The statistic data for annual normal rainfall and normal number of rainy day covering the year from 1951 to 1980 are shown in Figure A-1-5-4 and A-1-5-5.

Humidity

5. Air humidity in the entire Philippine is relatively high and annual normal range of it changes from 74% to 88%. The major reasons for high humidity are: i) The Philippines is located in the warm current, ii) The rainy season covers about half of the year, iii) Seasonal monsoon contains moisty air and blows over the Philippines all year long. The distribution of annual normal relative humidity are shown in Figure A-1-5-6.

Thunder storm

6. Thunderstorm is caused by i) frontal activity, ii) squalline and iii) air mass thunderstorm. Based on statistical data from PAGASA, most of thunderstorm last only for less than 30 minutes. The annual normal number of days with thunderstorm is shown in Figure A-1-5-7.

Wind

7. The winds in the Philippines have major components, Northeast air current and Southwest air current. The wind field is formed by the combination of major air current, tropical cyclone and local circulation produced by the topographical conditions. The North-east wind starts in October, becomes strongest in January, weakens in March and finishes in April. The Southwest monsoon starts in early May, becomes stronger up to August and gradually disappears in October. In addition, North Pacific Trades also generates from the Northeast, East, Southeast and South. They are dominant in April and early May, when the seasonal monsoon change its direction from Northeast to Southwest. The monthly surface air flow in the Philippines are shown in Figure A-1-5-8 through A-1-5-10 in Appendices.

Tropical Cyclone

8. The Philippines is surrounded by warm ocean, i.e.) Western North Pacific Ocean, South China Sea where tropical cyclone is generated. About 20 cyclones (average from 1948 to 1988) passed by the Philippines in a year. Tropical cyclone starts its activity in the month of June frequently from July to September and lasts up to December. Heavy rainfall and strong wind is usually brought by these cyclones. The frequency of tropical cyclone passage over each region in the Philippines from 1948 to 1982 is shown in Figure A-1-5-11.

C. Oceanographic Conditions

Current

9. The main current which affects the Philippines is the North Equatorial current. This current is moving from East to West across the North Pacific Ocean. When it hits the Philippines Archipelagos, North Equatorial current separates into two directions. One proceeds along the coast of northeastern Visayas and Luzon northward and becomes the so-called Kuroshio Current. The other flows along the coast of southern Visayas and Mindanao and returning to Eastward and becomes the Equatorial Current. In the western coast of the Philippines, the Northward prevailing current along Luzon is observed. There is no prevailing current at Visayas and Mindanao. These current are warm current with sea temperature of 27.3^{o}C and quite uniform in temperature throughout the year. The direction of main flood stream in the Philippines is shown in Figure A-1-5-12.

Tide

10. The tide variation in the Philippines is classified by 3 patterns. The first is the semi-diurnal type, the second is the diurnal type and the third has the pattern which changes its movement from semi-diurnal to diurnal by the moon's maximum declination. The Bureau of Coast and Geodetic Survey started to publish the Tide and Current table in 1952. At present, the Bureau prepares the tide prediction for every year with the daily changes against 38 reference stations and tidal differences and constants against 250 stations.

Wave

11. The wave climate in the Philippines is composed of the wind wave which is mainly caused by NE monsoon and SW monsoon and swell which will arrive from the surrounding sea like North Pacific Ocean and South China Sea.

12. The wave climate considering the affection of seasonal monsoon and North Pacific Trades is studied in Note A-1-5-1.

D. Geological Condition

13. The Philippines is located in the West Pacific Ocean. The three tectonic plates such as the Eurasian Plate, Pacific Plate and Indo-Australian Plate meet each other at the south end of the Philippines. The Philippine Archipelago is composed of two structural unit of lithosphere such as mobile belt and stable region. The mobile belt exists along the Manila trench and Philippine trench where the Philippine sea floor and China sea bottom respectively are under-thrusted. On the other hand, Palawan and Sulu Sea are considered as stable region. The Archipelago, however, is affected by the active deformation of mobile belt characterized by the seismicity and volcanism which runs throughout its length.

E. Topographical Conditions

14. The Philippines is located at southeast of Asian continent from 4.7°N to 21.5°N latitude and from 117°E to 127°E longitude and composed of about 7,000 Islands. The total area is about 300,000 ㎢ and surrounded by an open sea; the Pacific Ocean to the east, the South China Sea to the west, the Philippine Sea to the north and Celebes Sea to the south.

15. The Philippines is characterized by three components from the geographical aspects.

(i) The first is the Luzon region which is located in the northern portion with the area of 105,000 km^2. This region has three narrow mountain ranges such as Sierra Madre (along the eastern coast of Luzon), Ilocos

(along the western coast of northern Luzon) and Cordillera (between the Ilocos and Sierra Madre range). The highest peak is in the Cordillera with a height of over 2,000m. The two plains which is among the four largest plain in the Philippine are located in this region; Central Plain in the center of Luzon and Cagayan Valley in the northeastern Luzon.

