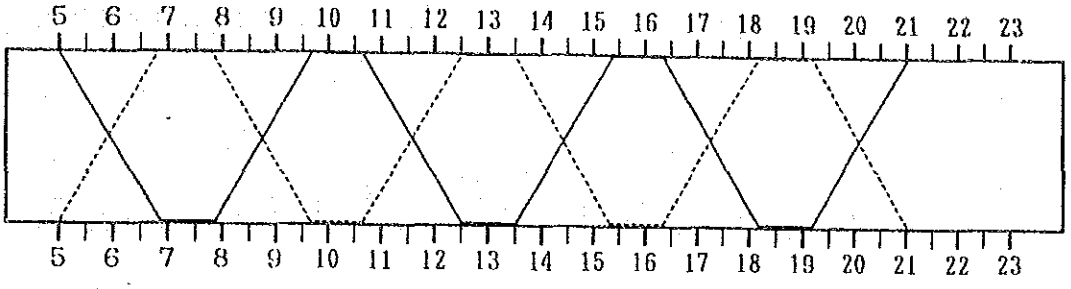


Source: JICA Study Team

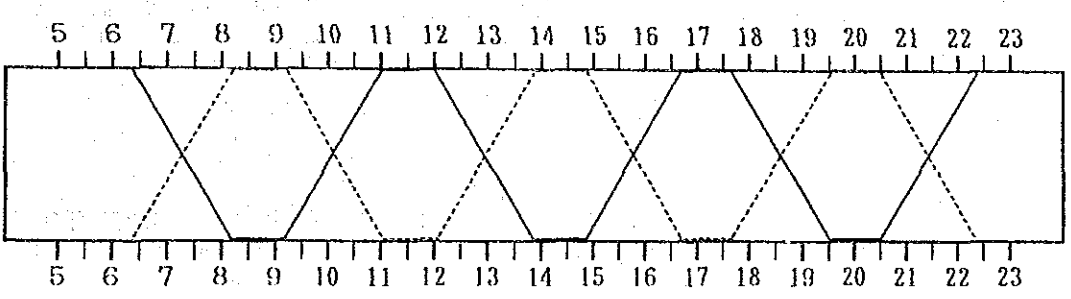
Table A-1-11-1(3) Diagram for Each Link

10. Iloilo / Bacolod (24.0 nm) 2,000 G/T×4

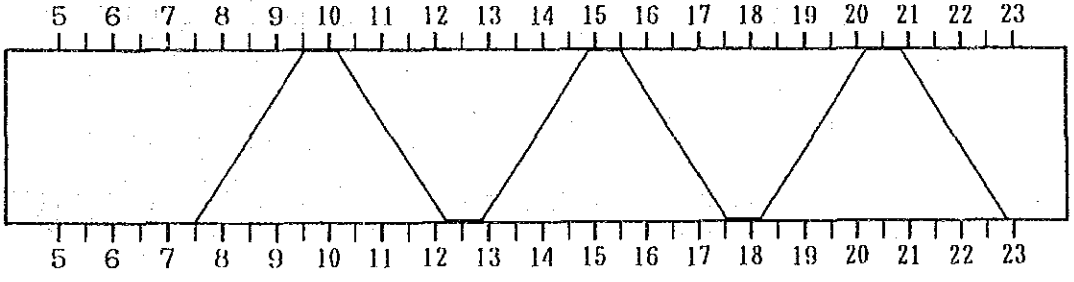
Berth No. 1 (3V×2×1 berth)



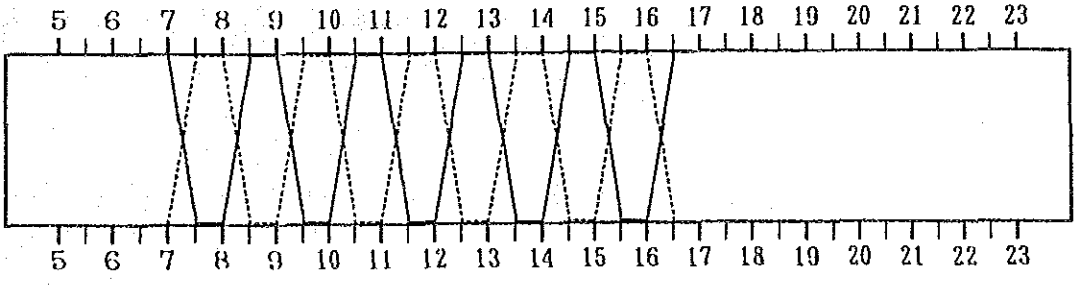
Berth No. 2 (3V×2×1 berth)



11. Iloilo / Pulupandan (25.0 nm) 1,000 G/T×1



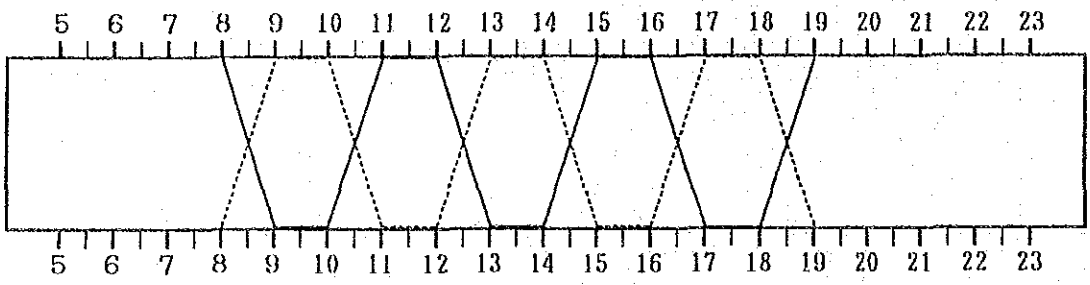
12. Iloilo / Jordan (4.5 nm) 300 G/T×2



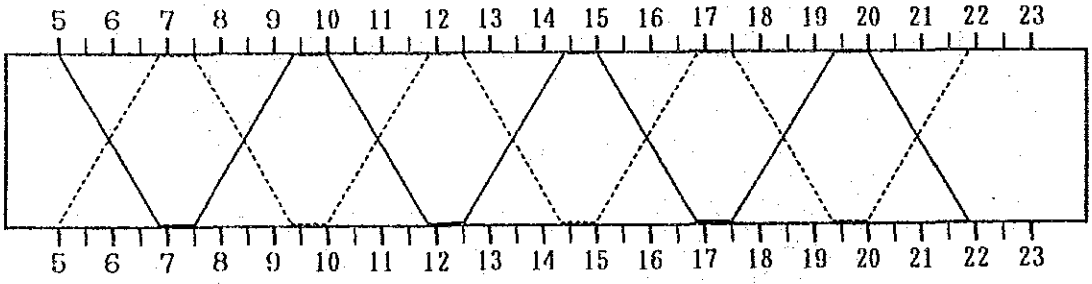
Source: JICA Study Team

Table A-1-11-1(4) Diagram for Each Link

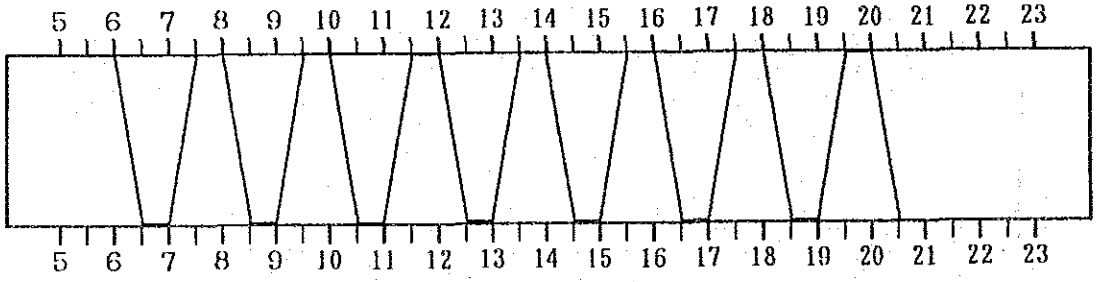
13. Toledo / San Carlas (12.0 nm) 2,000 G/T×2



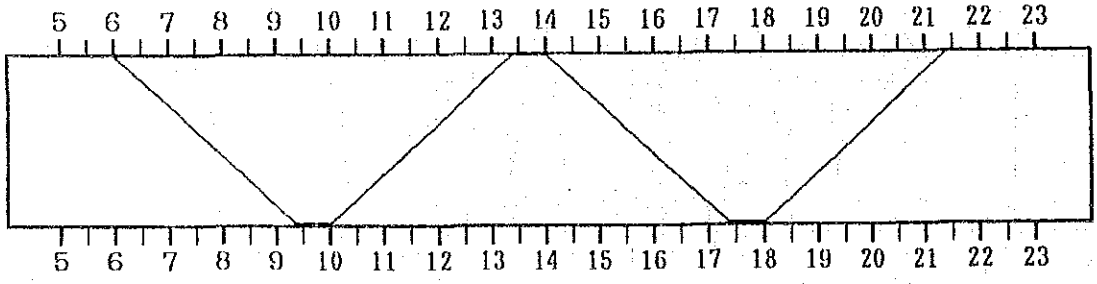
14. Cebu / Tubigon (22.0 nm) 1,000 G/T×2



15. Dumaguete / Santandar (4.5 nm) 300 G/T×1



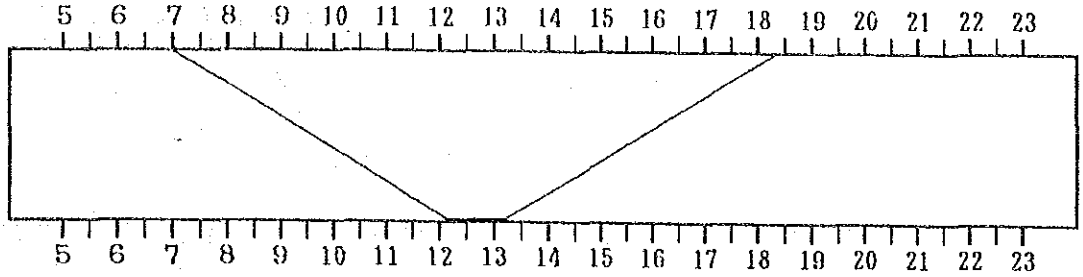
16. Dumaguete / Dapitan (43.0 nm) 1,000 G/T×1



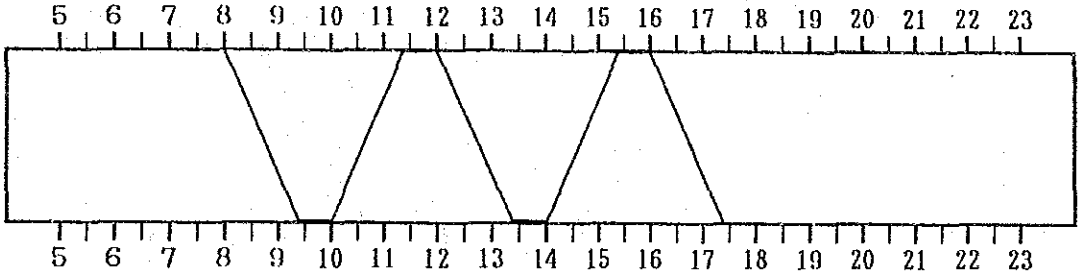
Source: JICA Study Team

Table A-1-11-1(5) Diagram for Each Link

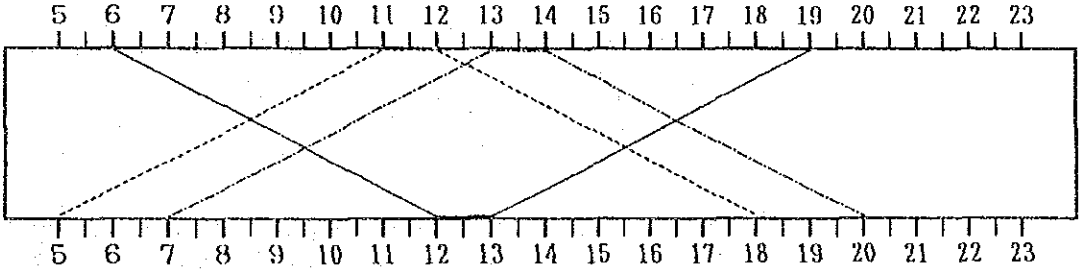
17. Jagna / Cagayan de Oro (72.0 nm) 2,000 G/T×1



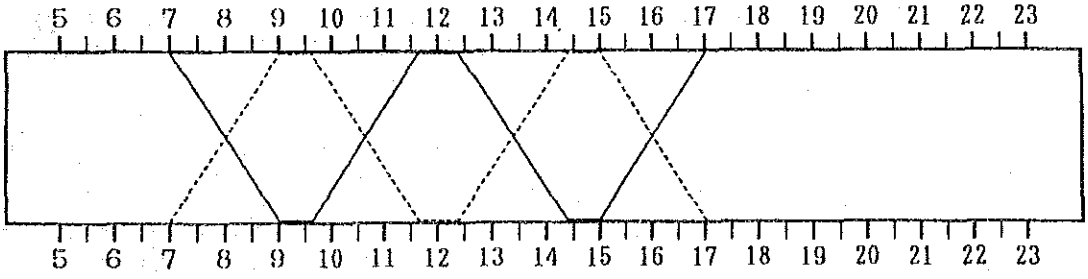
18. Zamboanga / Basilan (16 nm) 1,000 G/T×1



19. Zamboanga / Jolo (83.0 nm) 2,000 G/T×3



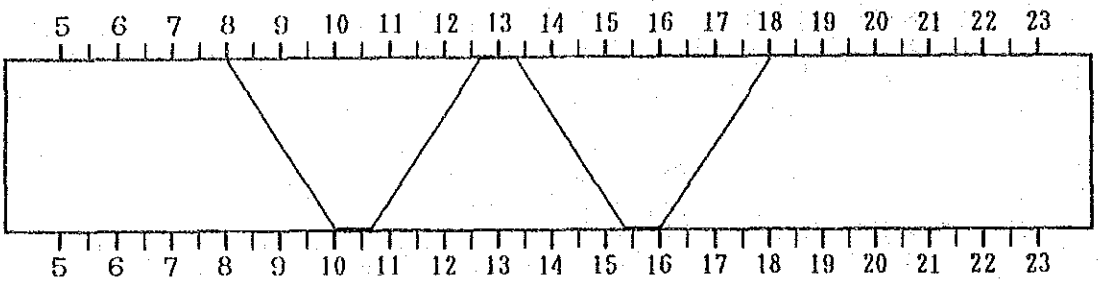
21. Cavite / Mariveles (26.0 nm) 1,000 G/T×2