(ii) The second is the Mindanao region which is located in the southern portion with an area of 95,000 km^2. The mountain ranges in Mindanao are found out along the east and west coast and in the north central part. The highest peak is Mt. Apo with the height of over 2,900m. The two plains which is among the four largest plain exist in Mindanao. The valley of Rio Grande and Koronadal Valley are located in the Central Mindanao.

(iii) The third is Visayas region which is composed of many Islands between Luzon and Mindanao with the combined area of 100,000 km^2. Most of the Islands in the Visayas Region have mountain ranges in their interiors. The highest peak is Mt. Canloan in Negros Island with a height of about 2,400m. No significant plains are found in this region.

F. Volcano and Volcanic Belt

16. Earthquake and volcanic activity are very prevalent in the Philippines. There are three major volcanic belts defined by Quaternary Volcanoes. These lie parallel to the trenches such as Manila Trench, Philippine Trench and Sulu Sea Trench. The western volcanic belt which is related to the Manila trench is associated with volcanic composed of desite and andesite cones and contain the submarine volcanoes and volcanoes in the extreme north and from Zambales region to Mindoro respectively. The eastern volcanics belt which is related to the Philippine trench extends from Camarines Norte to Cotabato and defined by Quarternary Volcanoes such as Labo, Mayon, Cabalian, Apo and so on. The southwest volcanic belt which is related to the Sulu Sea trench is located parallel to the Sulu Archipelago and associated with active volcanoes such as Bud Dajo and etc. The distribution of Philippine volcanoes with volcanic front is shown in Figure A-1-5-14.

[References]

1. Year Book of the Philippines 1988

2. Climatological Normal & Extremes of Temperature 1988, PAGASA

3. Climatological Normal & Extremes of Rainfall 1988, PAGASA

4. Climate of the Philippines 1984, PAGASA

5. Tropical Cyclone in the Philippines 1989, PAGASA

6. Tide and Current Table 1991, Bureau of Coast and Geodetic Survey

7. Philippine Island Pilot, The Hydrographer of the Navy

Chapter 6 Overview of the Port Traffic

A. Existing Port Statistics and its Nature

1. According to the Reconnaissance Survey Report of IATCTP, there are currently four (4) possible sources from which passenger and/or cargo traffic information can be detained:

(i) Philippine Ports Authority (PPA)
(ii) National Statistics Office (NSO)
(iii) Philippine Coast Guard (PCG)
(iv) Records of Shipping Companies

However, the PCG no longer conducts headcounts of its passengers, and it is often observed that records of passengers/cargo of shipping companies are kept confidential in the interest of the business. Therefore the first two (2) sources are practicable for most cases.

2. The 1990 PPA Statistical Report (the first such report issued since PPA implemented the Revised Statistical System on 1 January 1991) is a summary of the operations at all ports nationwide during a one year period. It is a comprehensive collection and compilation of statistical figures on shipcalls, vessel particulars, cargo throughput, cargo statistics by commodity classification, container traffic and passenger traffic.

3. A total of 373 ports are included in this report, broken down as follows:

(i) (19) baseports and Manila International Container Terminal Office (MICT)
(ii) (56) terminal ports
(iii) (87) other national/municipal ports
(iv) (210) private ports

4. The documents which serve as the basic sources of data on port statistics are the Coasting Manifest and the Passenger Manifest. These are the Bureau of Customs' prescribed forms which shipping companies are required to fill out; several copies are made. One copy of each document is submitted to PPA by shipping companies upon arrival and/or departure of vessels for clearance purposes. These manifests are being collected and preliminarily verified, as to correctness, completeness and legibility by the Operations people of PPA prior to submission of the documents to the Statistics Unit for processing. Additional sources of data that are being prescribed in the preparation of statistical reports are the Cargo Handling Operator's Report, Shipping Companies' Container Report and other Operations Reports as may be required by PPA.

5. The primary report generated in the PPA field offices is the Port Traffic Statistics (PTS) Report, which consists of four (4) parts: the shipping statistics, cargo and passenger traffic, cargo statistics by commodity classification and container traffic.

6. The basic information necessary to accomplish the PTS comes from the Coasting and Passenger manifests and other reports, as specified in the preceding paragraphs. Upon receipt of these source documents from the Operations Unit, the Statistics Unit in the base ports or terminals undertakes the processing of reports in accordance with the revised statistical system. Processing of reports includes further verification of source documents, completion of processing sheets for cargoes and containers and posting of cargo, vessel and passenger particulars in the PTS. A PTS must be prepared for each port on a monthly basis.

7. The following summarized items of shipping, cargo and passenger data can be found in the 1990 PPA Annual Statistical Report:

(i) Shipping Traffic - number of vessels, gross registered tonnage (grt), net registered tonnage (nrt), deadweight tonnage (dwt), beam, lengths, draft,waiting time and service time.

(ii) Cargo Traffic - cargo tonnage discharged and loaded for breakbulk, bulk and containerized cargoes, cargo tonnage discharged and loaded by commodity classification. There are (35) commodity classifications that were adopted.

(iii) Passenger Traffic - number of passengers embarked and disembarked.

(iv) Container Traffic - number of containers according to the following classification: empty, full container load (FCL) and less container load (LCL), expressed in terms of Twenty Equivalent Units (TEUs).