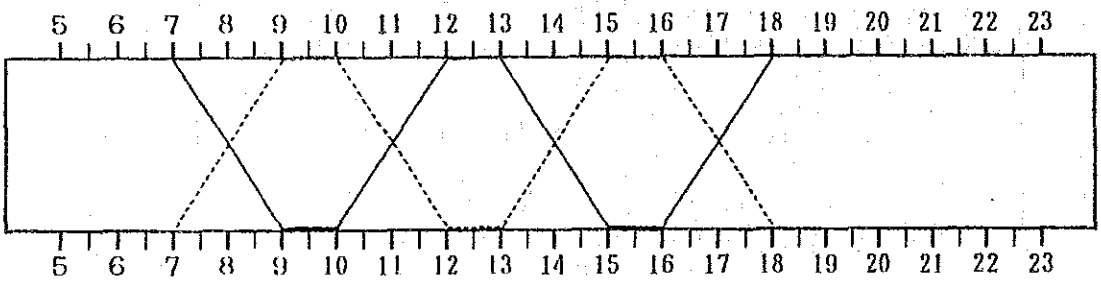
Source: JICA Study Team

Table A-1-11-1(6) Diagram for Each Link

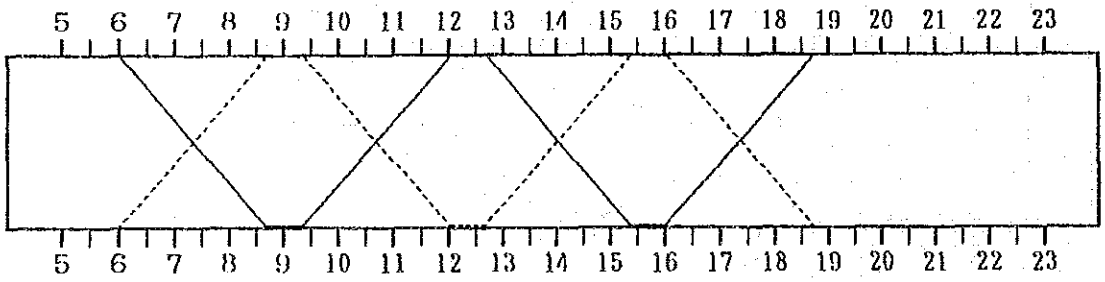
22. Batangas / Abra de Ilog (25.0 nm) 1,000 G/T×1



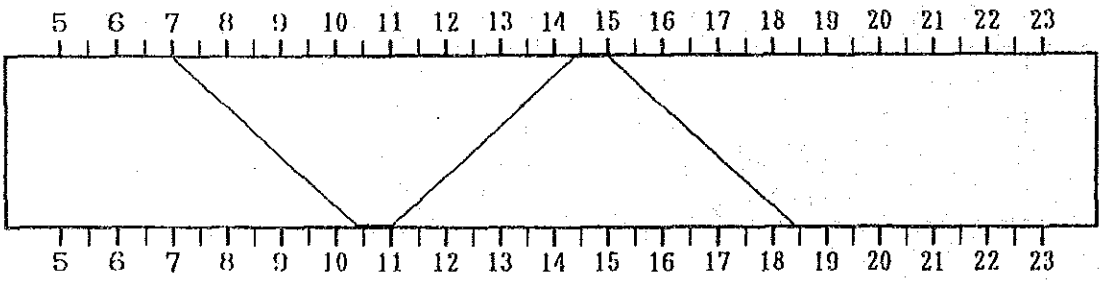
23. Licena / Balanacan (28.0 nm) 2,000 G/T×2



24. Tabaco / Virac (34.0 nm) 1,000 G/T×2



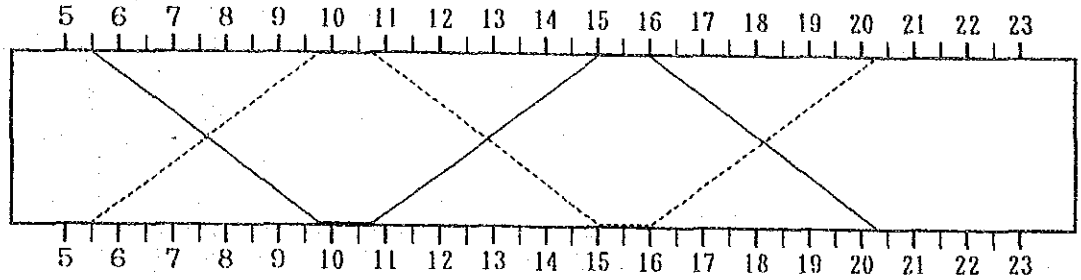
25. Bulan / Masbate (43.0 nm) 1,000 G/T×1



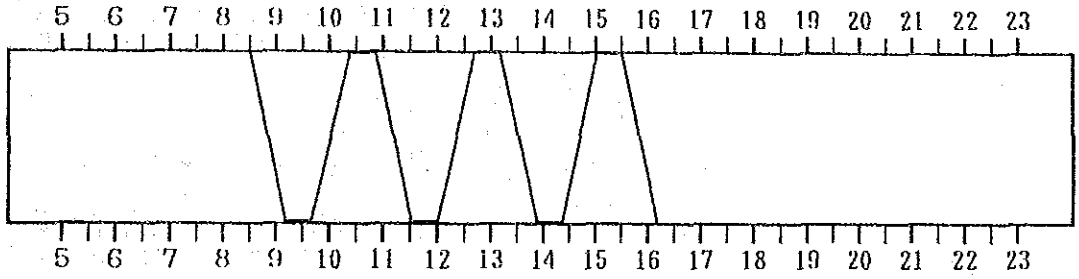
Source: JICA Study Team

Table A-1-11-1(7) Diagram for Each Link

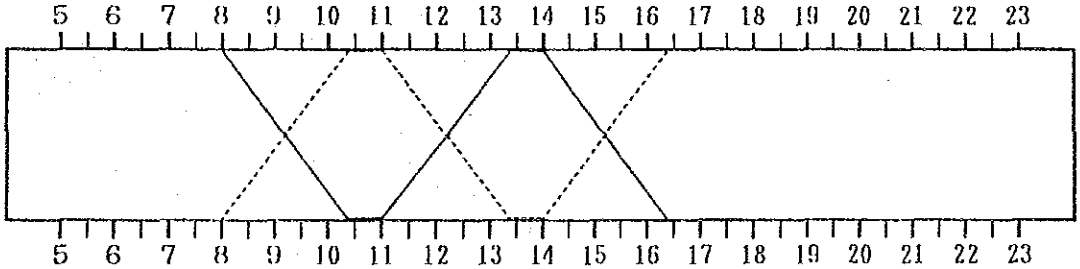
28. Cebu / Ormoc (59.0 nm) 2,000 G/T×2



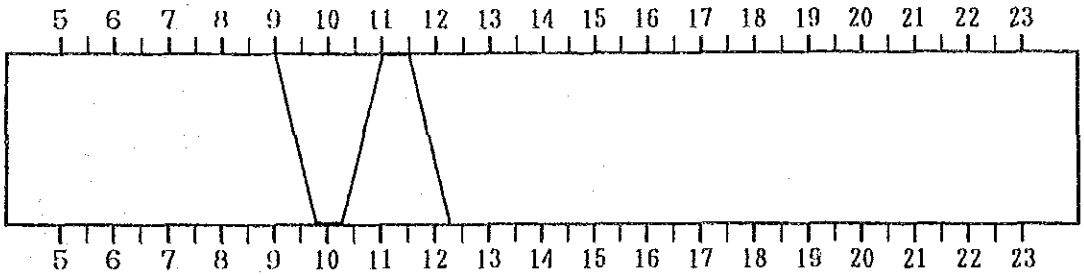
30. Davao / Babak (6.0 nm) 300 G/T×1



34. Cebu / Talibon (30.0 nm) 1,000 G/T×2



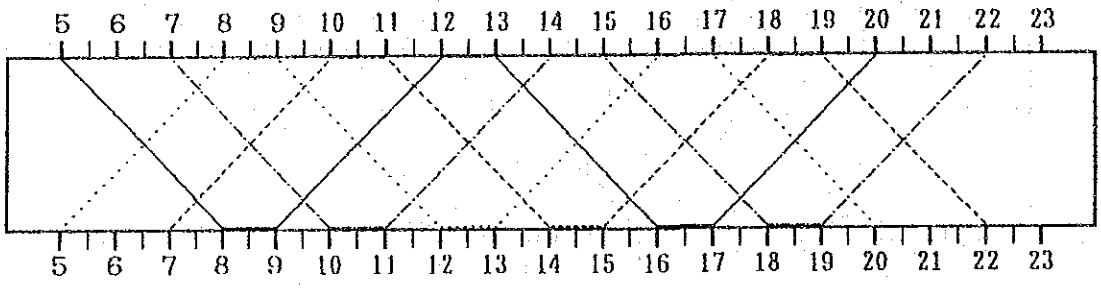
36. Benoni / Balingoan (8.0 nm) 300 G/T×1



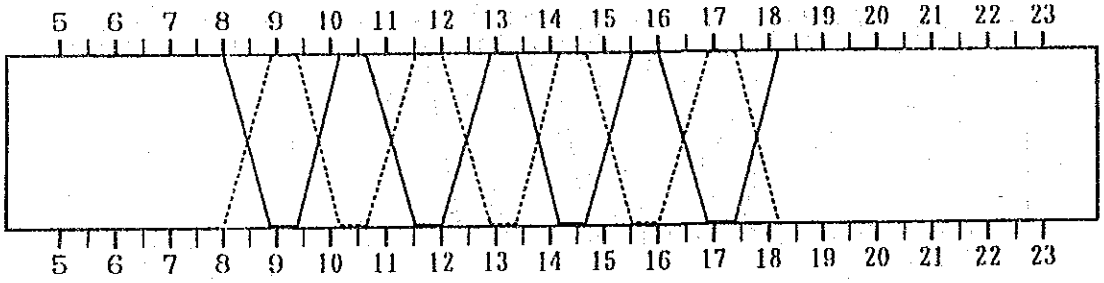
Source: JICA Study Team

Table A-1-11-1(8) Diagram for Each Link

38. Cebu / Tagbilaran (41.0 nm) 2,000 G/T×4



41. Guihulngan / Damanjug (9.0 nm) 300 G/T×2



Source: JICA Study Team

Table A-1-11-2 Required Area for Passenger Terminal

(Passenger Capacity) x (Load Factor) x (Utilization Ratio) x (Concentration Ratio) x (Occupied Area Per Person) x (Extra Space for Management/Operation)

= (Passenger Capacity) x 0.8 x 0.6 x (0.8 ~ 0.9) x 1.2 m^2/passenger x (1.3 ~ 1.5)

2,000 G/T class	1,000 x 0.8 x 0.6 x 0.8 x 1.2 x 1.3 = 599 m^2 ≒ 600 m^2
1,000 G/T class	800 x 0.8 x 0.6 x 0.8 x 1.2 x 1.3 = 479 m^2 ≒ 500 m^2
500 G/T class	500 x 0.8 x 0.6 x 0.9 x 1.2 x 1.5 = 389 m^2 ≒ 400 m^2
300 G/T class	300 x 0.8 x 0.6 x 0.9 x 1.2 x 1.5 = 233 m^2 ≒ 250 m^2

Source: JICA Study Team

Table A-1-11-3 Required Parking Area (300 GRT)

1) For vehicles waiting for rolling - on

Bus	2 Vehicle	x 60	m^2/vehicle	= 120 m^2
Passenger Car	6	x 25	"	= 150 m^2
Truck	3	x 50	"	= 150 m^2
Jeepney	9	x 25	"	= 225 m^2
			[Sub Total	645 m^2]

2) Passengers who are on board a vehicle when leaving the Ro/Ro vessel

Bus	2 Vehicle	x 60 passengers/vehicle	= 120 passengers
Passenger Car	6	x 4 passengers/vehicle	= 24 passengers
			144

3) For vehicles waiting for passengers at the parking lot

It is assumed that 90 % of passengers leaving the vessel on foot use buses or jeepneys. (50 % each)

Bus (300 - 144) x 0.9 x 0.5 ÷ 60 passengers/vehicle x 60 m^2/vehicle = 70 m^2

Jeepney (300 - 144) x 0.9 x 0.5 ÷ 14 passengers/vehicle x 25 m^2/vehicle = 125 m^2

[Sub Total 195 m^2]

4) Parking area will be developed to meet 80 per cent of the vessel's capacity

[1) + 3)] x 0.8 = [645 + 195] x 0.8 = 672 m^2 ≒ 700 m^2

Source: JICA Study Team

Table A-1-11-4 Required Parking Area (500 GRT)

1) For vehicles waiting for rolling - on

Bus	3 x 60 m^2/vehicle	=	180 m^2
Passenger Car	7 x 25 "	=	175 m^2
Truck	4 x 50 "	=	200 m^2
Jeepney	11 x 25 "	=	275 m^2
	[Sub Total		830 m^2]

2) Passengers who are on board a vehicle when leaving the Ro/Ro vessel

Bus	3 Vehicle x 60 passengers/vehicle	=	180 passengers
Passenger Car	7 x 4 passengers/vehicle	=	28 passengers
			208

3) For vehicles waiting for passengers at the parking lot

It is assumed that 90 % of passengers leaving the vessel on foot use buses or jeepneys. (50 % each)

Bus (500 - 208) x 0.9 x 0.5 ÷ 60 passengers/vehicle
x 60 m^2/vehicle = 131 m^2

Jeepney (500 - 208) x 0.9 x 0.5 ÷ 14 passengers/vehicle
x 25 m^2/vehicle = 235 m^2
[Sub Total 366 m^2]

4) Parking area will be developed to meet 80 per cent of the vessel's capacity

[1) + 3)] x 0.8 = [830 + 366] x 0.8 = 957 m^2 ≒ 1,000 m^2

Source: JICA Study Team

Table A-1-11-5 Required Parking Area (1,000 GRT)

1) For vehicles waiting for rolling - on

Bus	4 x 60 m^2/vehicle	=	240 m^2
Passenger Car	11 x 25 "	=	275 m^2
Truck	6 x 50 "	=	300 m^2
Jeepney	16 x 25 "	=	400 m^2
	[Sub Total		1,215 m^2]

2) Passengers who are on board a vehicle when leaving the Ro/Ro vessel

Bus	4 Vehicle x 60 passengers/vehicle	=	240 passengers
Passenger Car	11 x 4 passengers/vehicle	=	44 passengers
			284

3) For vehicles waiting for passengers at the parking lot

It is assumed that 90 % of passengers leaving the vessel on foot use buses or jeepneys. (50 % each)

Bus (800 - 284) x 0.9 x 0.5 ÷ 60 passengers/vehicle x 60 m^2/vehicle = 232 m^2

Jeepney (800 - 284) x 0.9 x 0.5 ÷ 14 passengers/vehicle x 25 m^2/vehicle = 415 m^2
[Sub Total 647 m^2]

4) Parking area will be developed to meet 80 per cent of the vessel's capacity

[1) + 3)] x 0.8 = [1,215 + 647] x 0.8 = 1,490 m^2 ≒ 1,500 m^2

Source: JICA Study Team

Table A-1-11-6 Required Parking Area (2,000 GRT)

1) For vehicles waiting for rolling - on

Bus	6	Vehicles	x 60	m^2/vehicle	= 360 m^2
Passenger Car	16	"	x 25	"	= 400 m^2
Truck	9	"	x 50	"	= 450 m^2
Jeepney	25	"	x 25	"	= 625 m^2
				[Sub Total	1,835 m^2]

2) Passenger who are on board a vehicle when leaving the Ro/Ro vessel

Bus	6	Vehicle	x 60 passengers/vehicle	= 360 passengers
Passenger Car	16		x 4 passengers/vehicle	= 64 passengers
				424

3) For vehicles waiting for passengers at the parking lot

It is assumed that 90 % of passengers leaving the vessel on foot use buses or jeepneys. (50 % each)

Bus (1,000 - 424) x 0.9 x 0.5 ÷ 60 passengers/vehicle x 60 m^2/vehicle = 259 m^2

Jeepney (1,000 - 424) x 0.9 x 0.5 ÷ 14 passengers/vehicle x 25 m^2/vehicle = 463 m^2

[Sub Total 722 m^2]

4) Parking area will be developed to meet 80 per cent of the vessel's capacity

[1) + 3)] x 0.8 = [1,835 + 722] x 0.8 = 2,046 m^2 ≒ 2,000 m^2

Source: JICA Study Team

Table A-1-11-7(1) Summary of the Existing Facility and Requied Facility

LINK No.	(PORT No.) PORT NAME	DESTINATION	EXISTING FACILITIES			REQUIRED FACILITIES			COST	TOTAL COST
			ITEM	TYPE	SIZE	ADD/NEW	TYPE	QUANTITIES	(1000 P)	(1000 P)
	(3)		BERTHING			NEW	-5.5m RC PIER	126 m	21,168	
			WATERWAY							
			RO/RO RAMP			NEW	RC FIXED TYPE	1 set	5,168	
23	LUCENA	BALANACAN	ACCESS WAY			NEW	RECLAMATION	1000 m2	4,500	49,336
			PASSENGER SHED			NEW	RC BLDG.	600 m2	6,600	
			PARKING SPACE			NEW	RECLAMATION	2600 m2	11,700	
			ACCESS ROAD							
	2000GRT		WATER LINE			NEW	CITY WATER	1 set	100	
			ELECTRISITY			NEW	CITY SUPPLY	1 set	100	
	(4)		BERTHING							
			WATERWAY				DREDGING(ADD)	7500 m3	750	
			RO/RO RAMP							
3	BATANGAS	CALAPAN	ACCESS WAY							750
			PASSENGER SHED	CONSOLIDATED FERRY TERMINAL						
			PARKING SPACE	WILL BE IMPLEMENTED SOON						
			ACCESS ROAD							
	2000GRT		WATER LINE							
			ELECTRISITY							
	(4)		BERTHING							
			WATERWAY				DREDGING(ADD)	5000 m3	500	
			RO/RO RAMP							
22	BATANGAS	ABRA DE ILOG	ACCESS WAY							500
			PASSENGER SHED		- ditto -					
			PARKING SPACE							
			ACCESS ROAD							
	1000GRT		WATER LINE							
			ELECTRISITY							
	(5)		BERTHING	-5.0m WHARF	104 m	NEW	-5.5 m PIER	115 m	19,320	
			WATERWAY	-5.0 m DEPTH		ADDITIONAL	DREDGING	7500 m3	750	
			RO/RO RAMP	RC FIXED TYPE		NEW	RC FIXED TYPE	2 set	8,720	
3	CALAPAN	BATANGAS	ACCESS WAY	RECLAMATION						57,540
			PASSENGER SHED	TERMINAL BLDG.	576 m2	ADDTIONAL	RC BLDG.	1524 m2	16,764	
			PARKING SPACE		4800 m2	ADDTIONAL	RECLAMATION	2724 m2	11,986	
			ACCESS ROAD	2-LANE RC.PAVED	DIRECT CONNECT					
	2000GRT		WATER LINE	CITY WATER						
			ELECTRISITY	FLOOD LIGHT	7 POLES					

SOURCE: JICA Study Team

Table A-1-11-7(2) Summary of the Existing Facility and Requied Facility

LINK No.	(PORT No.) PORT NAME	DESTINATION	EXISTING FACILITIES ITEM	TYPE	SIZE	REQUIRED FACILITIES ADD/NEW	TYPE	QUANTITIES	COST (1000 P)	TOTAL COST (1000 P)
23	(9) BALANACAN 2000GRT	LUCENA	BERTHING	-5.0m RC PIER	9m x 35m	NEW	-5.5m RC PIER	126 m	21,168	65,256
			WATERWAY			NEW	DREDGING	20000 m3	2,000	
			RO/RO RAMP	NO		NEW	RC FIXED TYPE	1 set	8,048	
			ACCESS WAY	RECLAMATION		REINFORCEMENT	SUPERSTRUCTURE	315 m2	1,890	
			PASSENGER SHED	NO		NEW	RC BLDG.	600 m2	6,600	
			PARKING SPACE	NO		NEW	RECLAMATION	2600 m2	25,350	
			ACCESS ROAD	2-LANE RC PAVED	DIRECT CONNECT					
			WATER LINE	NO		NEW	CITY WATER	1 set	100	
			ELECTRISITY	TEMPORARY		NEW	CITY SUPPLY	1 set	100	
24	(14) TABACO 1000GRT	VIRAC	BERTHING	-9.0m RC PIER	12m x 229m	REINFORCEMENT	SUPERSTRUCTURE	2748 m2	18,336	24,976
			WATERWAY							
			RO/RO RAMP	NO		NEW	RC FIXED TYPE	1 set	2,800	
			ACCESS WAY	RECLAMATION						
			PASSENGER SHED	UNDER CONSTRUCTION						
			PARKING SPACE		650 m2	ADDITIONAL	RECLAMATION	850 m2	3,740	
			ACCESS ROAD		DIRECT CONNECT					
			WATER LINE	NO		NEW	CITY WATER	1 set	100	
			ELECTRISITY	UNDER CONSTRUCTION						
1	(15) MATNOG 2000GRT	ALLEN	BERTHING	-5.0m RC PIER	100 m	ADDITIONAL	-5.5m RC PIER	92 m	15,456	19,676
			WATERWAY			ADDITIONAL	DREDGING	10000 m3	1,000	
			RO/RO RAMP	RC RAMP	2.2m x 3.0m *1	NEW	RC FIXED TYPE	1 set	3,220	
			ACCESS WAY	RC TRESTLE	90 m					
			PASSENGER SHED	TERMINAL BLDG.	1800 m2					
			PARKING SPACE		3200 m2					
			ACCESS ROAD	2-LANE RC. PAVED	DIRECT CONNECT					
			WATER LINE	DEEP WELL						
			ELECTRISITY	LIGHT SYSTEM						
2	(15) MATNOG 2000GRT	SAN ISIDORO	BERTHING			ADDITIONAL	-5.5m RC PIER	92 m	15,456	19,676
			WATERWAY			ADDITIONAL	DREDGING	10000 m3	1,000	
			RO/RO RAMP			NEW	RC FIXED TYPE	1 set	3,220	
			ACCESS WAY							
			PASSENGER SHED	- ditto -						
			PARKING SPACE							
			ACCESS ROAD							
			WATER LINE							
			ELECTRISITY							

SOURCE: JICA Study Team

Note : *1 : Not sufficient dimension

Table A-1-11-7(3) Summary of the Existing Facility and Requied Facility

LINK No.	(PORT No.) PORT NAME	DESTINATION	EXISTING FACILITIES			REQUIRED FACILITIES			COST	TOTAL COST
			ITEM	TYPE	SIZE	ADD/NEW	TYPE	QUANTITIES	(1000 P)	(1000 P)
	(16)		BERTHING	-2.0m RC PIER	8.3m x 99m	REINFORCEMENT	RC PIER *2	99 m	8,375	
			WATERWAY	-2.0m DEPTH		ADDITIONAL	DREDGING	25000 m3	5,000	
			RO/RO RAMP	NO		NEW	RC FIXED TYPE	1 set	4,768	
25	BULAN	MASBATE	ACCESS WAY	ROCK CAUSEWAY	5.7m x 248m	ADDITIONAL	ROCK CAUSEWAY	248 m	1,240	33,943
			PASSENGER SHED	NO		NEW	RC BLDG.	500 m2	5,500	
			PARKING SPACE	NO		NEW	RECLAMATION	2000 m2	8,460	
			ACCESS ROAD	RC PAVED	DIRECT CONNECT					
	1000GRT		WATER LINE	NO		NEW	CITY WATER	1 set	300	
			ELECTRISITY	NO		NEW	CITY SUPPLY	1 set	300	
	(17)		BERTHING	-7.0m RC PIER	15m x 141m	REINFORCEMENT	SUPERSTRUCTURE	2115 m2	12,690	
			WATERWAY							
			RO/RO RAMP	NO		NEW	RC FIXED TYPE	1 set	1,400	
24	VIRAC	TABACO	ACCESS WAY	RECLAMATION						23,770
			PASSENGER SHED		150 m2	NEW	RC BLDG.	500 m2	5,500	
			PARKING SPACE		1200 m2	ADDITIONAL	RECLAMATION	800 m2	4,080	
			ACCESS ROAD	2-LANE RC PAVED	8m x 50 m					
	1000GRT		WATER LINE	NO		NEW	CITY WATER	1 set	100	
			ELECTRISITY	LIGHT POST	4					
	(18)		BERTHING	-10m RC PIER	10m x 207m	REINFORCEMENT	SUPERSTRUCTURE	2070 m2	12,420	
			WATERWAY							
			RO/RO RAMP	RC RAMP	8m x 5m *1	NEW	RC FIXED TYPE	1 set	7,648	
25	MASBATE	BULAN	ACCESS WAY							34,458
			PASSENGER SHED	TERMINAL BLDG.	150 m2	ADDITIONAL	RC BLDG.	500 m2	5,500	
			PARKING SPACE	NO		NEW	RECLAMATION	2000 m2	8,800	
			ACCESS ROAD		DIRECT CONNECT					
	1000GRT		WATER LINE	NO		NEW	CITY WATER	1 set	100	
			ELECTRISITY	LIGHT POST	10					
	(20)		BERTHING	-6.0m RC PIER	12m x 345m	NEW	-5.5m RC PIER	163 m	27,221	
			WATERWAY			NEW	DREDGING	40000 m3	4,000	
			RO/RO RAMP	NO		NEW	RC FIXED RAMP	2 set	20,185	
10	ILOILO	BACOLOD	ACCESS WAY	RECLAMATION						104,202
			PASSENGER SHED	TERMINAL BLDG.	1250 m2	ADDITIONAL	RC BLDG.	1200 m2	13,200	
			PARKING SPACE			NEW	RECLAMATION	8130 m2	39,496	
			ACCESS ROAD	RC PAVED	DIRECT CONNECT					
	2000GRT		WATER LINE	SHALLOW WELL	COMPLETE SYSTEM	ADDITIONAL	PIPE LINE	1 set	50	
			ELECTRISITY	MERCURY LAMP	COMPLETE SYSTEM	ADDITIONAL	LIGHT SYSTEM	1 set	50	

SOURCE: JICA Study Team

Note : *1 : Not suitable position
*2 : Including rehabilitation of superstructure and enwiden by 3.7m

Table A-1-11-7(4) Summary of the Existing Facility and Requied Facility

LINK No.	(PORT No.) PORT NAME	DESTINATION	EXISTING FACILITIES ITEM	TYPE	SIZE	REQUIRED FACILITIES ADD/NEW	TYPE	QUANTITIES	COST (1000 P)	TOTAL COST (1000 P)
11	(20) ILOILO 1000GRT	PULUPANDAN	BERTHING	-6.0m RC PIER	12m x 345m	NEW	-4.5m RC PIER	106 m	14,840	22,488
			WATERWAY							
			RO/RO RAMP	NO		NEW	RC FIXED TYPE	1 set	7,648	
			ACCESS WAY	RECLAMATION						
			PASSENGER SHED	TERMINAL BLDG.	1250 m2					
			PARKING SPACE		9200 m2					
			ACCESS ROAD	RC PAVED	DIRECT CONNECT					
			WATER LINE	SHALLOW WELL	COMPLETE SYSTEM					
			ELECTRISITY	MERCURY LAMP	COMPLETE SYSTEM					
12	(20) ILOILO 300GRT	JORDAN	BERTHING			NEW	-3.0m RC PIER	75 m	9,450	16,284
			WATERWAY							
			RO/RO RAMP			NEW	RC FIXED TYPE	1 set	6,834	
			ACCESS WAY							
			PASSENGER SHED	- ditto -						
			PARKING SPACE							
			ACCESS ROAD							
			WATER LINE							
			ELECTRISITY							
22	(23) ABRA de ILOG 1000GRT	BATANGAS	BERTHING	-4.0m RC PIER	9m x 60m	NEW	-4.5m RC PIER	106 m	14,840	43,418
			WATERWAY							
			RO/RO RAMP	RC FIXED RAMP	7m x 4m *1	NEW	RC FIXED RAMP	1 set	4,768	
			ACCESS WAY	ROCK CAUSEWAY		REINFORCEMENT	SUPERSTRUCTURE	540 m2	3,240	
			PASSENGER SHED	NO		NEW	RC BLDG.	500 m2	5,500	
			PARKING SPACE	NO		NEW	RECLAMATION	2000 m2	14,900	
			ACCESS ROAD	2-LANE RC PAVED	UNDER PAVEING					
			WATER LINE	DEEP WELL						
			ELECTRISITY	NO		NEW	CITY SUPPLY	1 set	170	
12	(24) JORDAN 300GRT	ILOILO	BERTHING	-1.5m CAUSEWAY	6m x 10m	NEW	-3.0m RC PIER	75 m	9,450	21,234
			WATERWAY							
			RO/RO RAMP	NO		NEW	RC FIXED TYPE	1 set	6,834	
			ACCESS WAY	ROCK CAUSEWAY	6m x 94m					
			PASSENGER SHED	NO		NEW	RC BLDG.	250 m2	2,750	
			PARKING SPACE	NO		NEW	ON LAND FILL	1000 m2	2,000	
			ACCESS ROAD		DIRECT CONNECT					
			WATER LINE	NO		NEW	CITY WATER	1 set	100	
			ELECTRISITY	NO		NEW	CITY SUPPLY	1 set	100	