8. The NSO statistics are also based on the coastwise shipping manifest submitted monthly by PPA. Unlike the PPA statistics, the NSO statistics are available per commodity, per port of origin and destination. This information can be used as a basis for the commodity/passenger flow analysis.

9. It is widely recognized that the figures submitted by shipping companies are most likely understated, especially for passenger traffic. The two interisland traffic surveys for normal (January) and peak (May) months revealed that actual traffic volumes were 50% higher than the official statistics with large port-to-port variations.

10. It can further be observed that there is a general imbalance between inward and outward flow in the total domestic movement; inward volumes are much greater. The directional differences could be explained by a lack of reporting from remote areas. This would explain the higher inward volumes reported by the PPA offices. The 1990 PPA Annual Statistics Report offers another explanation for the existing differences in passenger traffic. It states that at the port of origin, most shipping lines cannot possibly include in their clearance manifests the actual number of passengers embarking their vessels since more passengers are able to board even after clearance; thus there are many unrecorded passengers who, when finally accounted for and appear on the entrance manifests at the next port, are classified as disembarkations without ever being embarkations.

B. General View on Port Traffic in the Philippines

Movement of Port Traffic

11. Table 6-1 shows the movement of port traffic of shipcalls, cargo throughput and passengers from 1983 to 1990 in the Philippines. Here features of port traffic are described.

Table 6-1 Traffic of Shipcalls, Cargo and Passenger at the Philippine Ports

[Unit: Ships, Thousand MT, Thousand GT, Thousand Persons]

Particulars	1983	1984	1985	1986	1987	1988	1989	1990
Shipcalls	139,261	125,726	112,712	113,846	124,215	137,716	149,774	154,126
Domestic	132,739	120,672	107,438	108,372	118,248	131,781	142,510	146,656
Foreign	6,522	5,054	5,274	5,474	5,967	5,935	7,264	7,470
Gross Registered Tonnage	124,401	111,162	109,028	110,759	113,187	127,599	152,547	158,970
Domestic	64,047	62,276	58,331	58,717	53,443	70,419	87,713	90,032
Foreign	60,354	48,887	50,696	52,042	59,744	57,180	64,834	68,938
Length (m)	6,038	5,718	5,733	5,255	5,654	6,224	7,312	7,313
Domestic	5,183	5,022	5,070	4,434	4,780	5,421	6,342	6,349
Foreign	855	696	663	822	874	803	970	964
Cargo Througtput	69,187	62,576	61,795	62,501	80,141	88,410	96,488	93,349
Domestic	36,559	34,362	34,159	35,206	42,793	50,607	54,766	52,405
Non-containerized	30,830	29,252	28,479	29,157	35,054	41,027	43,382	43,601
Inward	16,550	14,822	13,992	14,911	18,701	22,235	24,608	N.A
Outward	14,280	14,431	14,487	14,246	16,352	18,792	18,774	N.A
Containerized	5,729	5,110	5,680	6,049	7,739	9,580	11,384	8,804
Inward	2,797	2,708	3,221	2,984	3,766	4,945	5,813	N.A
Outward	2,932	2,401	2,459	3,065	3,973	4,635	5,570	N.A
Foreign	32,628	28,214	27,636	27,295	37,349	37,803	41,722	40,944
Non-containerized	30,094	26,189	25,487	24,238	33,362	33,581	36,668	35,757
Inport	18,253	16,249	16,187	15,919	21,228	22,688	25,406	N.A
Export	11,841	9,940	9,300	8,319	12,134	10,893	11,262	N.A
Containerized	2,534	2,025	2,149	3,057	3,987	4,221	5,054	5,187
Inport	1,818	1,287	1,241	1,867	2,618	2,700	3,293	N.A
Export	716	738	909	1,191	1,368	1,521	1,761	N.A
Passenger Traffic	18,782	17,874	15,525	15,565	17,967	23,942	25,512	27,949
Dienbarked	9,473	9,147	8,018	8,102	9,166	12,170	13,281	14,205
Embarked	9,309	8,727	7,508	7,463	8,801	11,772	12,231	13,744

Source:Profile of Philippine Ports,1989, Annual Statistical Report,1990 Vol.I,II,PPA

1) Shipcalls

12. Shipcalls reached 154 (domestic 147, foreign 7) thousand in 1990, its highest level in the records. Numbers of shipcalls decreased during the slump and stagnation in 1984 through 1986. And after a sharp increase in 1987～1989 the growth looks to have slowed down again.

2) Cargo Traffic

13. The nationwide cargo volume handled at the ports quickly recovered and reached 96,488 thousand MT (metric ton) in 1989, a 9% increase from 1988. It is composed of both 54,766 (inward 30,422, outward 24,344) thousand MT of domestic (7.7% increase) and 41,722 (import 28,698, export 13,024) thousand MT of foreign trade cargo (13.9% increase). However, although the growth rate is fluctuating in the past, the cargo volume fell in 1990, and the imbalance between export and import cargo is getting wider year by year. The Philippines depends on petroleum and its derivatives imported from the Gulf and other countries, so the imbalance of non-container cargo may be unavoidable with its insufficient domestic energy resources.

3) Passenger Traffic

14. Passenger traffic at almost all ports throughout country decreased during the slump and stagnation in 1984 1986 and promptly recovered after that, but showed only a slight increases in 1990. In 1990 it reached 27,949 thousand persons among which 14,205 disembarked, and 13,744 embarked.

Features of the Cargo Traffic

1) General

15. At present, PPA has 19 PMOs and one field office. Each PMO is responsible for the supervision of the public and private ports in the territory. PDO is also a local office which is in charge of regional regulation for PMO administration; there are 5 PDOs (Manila, Visayas, South Mindanao, North Mindanao, and Luzon) over the country. PPA collects the data and compiles the statistical report containing the almost all of the ports in the nation every year. Nowadays it includes not only ports under PPA control but also almost municipal or private ports. In following sections features of the cargo traffic are examined according to the annual statistical data in 1990.

2) Cargo Volume

16. Table 6-2 shows the cargo traffic by PDO and PMO. The domestic cargo occupies about 56% of the total volume, which exceeds foreign cargo in volume. In the domestic cargo, Visayas occupies around 34% followed by Manila at 24%. Manila has a portion of 42% of the foreign and 32% of the national total cargo. In foreign cargo Manila goes beyond others, and it is followed by Visayas, Luzon, North Mindanao, and South Mindanao. With the exception of Manila and Luzon, domestic cargo is predominates in the other regions.

Table 6-2 Cargo Traffic at Philippine Ports (1990)

[Unit: Thousand MT]

Port District P M O	Total Cargo	Domestic Trade Cargo			Foreign Trade Cargo		
		Total	Inward	Outward	Total	Import	Export
MANILA	30,014	12,840	6,874	5,966	17,174	14,389	2,785
South Harbour	10,279	3,819	3,752	67	6,460	5,998	462
MICT	3,214	23	21	2	3,191	2,180	1,011
North Harbour	16,521	8,998	3,101	5,897	7,523	6,211	1,312
VISAYAS	23,156	17,938	10,060	7,878	5,218	2,758	2,460
Cebu	11,265	9,623	4,961	4,662	1,642	919	723
Iloilo	5,905	5,092	3,112	1,980	813	320	493
Tacloban	4,803	2,318	1,459	859	2,485	1,501	984
Dumaguete	1,183	905	528	377	278	18	260
SOUTH MINDANAO	9,139	6,493	3,406	3,087	2,646	661	1,985
Davao	4,447	2,645	1,469	1,176	1,802	474	1,328
Zamboanga	2,372	1,907	1,176	731	465	61	404
Gen.Santos	1,355	1,003	387	616	352	106	246
Polloc	835	808	317	491	27	20	7
Jolo	130	130	57	73	0	0	0
NORTH MINDONAO	12,794	7,061	3,247	3,814	5,733	2,904	2,829
Cagayan de Oro	6,290	2,519	1,396	1,123	3,771	1,947	1,824
Nasipit	955	884	427	457	71	39	32
Iligan	4,354	2,862	1,139	1,723	1,492	852	640
Surigao	1,195	796	285	511	399	66	333
LUZON	18,246	8,073	3,695	4,378	10,173	8,853	1,320
San Fernando	1,415	887	626	261	528	305	223
Batangas	14,384	5,296	1,917	3,379	9,088	8,494	594
Legaspi	1,641	1,515	956	559	126	49	77
Prt. Princesa	806	375	196	179	431	5	426
TOTAL	93,349	52,405	27,282	25,123	40,944	29,565	11,379

Source:Annual Statistical Report 1990, Vol.I, Vol.II,1990, PPA

17. Table 6-3 is a break-down by the type of port from the Table 3-2. It shows that base ports have a portion of 32% of the total, but private ports exceed base ports in volume because many private ports handle dry and liquid bulk cargo such as ore, coal, petroleum and crude oil on quay side. Terminal(sub ports) and municipal ports share a tiny portion in volume. And in foreign trade base and private ports take a substantial portion (28% and 70%

for each) but terminal, municipal ports have a small portion (0.2% and 1.3% respectively). In the most of base ports domestic cargo prevails, however, in Manila South Harbor and MICT(Manila International Container Terminal) foreign cargo is more prevalent.

Table 6-3 Cargo Traffic at Philippine Ports (1990)
[by the type of port]