SOURCE: JICA Study Team

Note : *1 : Not sufficient dimension

Table A-1-11-7(5) Summary of the Existing Facility and Requied Facility

LINK No.	(PORT No.) PORT NAME	DESTINATION	EXISTING FACILITIES			REQUIRED FACILITIES			COST (1000 P)	TOTAL COST (1000 P)
			ITEM	TYPE	SIZE	ADD/NEW	TYPE	QUANTITIES		
	(25)		BERTHING	-4.0m RC PIER	12 m x 118m	NEW	-5.5m RC PIER	115 m	19,435	
			WATERWAY							
			RO/RO RAMP	MOVABLE RAMP *1		NEW	RC FIXED TYPE	2 set	6,324	
10	BACOLOD	ILOILO	ACCESS WAY	CAUSEWAY/PIER		ADDITIONAL	RC TRSTLE	732 m	49,044	135,167
			PASSENGER SHED			NEW	OFFSHORE BLDG.	1500 m2	51,645	
			PARKING SPACE			NEW	RECLAMATION	1590 m2	7,632	
			ACCESS ROAD	2-LANE PAVED	130 m	ADDITIONAL	RC PAVEMENT	910 m2	637	
	2000GRT		WATER LINE	DEEP WELL		ADDITIONAL	PIPE LINE	1 set	225	
			ELECTRISITY	LIGHT POST		ADDITIONAL		1 set	225	
	(26)		BERTHING	-3.0m RC PIER	12m x 178.5m	REINFORCEMENT	SUPERSTRUCTURE	2142 m2	12,852	
			WATERWAY	-3 TO -5m DEPTH		DREDGING DOWN TO -5m by IBRD PROJECT				
			RO/RO RAMP	NO		NEW	RC FIXED TYPE	1 set	7,648	
11	PULUPANDAN	ILOILO	ACCESS WAY	RC TRESTLE	12m x 200m					40,900
			PASSENGER SHED	NO		NEW	RC BLDG.	500 m2	5,500	
			PARKING SPACE	NO		NEW	RECLAMATION	2000 m2	14,900	
			ACCESS ROAD	RC PAVED	500 m					
	1000GRT		WATER LINE	WATER BURGE						
			ELECTRISITY	LIGHT SYSTEM						
	(27)		BERTHING	-3 TO -7m PIER	9m x 129m	REINFORCEMENT	RC PIER *3	129 m	9,546	
			WATERWAY							
			RO/RO RAMP	RC RAMP	9m x 11m *2	NEW	RC FIXED TYPE	1 set	8,048	
13	SAN CARLOS	TOLEDO	ACCESS WAY	ROCK CAUSEWAY	9m x 250m					42,188
			PASSENGER SHED	TERMINAL BLDG.	72 m2	NEW	RC BLDG.	600 m2	6,600	
			PARKING SPACE	NO		NEW	RECLAMATION	2600 m2	15,444	
			ACCESS ROAD	2-LANE RC PAVED	500 m	ADDITIONAL	RC PAVEMENT	3500 m2	2,450	
	2000GRT		WATER LINE	NO		NEW	CITY WATER	1 set	100	
			ELECTRISITY	LIGHT SYSTEM						
	(28)		BERTHING	NO		NEW	-4.5 m RC PIER	106 m	14,840	
			WATERWAY							
			RO/RO RAMP	RC FIXED TYPE		NEW	RC FIXED TYPE	1 set	4,768	
6	ESCALANTE	TUBURAN	ACCESS WAY	NO		NEW	RC TRESTLE	30 m	2,010	31,618
			PASSENGER SHED	NO		NEW	RC BLDG.	500 m2	5,500	
			PARKING SPACE		500 m2	ADDITIONAL	RECLAMATION	1000 m2	4,400	
			ACCESS ROAD	PAVED/UNPAVED	DIRECT CONNECT					
	1000GRT		WATER LINE	NO		NEW	CITY WATER	1 set	100	
			ELECTRISITY	LIGHT POST	12					

SOURCE: JICA Study Team

Note : *1 : Not sufficient dimension
*2 : Not suitable position
*3 : Including reinforcement of superstructure and enwiden by 3m

Table A-1-11-7(6) Summary of the Existing Facility and Requied Facility

LINK No.	(PORT No.) PORT NAME	DESTINATION	EXISTING FACILITIES			REQUIRED FACILITIES			COST	TOTAL COST
			ITEM	TYPE	SIZE	ADD/NEW	TYPE	QUANTITIES	(1000 P)	(1000 P)
16	(30) DUMAGUETE 1000GRT	DAPITAN	BERTHING	-3.0m RC PIER	18m x 142m	REINFORCEMENT	SUPERSTRUCTURE	2556 m2	15,336	16,086
			WATERWAY	-1.5 TO -7.5m		ADDITIONAL	DREDGING	7500 m3	750	
			RO/RO RAMP	RC RAMP	9m x 11m					
			ACCESS WAY	RECLAMATION						
			PASSENGER SHED	TERMINAL BLDG.	175 m2					
			PARKING SPACE		720 m2					
			ACCESS ROAD		DIRECT CONNECT					
			WATER LINE	2.5" PIPE LINE						
			ELECTRISITY	LIGHT POST	15					
15	(30) DUMAGUETE 300GRT	SANTANDER	BERTHING			REINFORCEMENT	SUPERSTRUCTURE	2556 m2	15,336	15,636
			WATERWAY			ADDITIONAL	DREDGING	3000 m3	300	
			RO/RO RAMP							
			ACCESS WAY							
			PASSENGER SHED	- ditto -						
			PARKING SPACE							
			ACCESS ROAD							
			WATER LINE							
			ELECTRISITY							
8	(31) TANDAYAG 300GRT	BATO	BERTHING	-3.0m RC PIER		ADDITIONAL	RC PIER	75 m	9,450	19,252
			WATERWAY							
			RO/RO RAMP	RC RAMP #1	22m x 18m	NEW	RC FIXED TYPE	1 set	3,610	
			ACCESS WAY	TIMBER TRESTLE	7m x 6m	NEW	RC TRESTLE	6 m	402	
			PASSENGER SHED		28 m2	ADDITIONAL	RC BLDG.	230 m2	2,530	
			PARKING SPACE		140 m2	ADDITIONAL	RECLAMATION	500 m2	2,200	
			ACCESS ROAD	2-LANE ROADWAY	200 m	NEW	RC PAVED	1400 m2	980	
			WATER LINE	NO		NEW	CITY WATER	1 set	80	
			ELECTRISITY	LIGHT POST	5					
41	(32) GUIHULNGAN 300GRT	DUMANJUG	BERTHING	-4.7m RC PIER	7m x 72m	REINFORCEMENT	RC PIER #2	72 m	5,328	17,585
			WATERWAY							
			RO/RO RAMP	NO		NEW	RC FIXED TYPE	1 set	1,225	
			ACCESS WAY	ROCK CAUSEWAY	6.5m x 104m					
			PASSENGER SHED	NO		NEW	RC BLDG.	250 m2	2,750	
			PARKING SPACE	NO		NEW	RECLAMATION	950 m2	7,448	
			ACCESS ROAD	ASPHALT PAVED	6 m x 150 m	ADDITIONAL	RC PAVED	1050 m2	735	
			WATER LINE	NO		NEW	CITY WATER	1 set	100	
			ELECTRISITY	LIGHT POST	3					

SOURCE: JICA Study Team

Note : #1 : Not suitable position
#2 : Including reinforcement of superstructure and enwiden by 3.0m

Table A-1-11-7(7) Summary of the Existing Facility and Requied Facility

LINK No.	(PORT No.) PORT NAME	DESTINATION	EXISTING FACILITIES ITEM	TYPE	SIZE	REQUIRED FACILITIES ADD/NEW	TYPE	QUANTITIES		TOTAL COST (1000 P)
14	(33) CEBU 1000GRT	TUBIGON	BERTHING	-9.0m RC PIER	32.8m x 155m	REINFORCEMENT*1	SUPERSTRUCTURE	1900 m2	12,940	15,740
			WATERWAY							
			RO/RO RAMP	NO		NEW	RC FIXED TYPE	1 set	2,800	
			ACCESS WAY							
			PASSENGER SHED	TERMINAL BLDG.	720 m2					
			PARKING SPACE	OPEN SPACE	342,000 m2					
			ACCESS ROAD		DIRECT CONNECT					
			WATER LINE	WATER SYSTEM	COMPLETE SYSTEM					
			ELECTRISITY	CITY SUPPLY	COMPLETE SYSTEM*2					
28	(33) CEBU 2000GRT	ORMOC	BERTHING	-9.0m RC PIER	32.8m x 155m	REINFORCEMENT*1	SUPERSTRUCTURE	2300 m2	15,648	18,848
			WATERWAY							
			RO/RO RAMP	NO		NEW	RC FIXED TYPE	1 set	3,200	
			ACCESS WAY							
			PASSENGER SHED	TERMINAL BLDG.	720 m2					
			PARKING SPACE	OPEN SPACE	342,000 m2					
			ACCESS ROAD		DIRECT CONNECT					
			WATER LINE	WATER SYSTEM	COMPLETE SYSTEM					
			ELECTRISITY	CITY SUPPLY	COMPLETE SYSTEM*2					
34	(33) CEBU 1000GRT	TALIBON	BERTHING	-9.0m RC PIER	32.8m x 155m	NO NEED TO CONSTRUCT NEW FACILY FOR THIS FERRY LINK FACILITIES FOR CEBU - ORMOC LINK CAN BE UTILISED FOR THIS LINK				
			WATERWAY							
			RO/RO RAMP	NO						
			ACCESS WAY							
			PASSENGER SHED	TERMINAL BLDG.	720 m2					
			PARKING SPACE	OPEN SPACE	342,000 m2					
			ACCESS ROAD		DIRECT CONNECT					
			WATER LINE	WATER SYSTEM	COMPLETE SYSTEM					
			ELECTRISITY	CITY SUPPLY	COMPLETE SYSTEM					
38	(33) CEBU 2000GRT	TAGBILARAN	BERTHING	-9.0m RC PIER	32.8m x 155m	REINFORCEMENT*1	SUPERSTRUCTURE	2300 m2	15,648	18,848
			WATERWAY							
			RO/RO RAMP	NO		NEW	RC FIXED TYPE	1 set	3,200	
			ACCESS WAY							
			PASSENGER SHED	TERMINAL BLDG.	720 m2					
			PARKING SPACE	OPEN SPACE	342,000 m2					
			ACCESS ROAD		DIRECT CONNECT					
			WATER LINE	WATER SYSTEM	COMPLETE SYSTEM					
			ELECTRISITY	CITY SUPPLY	COMPLETE SYSTEM*2					

SOURCE: JICA Study Team

Note: *1 Cost of the small light beacon at the edge of pier is included in the cost of berth
*2 Exsisting lighting of pier will be utilized for Ro/Ro operation

Table A-1-11-7(8) Summary of the Existing Facility and Requied Facility

LINK No.	(PORT No.) PORT NAME	DESTINATION	EXISTING FACILITIES			REQUIRED FACILITIES				TOTAL COST (1000 P)
			ITEM	TYPE	SIZE	ADD/NEW	TYPE	QUANTITIES		
6	(35) TUBURAN 1000GRT	ESCALANTE	BERTHING	-3.0m RC PIER	9.8m x 46.5m	NEW	-4.5m RC PIER	106 m	14,840	42,828
			WATERWAY							
			RO/RO RAMP	WOODEN RAMP	4.6m x 4.5m *1	NEW	RC FIXED TYPE	1 set	4,768	
			ACCESS WAY	CAUSEWAY	6.0m x 120m	ADDITIONAL	RC TRESTLE	125 m	8,375	
			PASSENGER SHED	NO		NEW	RC BLDG.	500 m2	5,500	
			PARKING SPACE	NO		NEW	RECLAMATION	2000 m2	8,800	
			ACCESS ROAD	UNPAVED	50 m	NEW	RC PAVED	350 m2	245	
			WATER LINE	CITY WATER		ADDITIONAL	PIPE LINE	1 set	150	
			ELECTRISITY	LIGHT POST	12	ADDITIONAL	LIGHT POST	1 set	150	
13	(36) TOLEDO 2000GRT	SAN CARLOS	BERTHING	-4.0m RC PIER	12m x 200m	NEW	-5.5m RC PIER	126 m	21,168	61,113
			WATERWAY							
			RO/RO RAMP	RC RAMP	9m x 11m *2	NEW	RC FIXED TYPE	1 set	3,200	
			ACCESS WAY	RC TRESTLE		REINFORCEMENT	SUPERSTRUCTURE	2400 m2	14,400	
			PASSENGER SHED	NO		NEW	RC BLDG.	600 m2	6,600	
			PARKING SPACE	NO		NEW	RECLAMATION	2600 m2	14,820	
			ACCESS ROAD	2-LANE RC PAVED	10 m x 75 m	ADDITIONAL	RC PAVEMENT	750 m2	525	
			WATER LINE	NO		NEW	CITY WATER	1 set	200	
			ELECTRISITY	LIGHT POST	1	ADDITIONAL	CITY SUPPLY	1 set	200	
41	(37) DUMANJUG 300GRT	GUIHULUNGAN	BERTHING	-3.0m WOOD PIER		NEW	-3.0m RC PIER	75 m	9,450	19,782
			WATERWAY							
			RO/RO RAMP	NO		NEW	RC FIXED TYPE	1 set	4,010	
			ACCESS WAY	ROCK CAUSEWAY	7m x 120m					
			PASSENGER SHED	NO		NEW	RC BLDG.	250 m2	2,750	
			PARKING SPACE	NO		NEW	RECLAMATION	700 m2	3,080	
			ACCESS ROAD	2-LANE UNPAVED	80 m	NEW	RC PAVED	560 m2	392	
			WATER LINE	NO		NEW	CITY WATER	1 set	100	
			ELECTRISITY	LIGHT POST	4					
8	(38) BATO 300GRT	TANDAYAG	BERTHING	-2.2m RC PIER	6m x 16.1m	ADDITIONAL	-3.0m RC PIER	75 m2	9,450	21,556
			WATERWAY	-2.2m DEPTH		ADDTIONAL	DREDGING	10000 m3	1,000	
			RO/RO RAMP	NO		NEW	RC FIXED TYPE	1 set	4,010	
			ACCESS WAY	RECLAMATION		REINFORCEMENT	SUPERSTRUCTURE	96 m2	576	
			PASSENGER SHED	NO		NEW	RC BLDG.	250 m2	2,750	
			PARKING SPACE	NO		NEW	RECLAMATION	700 m2	3,080	
			ACCESS ROAD	RC PAVED	100 m	ADDITIONAL	RC PAVEMENT	700 m2	490	
			WATER LINE	NO		NEW	CITY WATER	1 set	100	
			ELECTRISITY	NO		NEW	LIGHT SYSTEM	1 set	100	

SOURCE: JICA Study Team

Note : *1 : Not suitable position , not sufficient dimension
*2 : Not suitable position