Port District P M O	All Ports Total	Domestic	Foreign	Base Ports Total	Domestic	Foreign	Terminal Ports Total	Domestic	Foreign
MANILA	30,015	12,841	17,174	14,846	5,195	9,651	3,870	3,870	0
South Harbour	10,279	3,819	6,460	6,478	18	6,460	3,801	3,801	0
MICT	3,214	23	3,191	3,214	23	3,191	0	0	0
North Harbour	16,522	8,999	7,523	5,154	5,154	0	69	69	0
VISAYAS	23,156	17,939	5,217	6,579	5,654	925	1,655	1,655	0
Cebu	11,265	9,623	1,642	4,124	3,573	551	591	591	0
Iloilo	5,905	5,092	813	1,696	1,387	309	527	527	0
Tacloban	4,803	2,319	2,484	373	316	57	381	381	0
Dunaguete	1,183	905	278	386	378	8	156	156	0
SOUTH MINDANAO	9,139	6,491	2,648	3,678	3,228	450	936	930	6
Davao	4,447	2,644	1,803	1,626	1,337	289	172	166	6
Zamboanga	2,372	1,906	466	710	649	61	363	363	0
Gen.Santos	1,355	1,003	352	844	771	73	0	0	0
Polloc	835	808	27	447	420	27	322	322	0
Jolo	130	130	0	51	51	0	79	79	0
NORTH MINDONAO	12,794	7,060	5,734	2,489	2,155	334	598	590	8
Cagayan de Oro	6,291	2,519	3,772	1,488	1,229	259	0	0	0
Nasipit	954	883	71	473	465	8	36	36	0
Iligan	4,354	2,862	1,492	353	291	62	489	481	8
Surigao	1,195	796	399	175	170	5	73	73	0
LUZON	18,245	8,074	10,171	1,948	1,562	386	2,376	2,287	89
San Fernando	1,415	887	528	486	221	265	239	214	25
Batangas	14,384	5,296	9,088	1,030	913	117	1,009	1,009	0
Legaspi	1,640	1,515	125	234	234	0	1,050	986	64
Prt. Princesa	806	376	430	198	194	4	78	78	0
TOTAL	93,349	52,405	40,944	29,540	17,794	11,746	9,435	9,332	103
Share (%)	100.00%	56.14%	43.86%	31.64%	19.06%	12.58%	10.11%	10.00%	0.11%

Source:Annual Statistical Report,1990, Vol.I, Vol.II, PPA

[Unit: Thousand MT]

Private Ports Total	Domestic	Foreign	Municipal Ports Total	Domestic	Foreign
11,259	3,736	7,523	40	40	0
0	0	0	0	0	0
0	0	0	0	0	0
11,259	3,736	7,523	40	40	0
14,274	9,984	4,290	648	646	2
6,323	5,232	1,091	227	227	0
3,542	3,040	502	140	138	2
3,793	1,366	2,427	256	256	0
616	346	270	25	25	0
4,430	2,248	2,182	95	85	10
2,601	1,103	1,498	48	38	10
1,256	851	405	43	43	0
507	228	279	4	4	0
66	66	0	0	0	0
0	0	0	0	0	0
9,131	4,088	5,043	576	227	349
4,753	1,254	3,499	50	36	14
310	294	16	135	88	47
3,481	2,059	1,422	31	31	0
587	481	106	360	72	288
13,478	3,967	9,511	443	258	185
624	451	173	66	1	65
11,995	3,144	8,851	350	230	120
329	268	61	27	27	0
530	104	426	0	0	0
52,572	24,023	28,549	1,802	1,256	546
56.32%	25.73%	30.58%	1.93%	1.35%	0.58%

18. Table 6-4 shows the cargo traffic by package types such as break bulk(general cargo), bulk(dry and liquid bulk cargo), and containerized cargo. It shows that break bulk(25,782 Thousand Metric Tons=TMT) has a portion of 49% of the total(52,405TMT) followed by bulk cargo(17,819 TMT, 34%). Containerized cargo reached 8.9 million MT,17% of the total. Foreign cargo(40,944 TMT) is comprised of bulk cargo(28,169 TMT, 69%), break bulk(7,588 TMT, 19%), and containerized cargo(5,187 TMT, 13%). The ratio of containerization that is calculated based on the cargo volume excluded the bulk cargo is 30% in total, 26% in domestic, and 41% in foreign. Except MICT, PMOs and PDOs with the highest ratios of containerization are; the foreign cargo in PMO Manila South Harbor area 55%, the domestic cargo in PMO Manila North Harbor area (56%), in General Santos total (55%), domestic(56%), foreign (53%). Conversely, PDO Luzon area is set at a low ratio.

19. A steady growth of the containerized cargo is observed both in the foreign and domestic in Table 6-3. The Philippines mainly exports fruit, vegetable and furniture, and import chemicals, machine and electric equipment in terms of the cargo volume.

3) Passenger Traffic

20. Table 6-5 shows the passenger traffic by PDO and PMO. Total number of passengers at the ports is 29,949 TP (TP=thousand persons) which is shared by disembarked 14,205TP, and by embarked 13,744 TP. However the study team could not obtain the data concerning the traffic of overseas passengers. (It is not estimated to be large). In regional aspects, Visayas has a large portion, 49% (13,733 TP of the total), followed by North Mindanao (4,881 TP, 18%), and South Mindanao (3,859 TP,14%). By the type of ports, 49% (13,746 TP) of the total of passengers transport at the base ports, 30% (8,344 TP) at the sub-port (terminal ports). Municipal ports reaches 3,938 TP which is 14% of the total, exceeding that of the private ports.

Table 6-4 Cargo Traffic by Commodity Cargo Classification

Port District P M O	Ground Total	Domestic Traffic Total	Break Bulk	Bulk Cargo	Container Cargo	Foreign Traffic Total	Break Bulk	Bulk Cargo	Container Cargo
MANILA	30,014	12,840	4,084	5,793	2,963	17,174	3,773	8,767	4,634
South Harbour	10,278	3,819	1,767	2,042	10	6,460	3,727	1,284	1,449
MICT	3,214	23	0	0	23	3,191	0	9	3,182
North Harbour	16,521	8,998	2,317	3,751	2,930	7,523	46	7,474	3
VISAYAS	23,156	17,938	10,413	4,905	2,620	5,218	909	4,120	189
Cebu	11,265	9,623	5,576	2,568	1,479	1,642	354	1,099	189
Iloilo	5,905	5,092	3,111	1,043	938	813	138	675	0
Tacloban	4,803	2,318	1,093	1,127	98	2,485	414	2,071	0
Dumaguete	1,183	905	633	167	105	278	3	275	0
SOUTH MINDANAO	9,139	6,493	3,408	1,250	1,835	2,646	1,377	1,094	175
Davao	4,447	2,645	1,367	308	970	1,802	1,140	648	14
Zamboanga	2,372	1,907	1,058	591	258	465	65	400	0
Gen.Santos	1,355	1,003	310	300	393	352	145	46	161
Polloc	835	808	543	51	214	27	27	0	0
Jolo	130	130	130	0	0	0	0	0	0
NORTH MINDANAO	12,795	7,062	3,935	1,863	1,264	5,733	1,020	4,524	189
Cagayan de Oro	6,290	2,519	1,116	776	627	3,771	226	3,356	189
Nasipit	955	884	584	94	206	71	71	0	0
Iligan	4,354	2,862	1,704	749	409	1,492	589	903	0
Surigao	1,196	797	531	244	22	399	134	265	0
LUZON	18,245	8,072	3,942	4,008	122	10,173	509	9,664	0
San Fernando	1,415	887	276	611	0	528	198	330	0
Batangas	14,384	5,296	2,199	3,097	0	9,088	243	8,845	0
Legaspi	1,640	1,514	1,240	245	29	126	48	78	0
Prt. Princesa	806	375	227	55	93	431	20	411	0
TOTAL	93,349	52,405	25,782	17,819	8,804	40,944	7,588	28,169	5,187
Share (%)	100.00%	56.14%	27.62%	19.09%	9.43%	43.86%	8.13%	30.18%	5.56%

Source:Annual Statistical Report,1990, Vol.I, Vol.II, PPA

[Unit: Thousand Metric Tonnes, %]

Ratio of Containerization		
Total	Domestic	Foreign
49.16%	42.05%	55.12%
20.98%	0.56%	27.99%
100.00%	100.00%	100.00%
55.38%	55.84%	6.12%
19.88%	20.10%	17.21%
21.95%	20.96%	34.81%
22.40%	23.17%	0.00%
6.11%	8.23%	0.00%
14.17%	14.23%	0.00%
29.58%	35.00%	11.28%
28.19%	41.51%	1.21%
18.68%	19.60%	0.00%
54.91%	55.90%	52.61%
27.30%	28.27%	0.00%
0.00%	0.00%	0.00%
22.67%	24.31%	15.63%
37.81%	35.97%	45.54%
23.93%	26.08%	0.00%
15.14%	18.36%	0.00%
3.20%	3.98%	0.00%
2.67%	3.00%	0.00%
0.00%	0.00%	0.00%
0.00%	0.00%	0.00%
2.20%	2.29%	0.00%
27.35%	29.06%	0.00%
29.54%	25.46%	40.60%
—	—	—

Table 6-5 Passenger Traffic at Philippine Ports (1990)

[Unit: Thousand Persons, %]

Port District P M O	Total Passenger	Type of Port					Traffic	
		Base Port	Other Port	SB. Port	PRT.Port	MNL.Port	DisEMB	Embarked
MANILA	1,634	1,504	130	41	0	89	905	729
South Harbour	85	85	0	0	0	0	45	40
MICT	0	0	0	0	0	0	0	0
North Harbour	1,549	1,419	130	41	0	89	860	689
VISAYAS	13,733	7,095	6,638	3,277	1,890	1,471	6,846	6,887
Cebu	6,268	4,099	2,169	1,742	0	427	3,136	3,132
Iloilo	4,414	2,239	2,175	202	1,751	222	2,190	2,224
Tacloban	1,610	278	1,332	756	0	576	808	802
Dumaguete	1,441	479	962	577	139	246	712	729
SOUTH MINDANAO	3,859	1,641	2,218	2,136	1	81	1,983	1,876
Davao	325	107	218	218	0	0	178	147
Zamboanga	2,554	1,265	1,289	1,207	1	81	1,301	1,253
Gen.Santos	108	108	0	0	0	0	46	62
Polloc	320	57	263	263	0	0	155	165
Jolo	552	104	448	448	0	0	303	249
NORTH MINDONAO	4,881	2,087	2,794	585	30	2,179	2,457	2,424
Cagayan de Oro	858	858	0	0	0	0	437	421
Nasipit	587	586	1	0	1	0	290	297
Iligan	2,802	264	2,538	395	0	2,143	1,399	1,403
Surigao	634	379	255	190	29	36	331	303
LUZON	3,842	1,419	2,423	2,305	0	118	2,014	1,828
San Fernando	0	0	0	0	0	0	0	0
Batangas	2,668	1,300	1,368	1,250	0	118	1,452	1,216
Legaspi	1,032	0	1,032	1,032	0	0	500	532
Prt. Princesa	142	119	23	23	0	0	62	80
							0	0
TOTAL	27,949	13,746	14,203	8,344	1,921	3,938	14,205	13,744
Share (%)	100.00%	49.18%	50.82%	29.85%	6.87%	14.09%	50.82%	49.18%

Source:Annual Statistical Report, 1990, Vol.I, Vol.II, PPA.