Table A-1-11-7(9) Summary of the Existing Facility and Requied Facility

LINK No.	(PORT No.) PORT NAME	DESTINATION	EXISTING FACILITIES			REQUIRED FACILITIES				TOTAL COST (1000 P)
			ITEM	TYPE	SIZE	ADD/NEW	TYPE	QUANTITIES		
	(39)		BERTHING	NO		NEW	-3.0m RC PIER	75 m	9,450	
			WATERWAY							
			RO/RO RAMP	NO		NEW	RC FIXED TYPE	1 set	4,010	
15	SANTANDER	DUMAGUETE	ACCESS WAY	NO		NEW	ROCK CAUSEWAY	200 m	20,000	39,935
			PASSENGER SHED	NO		NEW	RC BLDG.	250 m2	2,750	
			PARKING SPACE	NO		NEW	RECLAMATION	700 m2	3,080	
			ACCESS ROAD	UNPAVED ROAD	50 m	NEW	RC PAVED	350 m2	245	
	300GRT		WATER LINE	NO		NEW	CITY WATER	1 set	200	
			ELECTRISITY	NO		NEW	CITY SUPPLY	1 set	200	
	(42)		BERTHING	-2.0m WHARF	9m x 125m	NEW	-4.5m RC PIER	106 m	14,840	
			WATERWAY							
			RO/RO RAMP	RC RAMP	8m x 10m *1	NEW	RC FIXED TYPE	1 set	4,768	
34	TALIBON	CEBU	ACCESS WAY	ROCK CAUSEWAY	9m x 578m	ADDITIONAL	ROCK CAUSEWAY	250 m	25,000	65,248
			PASSENGER SHED	NO		NEW	RC BLDG.	500 m2	5,500	
			PARKING SPACE	NO		NEW	RECLAMATION	2000 m2	14,060	
			ACCESS ROAD		DIRECT CONNECT					
	1000GRT		WATER LINE	NO		NEW	CITY WATER	830 set	830	
			ELECTRISITY	MERCURY LAMP		ADDITIONAL	CITY SUPPLY	250 set	250	
	(43)		BERTHING	-4.0m RC PIER	9m x 29m	NEW	-4.5m RC PIER	106	14,840	
			WATERWAY							
			RO/RO RAMP	NO		NEW	RC FIXED TYPE	1 set	7,648	
14	TUBIGON	CEBU	ACCESS WAY	CAUSEWAY/PIER	700m / 114m	REINFORCEMENT	SUPERSTRUCTURE	1026 m2	6,156	48,284
			PASSENGER SHED	TERMINAL BLDG.	100 m2	ADDITIONAL	RC BLDG.	400 m2	4,400	
			PARKING SPACE	NO		NEW	RECLAMATION	1900 m2	14,440	
			ACCESS ROAD		DIRECT CONNECT					
	1000GRT		WATER LINE	NO		NEW	CITY WATER	1 set	800	
			ELECTRISITY	MERCURY LAMP	6					
	(45)		BERTHING	-8m RC WHARF	83m x 130m					
			WATERWAY							
			RO/RO RAMP	RC FIXED RAMP	10m x 8m					
38	TAGBILARAN	CEBU	ACCESS WAY	ROCK CAUSEWAY	10m x 405m					21,264
			PASSENGER SHED	TERMINAL BLDG.	UNDER COST.	ADDITIONAL	RC BLDG.	350 m2	3,850	
			PARKING SPACE	NO		NEW	RECLAMATION	2350 m2	17,014	
			ACCESS ROAD		DIRECT CONNECT					
	2000GRT		WATER LINE	NO		NEW	CITY WATER	1 set	400	
			ELECTRISITY	UNDER CONSTRUCTION						

SOURCE: JICA Study Team

Note : *1 : Not suitable position

Table A-1-11-7(10) Summary of the Existing Facility and Requied Facility

LINK No.	(PORT No.) PORT NAME	DESTINATION	EXISTING FACILITIES			REQUIRED FACILITIES				TOTAL COST (1000 P)
			ITEM	TYPE	SIZE	ADD/NEW	TYPE	QUANTITIES		
17	(46) JAGNA 2000GRT	C. de. ORO	BERTHING	-4.8m RC PIER	12m x 57m	ADDITIONAL	RC PIER	83.5 m	14,028	38,616
			WATERWAY	-5m DEPTH		ADDITIONAL	DREDGING	3000 m3	300	
			RO/RO RAMP	NO		NEW	RC FIXED TYPE	1 set	8,048	
			ACCESS WAY	RC TRESTLE	12 m x 45 m	REINFORCEMENT	SUPERSTRUCTURE	540 m2	3,240	
			PASSENGER SHED		30 m2	NEW	RC BLDG.	600 m2	6,600	
			PARKING SPACE	NO		NEW	RECLAMATION	2100 m2	6,300	
			ACCESS ROAD		DIRECT CONNECT					
			WATER LINE	NO		NEW	CITY WATER	1 set	100	
			ELECTRISITY	MERCURY LAMP	4					
1	(49) ALLEN 2000GRT	MATNOG	BERTHING	CAUSEWAY	30 m	NEW	-5.5m RC PIER	126 m	21,168	41,870
			WATERWAY	-4.0 to -6.0 m						
			RO/RO RAMP	RC FIXED TYPE	3.0 m x 2.5 m	NEW	RC FIXED TYPE	1 set	4,612	
			ACCESS WAY	CAUSEWAY	50 m x 15 m					
			PASSENGER SHED	NO		NEW	RC BLDG.	600 m2	6,600	
			PARKING SPACE	NO		NEW	RECLAMATION	2000 m2	8,800	
			ACCESS ROAD	UNPAVED	100 m	NEW	RC PAVED	700 m2	490	
			WATER LINE	NO		NEW	CITY WATER	1 set	100	
			ELECTRISITY	2 LIGHT POST		ADDITIONAL		1 set	100	
2	(50) SAN ISIDORO 2000GRT	MATNOG	BERTHING	-5.0m RC PIER	75 m					5,420
			WATERWAY							
			RO/RO RAMP	RC FIXED TYPE	2.2 m x 3 m *1	NEW	RC FIXED TYPE	1 set	3,220	
			ACCESS WAY	CAUSEWAY	28 m x 55 m					
			PASSENGER SHED	TERMINAL BLDG.	1800 m2					
			PARKING SPACE		1500 m2	ADDITIONAL	RECLAMATION	500 m2	2,200	
			ACCESS ROAD	2-LANE RC.PAVED	DIRECT CONNECT					
			WATER LINE	DEEP WELL						
			ELECTRISITY	NO		NEW	CITY SUPPLY	1 set		
28	(51) ORMOC 2000GRT	CEBU	BERTHING	-4.0m RC PIER	13m x 285m	REINFORCEMENT	SUPERSTRUCTURE	3705 m2	22,230	50,140
			WATERWAY	-4.0 TO -5.0m		ADDITIONAL	DREDGING	50000 m3	5,000	
			RO/RO RAMP	NO		UNDER CONSTRUCTION				
			ACCESS WAY	RC TRESTLE	8.3m x 320m					
			PASSENGER SHED	NO		NEW	RC BLDG.	600 m2	6,600	
			PARKING SPACE	NO		NEW	RECLAMATION	2600 m2	15,990	
			ACCESS ROAD		DIRECT CONNECT					
			WATER LINE	NO		NEW	CITY WATER	1 set	320	
			ELECTRISITY			NEW				

SOURCE: JICA Study Team

Note : *1 : Not sufficient dimension

Table A-1-11-7(11) Summary of the Existing Facility and Requied Facility

LINK No.	(PORT No.) PORT NAME	DESTINATION	EXISTING FACILITIES			REQUIRED FACILITIES				TOTAL COST (1000 P)
			ITEM	TYPE	SIZE	ADD/NEW	TYPE	QUANTITIES		
4	(54) LILOAN 2000GRT	LIPATA	BERTHING	-4.5 m WHARF	75 m	ADDITIONAL	-5.5 m RC PIER	40 m	6,720	11,920
			WATERWAY			ADDITIONAL	DREDGING	20000 m3	2,000	
			RO/RO RAMP	RC RAMP	7m x 9m	NEW	RC FIXED RAMP	1 set	3,200	
			ACCESS WAY	RECLAMATION						
			PASSENGER SHED	TERMINAL BLDG.	1375 m2					
			PARKING SPACE		3452 m2					
			ACCESS ROAD	RC PAVED	DIRECT CONNECT					
			WATER LINE	DEEPWELL						
			ELECTRISITY	MERCURY LIGHT						
16	(55) DAPITAN 1000GRT	DUMAGUETE	BERTHING	-9.0m RC PIER	9m x 99m	REINFORCEMENT	RC PIER *1	99 m	10,054	20,229
			WATERWAY							
			RO/RO RAMP	NO		NEW	RC FIXED TYPE	1 set	2,800	
			ACCESS WAY	ROCK CAUSEWAY						
			PASSENGER SHED	TERMINAL BLDG.	225 m2	ADDITIONAL	RC BLDG.	225 m2	2,475	
			PARKING SPACE		500 m2	CONVERT OF OPEN SPACE				
			ACCESS ROAD	ASPHALT PAVED	1000 m	ADDITIONAL	RC PAVEMENT	7000 m2	4,900	
			WATER LINE	WATER TANK						
			ELECTRISITY	MERCURY LIGHT	10					
18	(56) ZAMBOANGA 1000GRT	BASILAN	BERTHING	-5.0m RC PIER	12 m x 178 m	REINFORCEMENT	SUPERSTRUCTURE	1140 m2	8,688	11,888
			WATERWAY							
			RO/RO RAMP	NO		NEW	RC FIXED TYPE	1 set	3,200	
			ACCESS WAY	RECLAMATION						
			PASSENGER SHED	TERMINAL BLDG.	1620 m2					
			PARKING SPACE		5000 m2					
			ACCESS ROAD		DIRECT CONNECT					
			WATER LINE	4" PIPE LINE						
			ELECTRISITY	LIGHT POST						
19	(56) ZAMBOANGA 2000GRT	JOLO	BERTHING			REINFORCEMENT	SUPERSTRUCTURE	1380 m2	10,128	13,328
			WATERWAY							
			RO/RO RAMP			NEW	RC FIXED TYPE	1 set	3,200	
			ACCESS WAY							
			PASSENGER SHED	- ditto -						
			PARKING SPACE							
			ACCESS ROAD							
			WATER LINE							
			ELECTRISITY							

SOURCE: JICA Study Team

Note : *1 : Including reinforcement of superstructure and enwiden by 3.0m

Table A-1-11-7(12) Summary of the Existing Facility and Requied Facility

LINK No.	(PORT No.) PORT NAME	DESTINATION	EXISTING FACILITIES ITEM	TYPE	SIZE	REQUIRED FACILITIES ADD/NEW	TYPE	QUANTITIES		TOTAL COST (1000 P)
18	(57) BASILAN 1000GRT	ZAMBOANGA	BERTHING	-5.0m RC PIER	9m x 225m	REINFORCEMENT	RC PIER *1	225 m	15,300	42,948
			WATERWAY							
			RO/RO RAMP	NO		NEW	RC FIXED TYPE	1 set	7,648	
			ACCESS WAY	RC PIER						
			PASSENGER SHED	TERMINAL BLDG.	91 m2	NEW	RC BLDG.	500 m2	5,500	
			PARKING SPACE	NO		NEW	RECLAMATION	2000 m2	14,400	
			ACCESS ROAD		DIRECT CONNECT					
			WATER LINE	NO		NEW	CITY WATER	1 set	100	
			ELECTRISITY	LAMP POST	5					
19	(58) JOLO 2000GRT	ZAMBOANGA	BERTHING	-4.0m RC PIER	12m x 73.6m	ADDITIONAL	-5.5 RC PIER	67 m	11,256	16,456
			WATERWAY	-4.0m DEPTH		ADDITIONAL	DREDGING	12000 m3	1,200	
			RO/RO RAMP	NO		NEW	RC FIXED TYPE	1 set	3,200	
			ACCESS WAY	RECLAMATION						
			PASSENGER SHED	TERMINAL BLDG.	1600 m2					
			PARKING SPACE		1600 m2					
			ACCESS ROAD	ASPHALT PAVED	10 m x 100 m	NEW	RC PAVEMENT	1000 m2	700	
			WATER LINE	4" PIPE LINE						
			ELECTRISITY	NO		NEW	CITY SUPPLY	1 set	100	
17	(59) C. de ORO 2000GRT	JAGNA	BERTHING	-8.5m RC WHARF	290m					8,048
			WATERWAY							
			RO/RO RAMP	NO		NEW	RC FIXED TYPE	1 set	8,048	
			ACCESS WAY	RECLAMATION						
			PASSENGER SHED	TERMINAL BLDG.	2100 m2					
			PARKING SPACE		10651 m2					
			ACCESS ROAD		DIRECT CONNECT					
			WATER LINE	CITY WATER	COMPLETE SYSTEM					
			ELECTRISITY	LIGHT SYSTEM	COMPLETE SYSTEM					
36	(60) BALINGOAN 300RGT	BENONI	BERTHING	-4.0m RC PIER	9.0m x 90m	REINFORCEMENT	RC PIER *1	90 m	6,660	18,245
			WATERWAY							
			RO/RO RAMP	NO		NEW	RC FIXED TYPE	1 set	1,225	
			ACCESS WAY							
			PASSENGER SHED	NO		NEW	RC BLDG.	250 m2	2,750	
			PARKING SPACE		450 m2	ADDITIONAL	RECLAMATION	500 m2	6,920	
			ACCESS ROAD	2-LANE RC PAVED	6 m x 100 m	NEW	RC PAVED	700 m2	490	
			WATER LINE	NO		NEW	CITY WATER	1 set	100	
			ELECTRISITY	NO		NEW	CITY SUPPLY	1 set	100	

SOURCE: JICA Study Team

Note : *1 : Including reinforcement of superstructure and enwiden by 3.0m

Table A-1-11-7(13) Summary of the Existing Facility and Requied Facility

LINK No.	(PORT No.) PORT NAME	DESTINATION	EXISTING FACILITIES ITEM	TYPE	SIZE	REQUIRED FACILITIES ADD/NEW	TYPE	QUANTITIES		TOTAL COST (1000 P)
	(61)		BERTHING	-3.0m WHARF		NEW	-3.0m RC PIER	75 m	9,450	
			WATERWAY							
			RO/RO RAMP	RC RAMP	10m x 15m *1	NEW	RC FIXED TYPE	1 set	4,010	
9	TANGUB	TUBUD	ACCESS WAY	ROCK CAUSEWAY	6.8m x 63m	ADDITIONAL	PAVEMENT	400 m2	280	20,990
			PASSENGER SHED	NO		NEW	RC BLDG.	250 m2	2,750	
			PARKING SPACE	NO		NEW	RECLAMATION	1000 m2	4,400	
			ACCESS ROAD	UNPAVED	DIRECT CONNECT					
	300GRT		WATER LINE	NO		NEW	CITY WATER	1 set	100	
			ELECTRISITY	LIGHT POST	2					
	(62)		BERTHING	-4.5 m WHARF	75 m	ADDITIONAL	-5.5m RC PIER	40 m	6,720	
			WATERWAY	-4.5 m DEPTH		ADDITIONAL	DREDGING	20000 m3	2,000	
			RO/RO RAMP	RC FIXED RAMP	7m x 9m		RC FIXED RAMP	1 set	3,200	
4	LIPATA	LILOAN	ACCESS WAY	RECLAMATION						11,920
			PASSENGER SHED	TERMINAL BLDG.	1432 m2					
			PARKING SPACE		1588.5 m2					
			ACCESS ROAD	2-LANE RC.PAVED	DIRECT CONNECT					
	2000GRT		WATER LINE	DEEPWELL						
			ELECTRISITY	MERCURY LIGHT						
	(64)		BERTHING	-8m RC PIER	9m x 50m	REINFORCEMENT	RC PIER *2	50 m	3,720	
			WATERWAY							
			RO/RO RAMP	NO		NEW	RC FIXED TYPE	1 set	1,225	
36	BENONI	BALINGOAN	ACCESS WAY							18,245
			PASSENGER SHED	TERMINAL	67.5 m2	ADDITIONAL	RC BLDG.	250 m2	2,750	
			PARKING SPACE	NO		NEW	RECLAMATION	1000 m2	9,960	
			ACCESS ROAD	2-LANE RC PAVED	6 m x 50 m	NEW	RC PAVED	700 m2	490	
	300GRT		WATER LINE	NO		NEW	CITY WATER	1 set	100	
			ELECTRISITY	SODIUM etc.	5					
	(65)		BERTHING	-4.0m RC PIER	9m x 96m	REINFORCEMENT	SUPERSTRUCTURE	864 m2	5,184	
			WATERWAY							
			RO/RO RAMP	RC RAMP	5m x 7m	NEW	RC FIXED TYPE	1 set	6,834	
9	TUBUD	TANGUB	ACCESS WAY	ROCK CAUSEWAY	7m x 60m					18,462
			PASSENGER SHED	NO		NEW	RC BLDG.	250 m2	2,750	
			PARKING SPACE		200 m2	ADDITIONAL	RECLAMATION	750 m2	3,300	
			ACCESS ROAD	RC PAVED	60 m	ADDITIONAL	RC PAVEMENT	420 m2	294	
	300GRT		WATER LINE	NO		NEW	CITY WATER	1 set	100	
			ELECTRISITY	LIGHT POST	8					

SOURCE: JICA Study Team

Note : *1 : Not suitable position / damaged
*2 : Including reinforcement of superstructure and enwiden by 1m

VOLUME II

Note A-2-3-1 Data Analysis of Natural Condition

A. Tide

1. Tide observation was carried out for Iloilo and Bacolod and analyzed by harmonic analysis. Observation record and the result of harmonic analysis are shown below.

2. For the design work, M.H.H.W (mean highest high water) or M.L.L.W (mean lowest low water) are utilized. These informations generally are obtained through harmonic analysis and in this study showed as follows.

	Iloilo	Bacolod
MHHW	1.92 m	1.92 m
MLLW	+0.15 m	-0.32 m

3. Datum line is based on the elevation of benchmark. Both current and tide record have seasonal changes, so that, one year observation will be needed to provide the more accurate result.

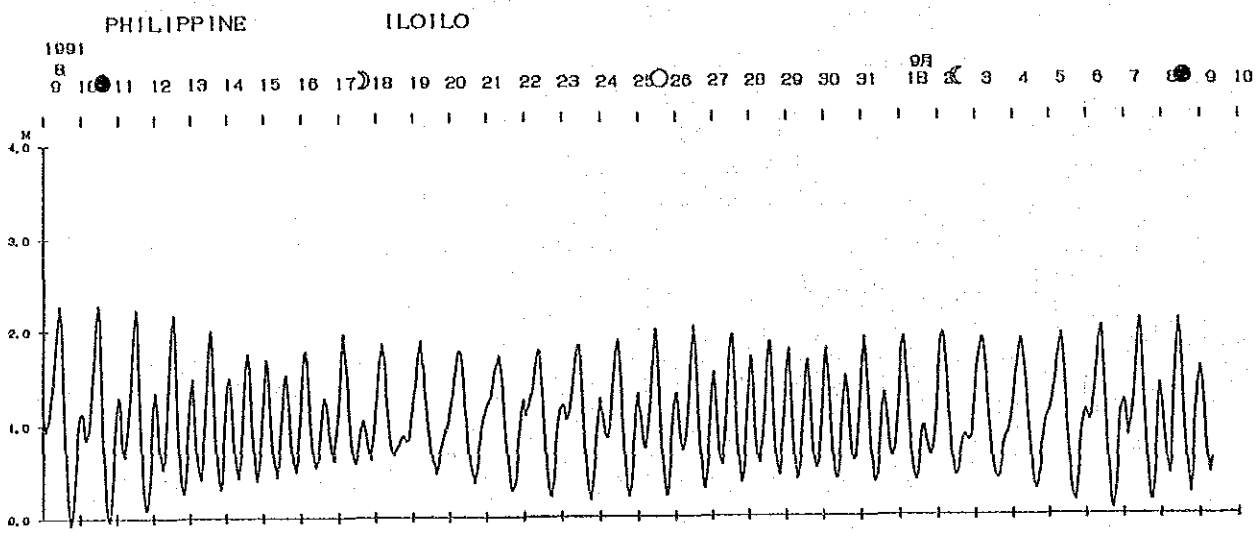


Figure N-2-3-1.1 Tidal Curves (Iloilo)

Source: JICA Study Team

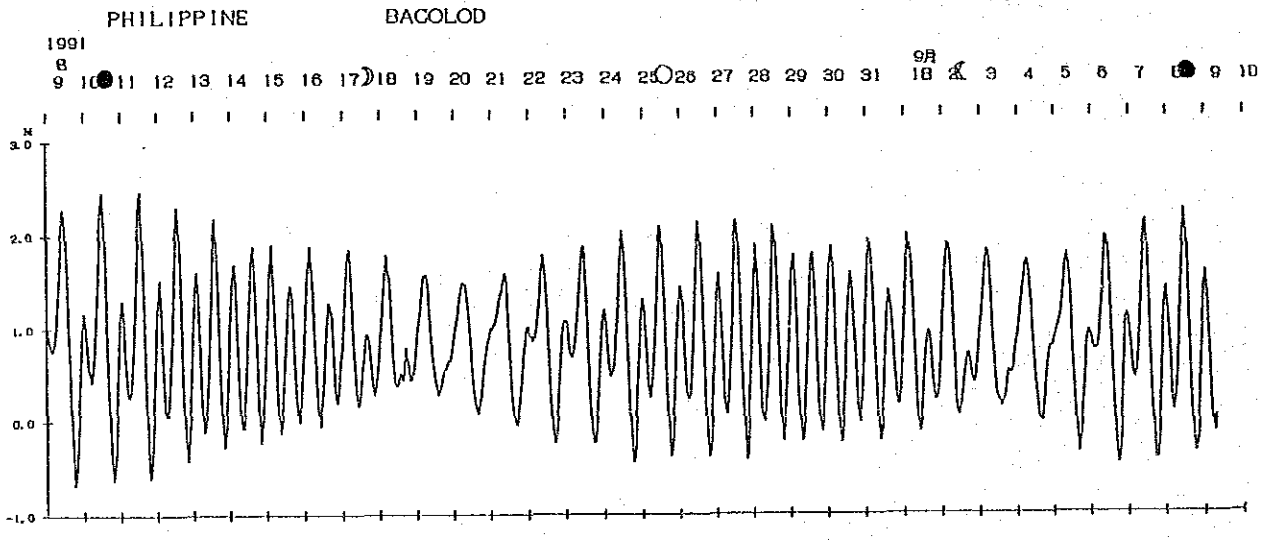


Figure N-2-3-1.2 Tidal Curves (Bacolod)

Source: JICA Study Team

Table N-2-3-1.1 Analysis of tidal harmonic constant

AREA : PHILIPPINE
STATION : ILOILO
TIME ZONE : -8.00
LATITUDE : 10 41 24 N
LONGITUDE : 122 34 51 E
DURATION : AUG. 9.-SEP. 9.1991
METHOD OF ANALYSIS: T.I. METHOD FOR A MONTH

SYMBOLS	H (CM)	K (DEG.)	G (DEG.)	SYMBOLS	H (CM)	K (DEG.)	G (DEG.)
MM	1.28	203.3	207.7	K2	5.82	26.6	22.1
MSF	1.13	230.3	238.5	2SN2	1.07	216.6	219.6
Q1	5.76	274.6	259.2	MO3	1.30	236.9	212.6
O1	31.37	289.1	278.0	M3	0.41	130.1	110.1
M1	1.15	345.2	338.6	MK3	0.64	315.1	299.5
K1	34.60	325.2	323.0	MN4	0.98	304.2	273.2
J1	0.96	326.3	328.4	M4	2.63	334.3	307.7
OO1	1.26	123.5	130.0	SN4	0.67	7.3	344.5
P1	11.45	325.2	322.3	MS4	1.91	20.1	1.6
MU2	1.02	69.9	48.5	2MN6	0.13	295.0	250.8
N2	7.41	319.2	301.6	M6	0.66	17.5	337.6
NU2	1.44	319.2	302.2	MSN6	0.30	224.3	188.2
M2	41.78	341.0	327.7	2MS6	0.30	17.1	345.4
L2	1.97	6.6	357.7	2SM6	1.21	67.5	43.8
S2	21.40	26.6	21.5	A0	1.036 (METER)		

Source: JICA Study Team

Table N-2-3-1.2 Analysis of tidal harmonic constant

AREA : PHILIPPINE
STATION : BACOLOD
TIME ZONE : -8.00
LATITUDE : 10 40 15 N
LONGITUDE : 122 56 12 E
DURATION : AUG. 9.-SEP. 9.1991
METHOD OF ANALYSIS: T.I. METHOD FOR A MONTH

SYMBOLS	H (CM)	K (DEG.)	G (DEG.)	SYMBOLS	H (CM)	K (DEG.)	G (DEG.)
MM	1.47	193.2	197.5	K2	9.38	36.9	31.6
MSF	0.23	92.2	100.3	2SN2	2.24	186.9	189.1
Q1	7.95	284.5	268.7	MO3	0.54	189.8	164.4
O1	33.73	291.9	280.5	M3	0.33	171.9	150.9
M1	0.56	79.7	72.7	MK3	1.11	278.7	262.1
K1	36.70	330.3	327.7	MN4	1.13	316.4	284.1
J1	1.33	347.0	348.7	M4	2.54	349.8	321.8
OO1	1.63	91.4	97.6	SN4	1.18	345.7	321.5
P1	12.15	330.3	327.0	MS4	0.89	315.3	295.4
MU2	3.65	21.8	359.7	2MN6	0.55	254.5	208.1
N2	12.36	337.2	318.8	M6	0.04	88.9	46.9
NU2	2.40	337.2	319.4	MSN6	0.35	358.4	320.1
M2	82.07	348.4	334.4	2MS6	0.88	11.3	337.4
L2	6.72	11.9	2.2	2SM6	0.62	80.1	34.4
S2	34.47	36.9	31.0	A0	0.796 (METER)		