4) Shipcalls

21. Table 6-6 shows shipcalls by PMO area and by the type of the ports at Philippine ports. The figures include all types of ships calling at the ports such as passenger vessels, conventional ships for cargo, container vessels, and dry or liquid bulk carriers.

22. In the table, the total number of calling ships is 154 TS(TS=thousand shipcalls), out of which domestic and foreign shares some 147 TS and 7TS. Shipcalls for domestic trade greatly exceeds that of foreign trade. As far as the overseas(foreign) vessels are concerned 53% (3,900 shipcalls) enter the base ports, 44% (3,300 shipcalls) private ports, and the rest enter terminal and municipal ports. On the other hand, 32% (47TS) of domestic vessels enter base and terminal port, 24% (35TS) enter private ports, and 12% (18TS) enter municipal ports. Regarding regional distribution, Visayas occupies 46% (71TS), out of which 98% (70TS) is domestic, equal to 48% of the domestic total. Manila has a 12% (18TS) share of the national total, but 3,100 shipcalls in foreign shares 42% of the foreign national total.

Table 6-6 Shipcalls at Philippine Ports (1990)

Port District P M O	All Ports Total	Domestic	Foreign	Base Ports Total	Domestic	Foreign	Terminal Ports Total	Domestic	Foreign
MANILA	18,353	15,179	3,174	6,313	3,361	2,952	7,486	7,467	19
South Harbour	8,534	6,597	1,937	2,107	170	1,937	6,427	6,427	0
MICT	1,117	102	1,015	1,117	102	1,015	0	0	0
North Harbour	8,702	8,480	222	3,089	3,089	0	1,059	1,040	19
VISAYAS	70,911	69,823	1,088	23,666	23,215	451	13,030	13,028	2
Cebu	30,430	29,841	589	13,403	13,021	382	6,103	6,103	0
Iloilo	21,379	21,238	141	5,945	5,901	44	2,525	2,525	0
Tacloban	7,405	7,120	285	1,437	1,416	21	2,608	2,606	2
Dumaguete	11,697	11,624	73	2,881	2,877	4	1,794	1,794	0
SOUTH MINDANAO	24,638	23,415	1,223	8,561	8,388	173	11,060	11,055	5
Davao	2,952	2,169	783	813	735	78	610	605	5
Zamboanga	13,420	13,217	203	5,600	5,565	35	4,797	4,797	0
Gen.Santos	976	761	215	678	640	38	0	0	0
Polloc	3,560	3,538	22	380	358	22	3,013	3,013	0
Jolo	3,730	3,730	0	1,090	1,090	0	2,640	2,640	0
NORTH MINDONAO	14,301	13,382	919	5,808	5,651	157	1,497	1,494	3
Cagayan de Oro	3,954	3,455	499	2,203	2,066	137	0	0	0
Nasipit	1,506	1,474	32	741	739	2	69	69	0
Iligan	4,347	4,029	318	674	657	17	782	779	3
Surigao	4,494	4,424	70	2,190	2,189	1	646	646	0
LUZON	25,923	24,857	1,066	6,821	6,618	203	13,681	13,590	91
San Fernando	765	580	185	305	236	69	274	212	62
Batangas	14,849	14,118	731	5,231	5,175	56	4,817	4,817	0
Legaspi	8,136	8,067	69	527	502	25	7,316	7,292	24
Prt. Princesa	2,173	2,092	81	758	705	53	1,274	1,269	5
TOTAL	154,126	146,656	7,470	51,169	47,233	3,936	46,754	46,634	120
Share (%)	100.00%	95.15%	4.85%	33.20%	30.65%	2.55%	30.33%	30.26%	0.08%

Source:Annual Statistical Report 1990, Vol.I, Vol.II, PPA

[Unit: Shipcalls]

Private Ports Total	Domestic	Foreign	Municipal Ports Total	Domestic	Foreign
4,035	3,838	197	519	513	6
0	0	0	0	0	0
0	0	0	0	0	0
4,035	3,838	197	519	513	6
21,295	20,664	631	12,920	12,916	4
7,181	6,974	207	3,743	3,743	0
11,045	10,949	96	1,864	1,863	1
1,232	973	259	2,128	2,125	3
1,837	1,768	69	5,185	5,185	0
4,061	3,027	1,034	956	945	11
1,442	751	691	87	78	9
2,159	1,993	166	864	862	2
293	116	177	5	5	0
167	167	0	0	0	0
0	0	0	0	0	0
5,879	5,162	717	1,117	1,075	42
1,696	1,339	357	55	50	5
415	404	11	281	262	19
2,822	2,524	298	69	69	0
946	895	51	712	694	18
2,897	2,156	741	2,524	2,493	31
170	130	40	16	2	14
2,331	1,673	658	2,470	2,453	17
255	235	20	38	38	0
141	118	23	0	0	0
38,167	34,847	3,320	18,036	17,942	94
24.76%	22.61%	2.15%	11.70%	11.64%	0.06%

23. Table 6-7 shows the average cargo volume of a ship. It shows that an average cargo volume per calling ship in the foreign trade is far greater than that of domestic. According to the scale of the ports, the figures vary from large to small.