Source: JICA Study Team

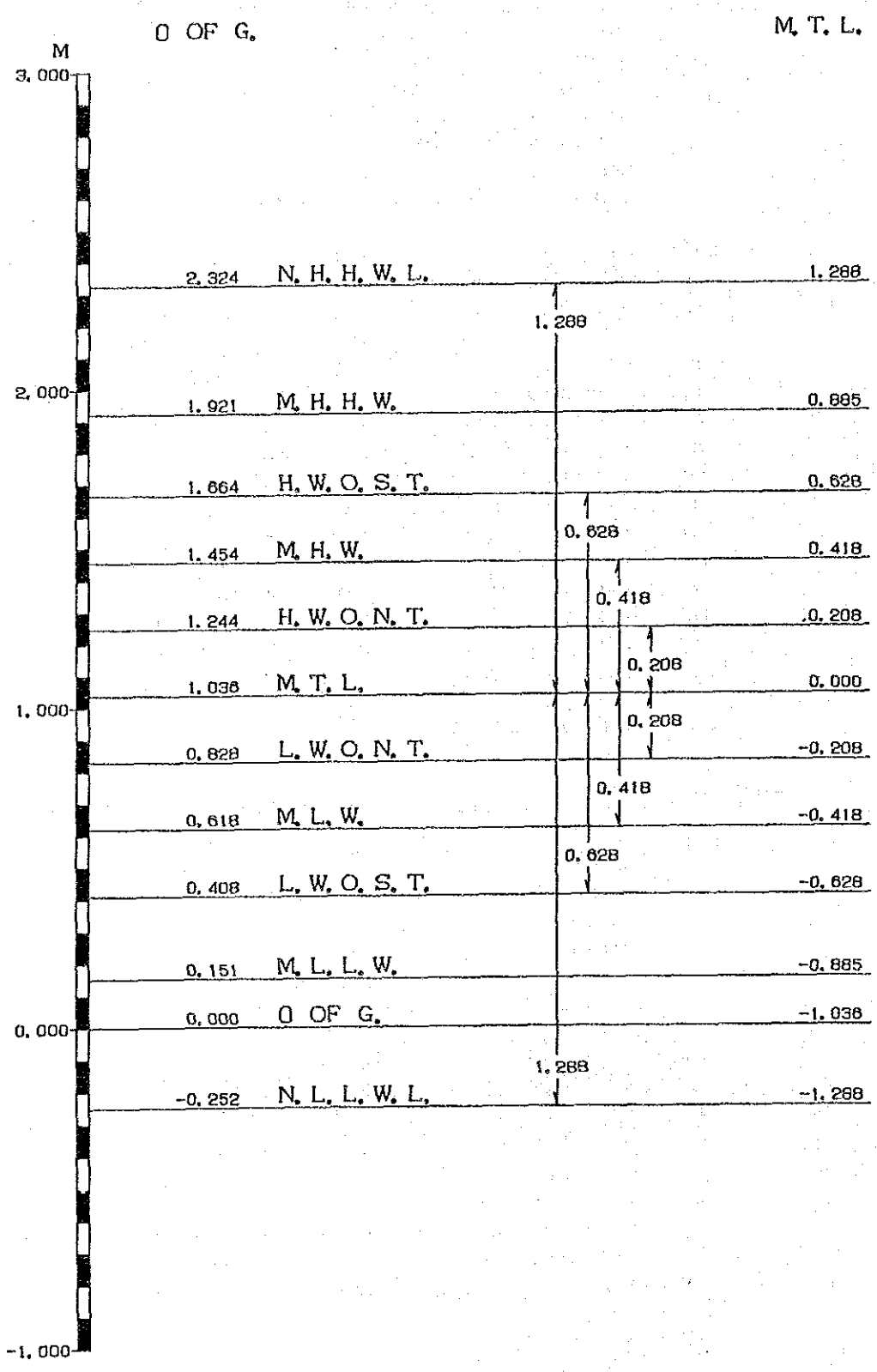


Figure N-2-3-1.3 Tidal Diagram at Iloilo

Source: JICA Study Team

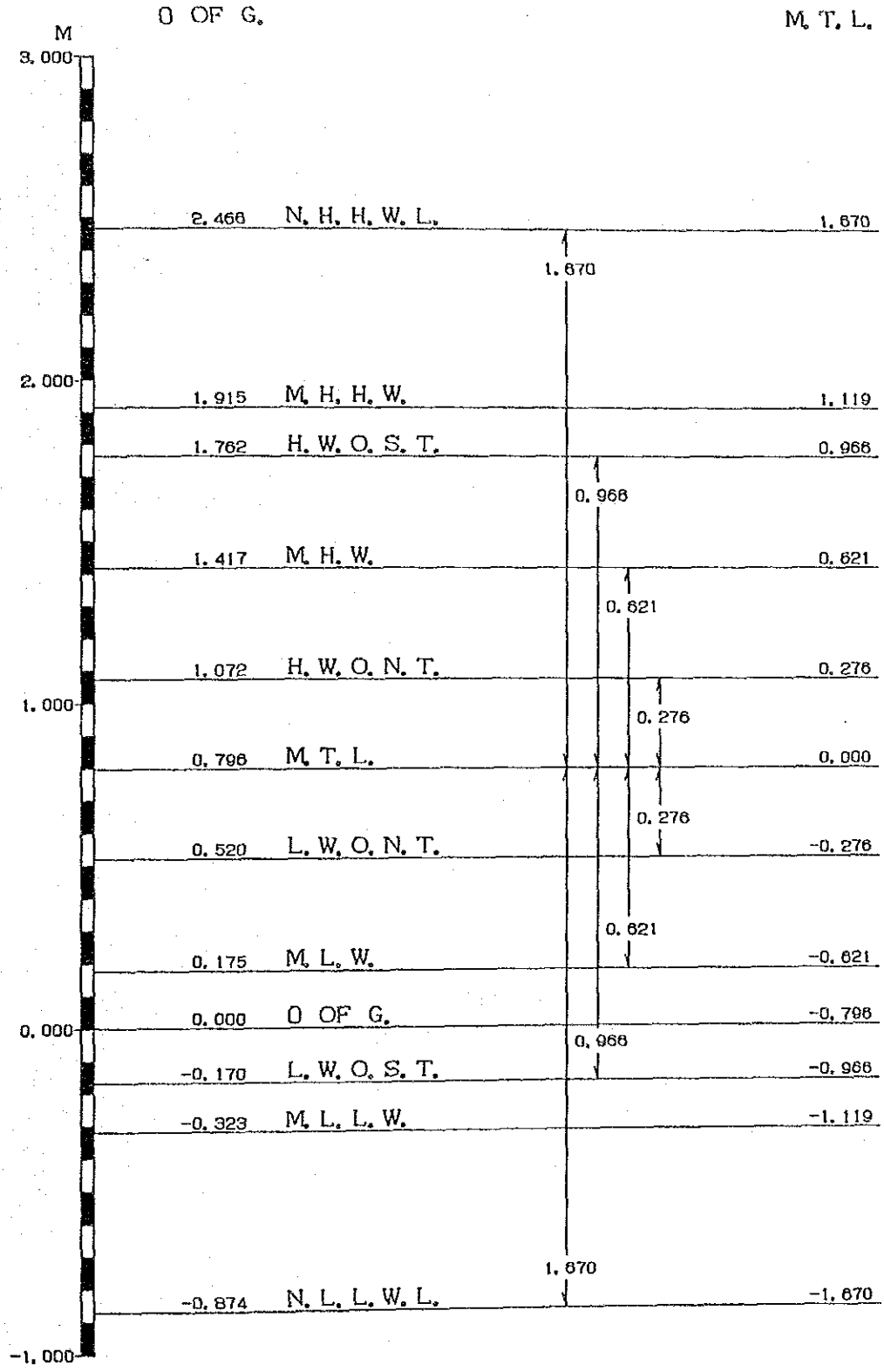


Figure N-2-3-1.4 Tidal Diagram at Bacolod
Source: JICA Study Team

B. Current

4. Current observation was carried out for both Iloilo and Bacolod and analyzed by harmonic analysis. Typical characters of current in Iloilo and Bacolod are as follows;

	Iloilo	Bacolod
Direction	N61°E	N9°E
Strength (Maximum)	1.5 m/sec	1.2 m/sec

Observation record and the result of analysis are shown in below.

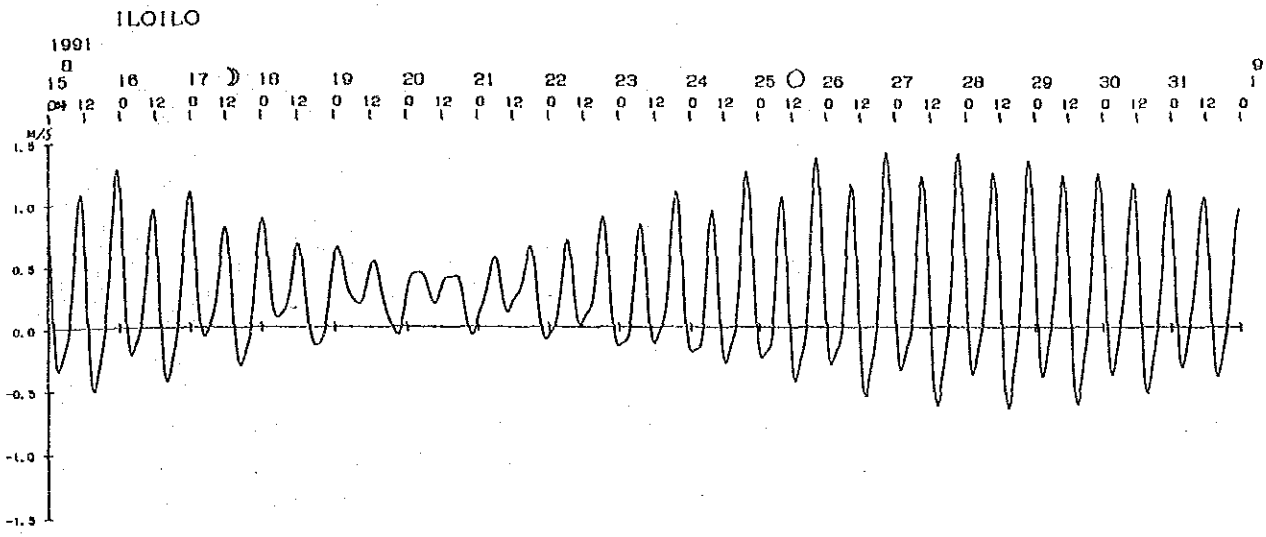


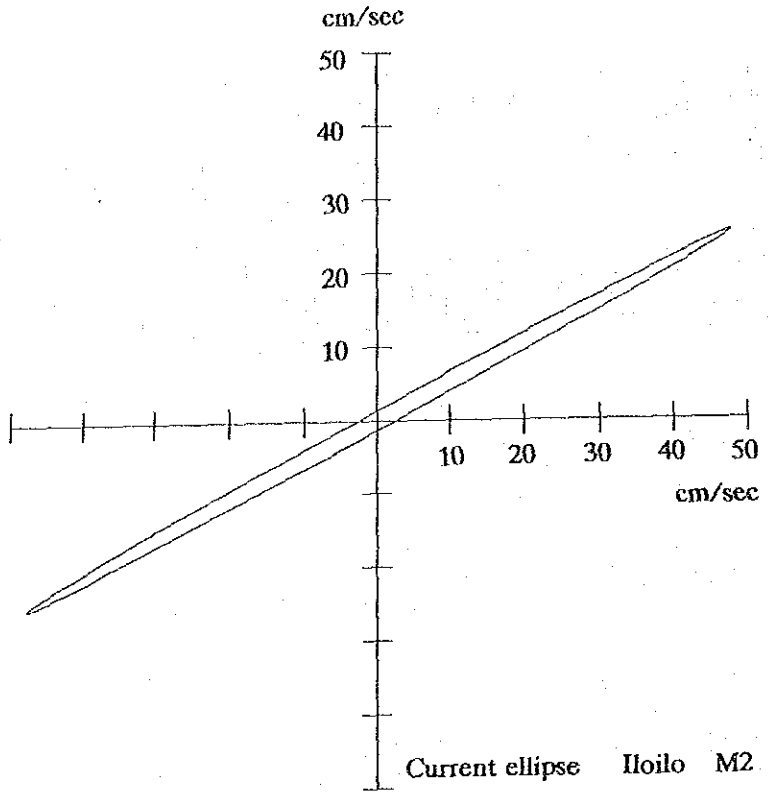
Figure N-2-3-1.5 Current Curves (Iloilo)

Source: JICA Study Team

Table N-2-3-1.3 Result of harmonic analysis for Iloilo (Current)

component of current	northern component		eastern component		current ellipse						main stream 61.0	
						longer radius			shorter radius			
	velosity (cm/sec)	angle	velosity (cm/sec)	angle	direction	velosity (cm/sec)	angle	direction	velosity (cm/sec)	angle	velosity (cm/sec)	angle
M2	25.4	226.0	47.8	223.0	62.0	54.1	224.0	152.0	1.0	134.0	54.1	224.0
S2	13.8	271.0	24.0	268.0	60.0	27.7	269.0	150.0	0.5	179.0	27.7	269.0
K2	3.7	271.0	6.5	268.0	60.0	7.5	269.0	150.0	0.1	179.0	7.5	269.0
N2	1.5	215.0	4.6	194.0	73.0	4.8	196.0	163.0	0.5	106.0	4.7	197.0
K1	1.5	272.0	4.0	256.0	70.0	4.3	258.0	160.0	0.4	168.0	4.2	259.0
O1	5.1	24.0	6.9	38.0	54.0	8.5	33.0	144.0	1.0	123.0	8.4	34.0
P1	0.5	272.0	1.3	256.0	70.0	1.4	258.0	160.0	0.1	168.0	1.4	259.0
Q1	3.6	212.0	3.7	218.0	46.0	5.2	215.0	136.0	0.3	305.0	5.0	216.0
M4	5.1	116.0	8.7	132.0	60.0	10.0	128.0	150.0	1.2	218.0	10.0	128.0
MS4	6.0	161.0	11.6	175.0	63.0	13.0	172.0	153.0	1.3	262.0	13.0	172.0
A0	3.8		5.9			7.0			57.0		7.0	

Source: JICA Study Team



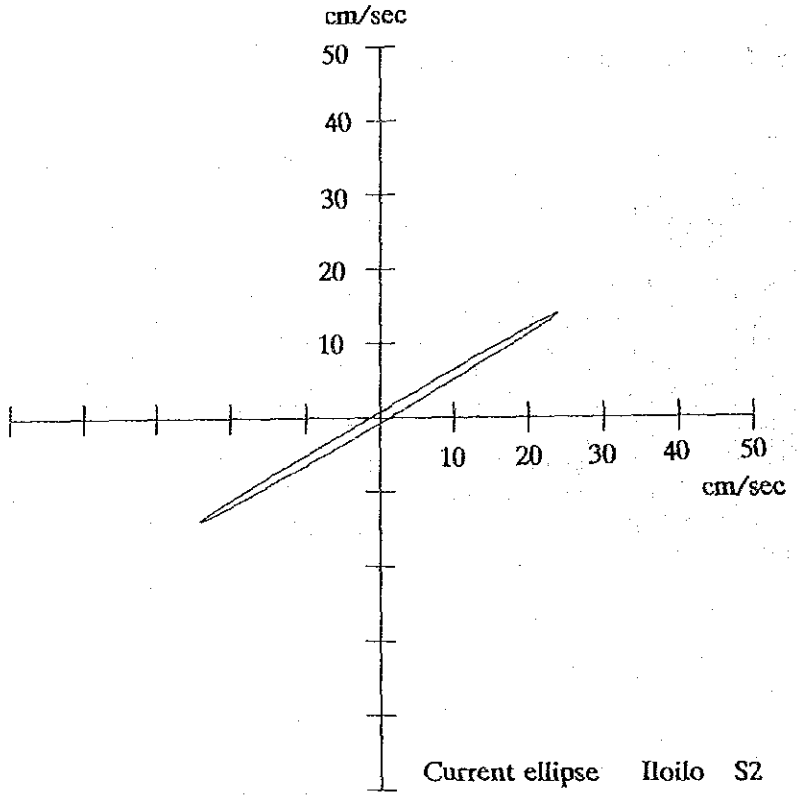


Figure N-2-3-1.6 Current Ellipse (Iloilo)
Source: JICA Study Team

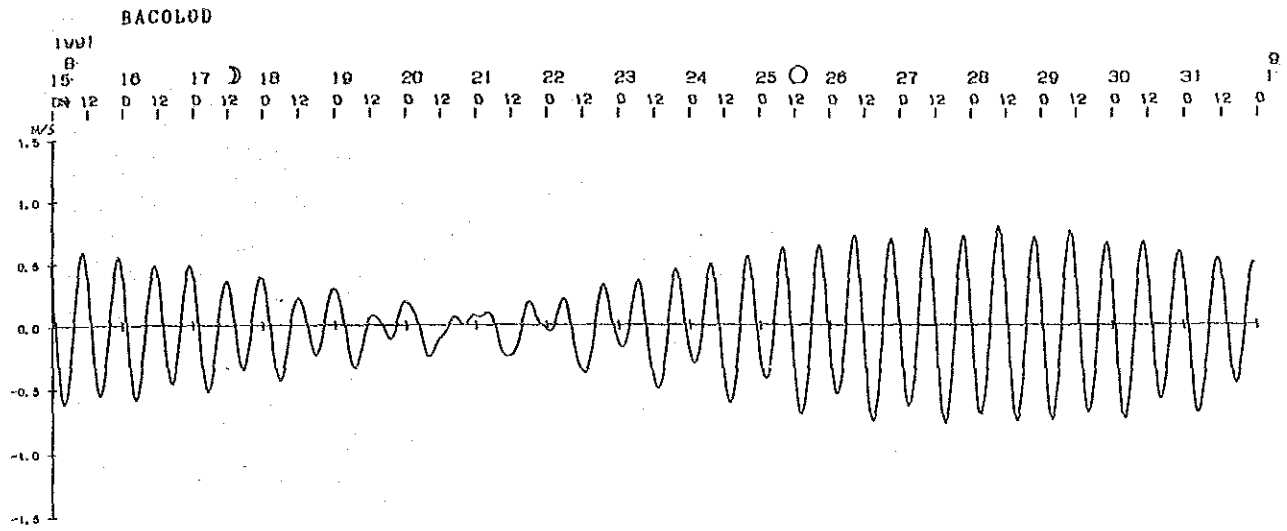


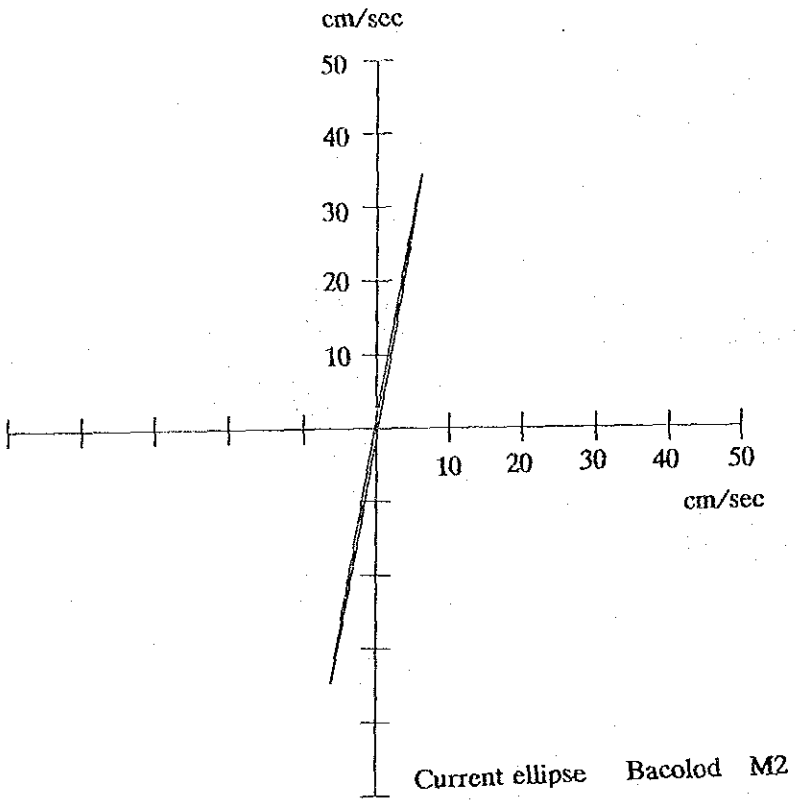
Figure N-2-3-1.7 Current Curves (Bacolod)

Source: JICA Study Team

Table N-2-3-1.4 Result of harmonic analysis for Bacolod (Current)

component of current	northern component		eastern component		current ellipse						main stream 9.0	
						longer radius			shorter radius			
	velosity (cm/sec)	angle	velosity (cm/sec)	angle	direction	velosity (cm/sec)	angle	direction	velosity (cm/sec)	angle	velosity (cm/sec)	angle
M2	34.6	225.0	6.1	227.0	10.0	35.1	225.0	100.0	0.2	315.0	35.1	225.0
S2	20.7	276.0	3.3	248.0	8.0	20.9	275.0	98.0	1.5	185.0	20.9	275.0
K2	5.6	276.0	0.9	248.0	8.0	5.6	275.0	98.0	0.4	185.0	5.6	275.0
N2	3.7	269.0	1.6	306.0	20.0	3.9	274.0	110.0	0.9	4.0	3.8	271.0
K1	6.0	224.0	1.5	272.0	10.0	6.1	226.0	100.0	1.1	316.0	6.1	226.0
O1	6.8	186.0	2.3	222.0	16.0	7.1	189.0	106.0	1.3	279.0	7.0	188.0
P1	2.0	224.0	0.5	272.0	10.0	2.0	226.0	100.0	0.4	316.0	2.0	226.0
Q1	1.1	204.0	0.9	169.0	38.0	1.3	190.0	128.0	0.4	100.0	1.2	200.0
M4	1.8	140.0	0.9	163.0	24.0	2.0	144.0	114.0	0.3	234.0	1.9	142.0
MS4	1.2	118.0	0.7	118.0	28.0	1.4	118.0	118.0	0.0	208.0	1.3	118.0
A0	-1.8		-0.3			1.8			190.0		-1.8	

Source: JICA Study Team



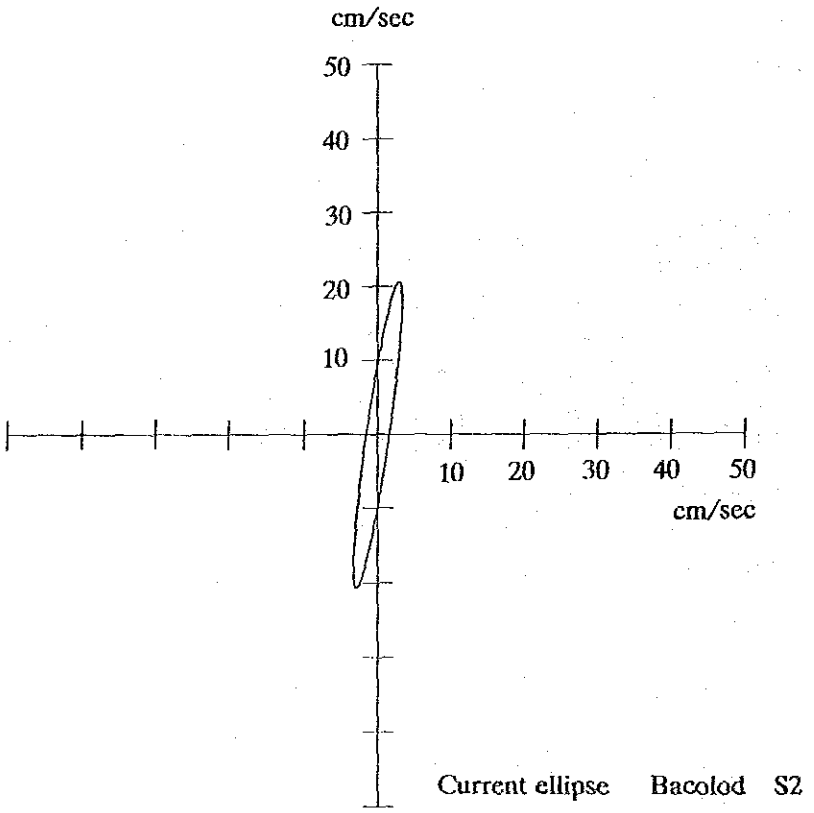


Figure N-2-3-1.8 Current Ellipse (Bacolod)
Source: JICA Study Team

C. Wind

5. Iloilo and Bacolod are located at the monsoon area. Wind record taken by PAGASA Iloilo and ATO Bacolod were summarized about prevailing wind direction and strength as follows;

	Iloilo	Bacolod
Wind direction	NNE, SW	N, S
Wind speed (m/sec)	1 - 2	3 - 4

6. Wind classification in Iloilo and Bacolod are shown in Table N-2-3-1.5.

Table N-2-3-1.5(1) Wind Classification in Iloilo

Wind speed	WIND DIRECTION																
(m/sec)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
- 1																	37.2
1 - 2	6.1	7.3	0.6	0.8	0.2	0.1			0.9	3.7	4.2	1.5	0.6	0.1		0.2	26.3
2 - 3	1.2	5.0	0.5	0.3	0.1				0.2	2.0	2.1	1.3	0.1	0.1			12.9
3 - 4	1.1	4.2	0.5	0.6	0.2				0.1	1.1	1.2	0.5	0.1				9.6
4 - 5	0.8	5.2	0.6	0.8	0.1					0.6	0.9	0.7	0.1				9.8
5 - 6		1.8	0.3	0.4						0.1	0.2	0.2					3.0
- 7		0.8	0.1	0.1							0.1	0.1					1.2
Total	9.2	24.3	2.6	3.0	0.6	0.1			1.2	7.5	8.7	4.3	0.9	0.2		0.2	100.0

UNIT IN (%)

Source: JICA Study Team (Reference PAGASA Surface observation 1990)

Table N-2-3-1.5(2) Wind Classification in Bacolod

Wind speed	WIND DIRECTION																
(m/sec)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
- 1																	27.5
1 - 2	1.6	0.8	0.3	0.4	1.5	0.6	1.0	0.7	0.4	0.2	0.3	0.4	0.5	0.2	0.3	0.9	10.1
2 - 3	2.3	0.5	0.2	0.1	0.5	0.6	1.1	1.3	1.6	1.0	0.7	0.6	0.8	0.5	0.5	1.2	13.5
3 - 4	5.8	0.8			0.3	0.1	0.7	1.9	3.5	2.5	0.8	0.8	1.0	0.9	1.4	3.2	23.7
4 - 5	4.9	0.5						0.3	1.8	1.9	0.3	0.1		0.3	1.2	3.4	14.7
5 - 6	4.2	0.1							0.6	0.4				0.1	0.7	2.7	8.8
- 7	1.0								0.3	0.1						0.3	1.7
Total	19.8	2.7	0.5	0.5	2.3	1.3	2.8	4.2	8.2	6.1	2.1	1.9	2.3	2.0	4.1	11.7	100.0

UNIT IN (%)

Source : JICA Study Team (Reference A.T.O Daily Record 1990)

(note: A.T.C = Air Transportation Office at Bacolod Airport, DOTC)

D. Wave

7. Wind wave produced by seasonal monsoon are estimated by S-M-B method with the summarized wind data. Table N-2-3-1.6 shows the wave statistics for Iloilo and Bacolod. Detailed procedure for preparation of wave climate in Iloilo and Bacolod are shown in Note A-2-3-2.

Table N-2-3-1.6(1) Wave Classification in Iloilo

Wave Height	WAVE DIRECTION																
(m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
- 0.3																	96.1
0.3 - 0.5			0.9	1.8	0.3					0.7							3.7
0.5 - 0.6			0.1	0.1													0.2
0.6 - 0.8																	
0.8 -																	
Total			1.0	1.9	0.3					0.7							100.0

UNIT IN (%)

Source : JICA Study Team

Table N-2-3-1.6(2) Wave Classification in Bacolod

Wave Height	WAVE DIRECTION																
(m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
- 0.3																	84.3
0.3 - 0.5	5.2										0.3	0.1		0.3	2.6	6.1	14.6
0.5 - 0.6														0.1	0.7	0.3	1.1
0.6 - 0.8																	
0.8 -																	
Total	5.2										0.3	0.1		0.4	3.3	6.4	100.0

UNIT IN (%)

Source : JICA Study Team

E. Siltation

8. Sea bed materials and sea water in Iloilo and Bacolod are sampled in the field and analyzed in the laboratory. As an additional field survey, sand catchments were installed in Bacolod in order to look up the prerevailling direction of siltation. Density of suspended solid for sea water, sieve test analysis for sea bed material and testing result of sand catchment are shown below;

Table N-2-3-1.7 Testing Result for Sea Bed Material and Sea Water Sample

		Iloilo	Bacolod	
SS. (ppm)		460	270	(by sea water sample)
Sieve test Analysis (%)	Gravel	0.1	-	(by sea bed material)
	Sand	96.3	20.0	
	Silt	3.6	80.0	
	Clay	-	-	

Source; JICA Study Team

Table N-2-3-1.8 Testing Result for Sand Catchment

	Direction	Water Depth -4.0 m	-2.5 m
Upper Layer	North	6.50	20.13
	East	12.67	16.93
	South	7.90	16.96
	West	5.70	7.26
Lower Layer	North	9.60	25.77
	East	12.80	26.20
	South	13.60	26.11
	West	7.40	26.71

Source: JICA Study Team (Unit in g)

Table N-2-3-1.9(1) Laboratory Test on Seabed Material
(Iloilo)

JIS - A - 1	SUMMARY OF SOIL TEST RESULTS	REPORT FORM

PROJECT: Nationwide Roll-On Roll-Off Transport System LOCATION: Iloilo City

HOLE NO.: SEABED

DATE: Aug. 27, 1991

RECORDER: N.P. ARAFILES

	SAMPLE NO.		1	2	3	4	5	
	DEPTH, M		Seabed 1	Seabed 2	Seabed 3	Seabed 4	Seabed 5	
GRAIN SIZE ANALYSIS	GRAVEL	(>2000μ) %	0	8.5	17.8	0.1	0	
	SAND	(74-2000μ) %	34.3	78.0	69.8	96.3	90.7	
	SILT	(5-74μ) %	56.7	13.5	12.4	3.6	9.3	
	CLAY	(<5μ) %	9.0	-	-	-	-	
	MAX. DIAMETER	mm	0.42	9.52	9.52	0.84	0.84	
	COEFFICIENT OF UNIFORMITY	Uc	10.90	3.07	2.54	1.60	1.90	
	COEFFICIENT OF CURVATURE	U'c	1.47	1.67	1.33	0.98	1.16	
CONSISTENCY	LIQUID LIMIT	WL %						
	PLASTIC LIMIT	Wp %						
	PLASTICITY INDEX	Ip						
CLASSIFICATION	TRIANGULAR CLASSIFICATION CHART							
	PLASTICITY CHART							
SPECIFIC GRAVITY OF SOIL PARTICLES		Gs	2.54	2.66	2.64	2.68	2.69	
NATURAL STATE	WATER CONTENT	W %						
	WET UNIT WEIGHT	γt g/cm^3						
	VOID RATIO	e						
	DEGREE OF SATURATION	Sr %						
MECHANICAL CHARACTERISTICS	UNCONFINED COMPRESSION TEST	UNCONFINED COMPRESSIVE STRENGTH qu kg/cm^2						
		SECANT MOD. E50 kg/cm^2						
		SENSITIVITY RATIO ST.						
	SINGLE SHEAR TEST	TESTING CONDITION						
		COHESION C kg/cm^2						
		ANGLE OF SHEARING RESISTANCE Ø °						
	TRIAXIAL COMPRESSION TEST	TESTING CONDITION						
		COHESION C kg/cm^2						
		ANGLE OF SHEARING RESISTANCE Ø °						
	CONSOLIDATION TEST	CONSOLIDATION PC PRESSURE kg/cm^2						
		COMPRESSION INDEX Cc						

REMARKS :
Source : JICA Study Team

Table N-2-3-1.9(2) Laboratory Test on Seabed Material
(Bacolod)

JIS - A - 1	SUMMARY OF SOIL TEST RESULTS	REPORT FORM

PROJECT: NATIONWIDE ROLL-ON ROLL-OFF TRANSPORT SYSTEM DEVELOPMENT LOCATION Bacolod City

DATE: 8 - 6 - 91 DEPTH, M

RECORDER:

			X-1	X-2	X-3	X-4	X-5
HOLE NO. SEA BED MATERIALS		SAMPLE NO.	X-1	X-2	X-3	X-4	X-5
GRAIN SIZE ANALYSIS	GRAVEL (>2000μ)	%	4	–	8	1	–
	SAND (74-2000μ)	%	76	85	78	84	20
	SILT (5-74μ)	%	20	15	13	15	80
	CLAY (<5μ)	%					
	MAX. DIAMETER	mm					
	COEFFICIENT OF UNIFORMITY	Uc	13.0	6.0	6.0	6.0	
	COEFFICIENT OF CURVATURE	U'c	3.0	2.0	2.0	2.0	
CONSISTENCY	LIQUID LIMIT	WL %	–	–	–	–	85
	PLASTIC LIMIT	Wp %	NP	NP	NP	NP	35
	PLASTICITY INDEX	Ip	–	–	–	–	50
CLASSIFICATION	TRIANGULAR CLASSIFICATION CHART						
	PLASTICITY CHART		SM	SM	SM	SM	CH
SPECIFIC GRAVITY OF SOIL PARTICLES		Gs	2.66	2.70	2.63	2.65	2.70
NATURAL STATE	WATER CONTENT	W %	38.0	22.0	29.0	22.0	187.0
	WET UNIT WEIGHT	γt g/cm³					
	VOID RATIO	e					
	DEGREE OF SATURATION	Sr %					
MECHANICAL CHARACTERISTICS	UNCONFINED COMPRESSION TEST: UNCONFINED COMPRESSIVE STRENGTH	kg/cm² qu					
	UNCONFINED COMPRESSION TEST: SECANT MOD. E50	kg/cm²					
	UNCONFINED COMPRESSION TEST: SENSITIVITY RATIO	ST.					
	SINGLE SHEAR TEST: TESTING CONDITION						
	SINGLE SHEAR TEST: COHESION C	kg/cm²					
	SINGLE SHEAR TEST: ANGLE OF SHEARING RESISTANCE	Ø °					
	TRIAXIAL COMPRESSION TEST: TESTING CONDITION						
	TRIAXIAL COMPRESSION TEST: COHESION C	kg/cm²					
	TRIAXIAL COMPRESSION TEST: ANGLE OF SHEARING RESISTANCE	Ø °					
	CONSOLIDATION TEST: CONSOLIDATION PRESSURE	PC kg/cm²					
	CONSOLIDATION TEST: COMPRESSION INDEX	Cc					

REMARKS :

Source : JICA Study Team