Table 6-7 Average Cargo Volume Handled per Ship

Port District P M O	All Ports Total	All Ports Domestic	All Ports Foreign	Base Ports Total	Base Ports Domestic	Base Ports Foreign	Terminal Ports Total	Terminal Ports Domestic	Terminal Ports Foreign
MANILA	1,635	846	5,411	2,352	1,546	3,269	517	518	0
South Harbour	1,205	579	3,335	3,075	109	3,335	591	591	0
MICT	2,878	230	3,144	2,878	230	3,144	0	0	0
North Harbour	1,899	1,061	33,888	1,668	1,668	0	65	66	0
VISAYAS	327	257	4,795	278	244	2,051	127	127	4
Cebu	370	322	2,788	308	274	1,442	97	97	0
Iloilo	276	240	5,766	285	235	7,023	209	209	0
Tacloban	649	326	8,716	260	223	2,714	146	146	4
Dumaguete	101	78	3,808	134	131	2,000	87	87	0
SOUTH MINDANAO	371	277	2,165	430	385	2,601	85	84	1,050
Davao	1,506	1,219	2,302	2,000	1,819	3,705	281	274	1,050
Zamboanga	177	144	2,296	127	117	1,743	76	76	0
Gen.Santos	1,388	1,318	1,637	1,245	1,205	1,921	0	0	0
Polloc	235	228	1,227	1,176	1,173	1,227	107	107	0
Jolo	35	35	0	47	47	0	30	30	0
NORTH MINDONAO	895	528	6,239	429	381	2,127	399	395	2,667
Cagayan de Oro	1,591	729	7,559	675	595	1,891	0	0	0
Nasipit	633	599	2,219	638	629	4,000	522	522	0
Iligan	1,002	710	4,692	524	443	3,647	625	617	2,667
Surigao	266	180	5,700	80	78	5,000	113	113	0
LUZON	704	325	9,541	286	236	1,901	174	168	978
San Fernando	1,850	1,529	2,854	1,593	936	3,841	872	1,009	403
Batangas	989	375	12,432	197	176	2,089	209	209	0
Legaspi	202	188	1,812	444	466	0	144	135	2,667
Prt. Princesa	371	180	5,309	261	275	75	61	61	0
TOTAL	606	357	5,481	577	377	2,984	202	200	852

Source: 1990 Annual Statistical Report, vol.I,II,PPA
Note: These figures are simply calculated based on the nominal cargo volume and shipcalls.

[Unit: MT]

Private Ports Total	Private Ports Domestic	Private Ports Foreign	Municipal Ports Total	Municipal Ports Domestic	Municipal Ports Foreign
2,790	973	38,187	78	78	64
0	0	0	0	0	0
0	0	0	0	0	0
2,790	973	38,187	78	78	64
670	483	6,799	50	50	500
881	750	5,271	61	61	0
321	278	5,229	75	74	2,000
3,078	1,404	9,371	120	120	0
335	196	3,913	5	5	0
1,091	743	2,110	99	90	909
1,804	1,469	2,168	552	487	1,111
582	427	2,440	50	50	0
1,730	1,966	1,576	800	800	0
395	395	0	0	0	0
0	0	0	0	0	0
1,553	792	7,033	516	211	8,310
2,802	937	9,801	909	720	2,800
747	728	1,455	480	336	2,474
1,234	818	4,772	449	449	0
621	537	2,078	506	104	16,000
4,652	1,840	12,835	176	103	5,968
3,671	3,469	4,325	4,125	500	4,643
5,146	1,879	13,451	142	94	7,059
1,290	1,140	3,050	711	711	0
3,759	881	18,522	0	0	0
1,377	689	8,599	100	70	5,813

C, Inter-Regional Commodity Flow by Water

24. The 1990 total commodity flow by water, air and rail is shown in Table 6-8. The shares of by air and by rail accounted for only a little over one percent in 1982, way below that of by water in terms of weight.

Table 6-8 Commodity Flow by Mode of Transport

(Unit:MT)

Year	Water	Air	Rail
1982	11,434,821	22,091 (0.19%)	92,787 (0.81%)
1983	12,767,659	21,497 (0.17%)	73,671 (0.58%)
1984	11,880,327	28,744 (0.24%)	75,773 (0.64%)
1985	13,349,723	29,908 (0.22%)	59,784 (0.45%)
1986	12,679,246	37,624 (0.30%)	69,430 (0.55%)
1987	15,621,817	41,886 (0.27%)	70,742 (0.45%)
1988	n.a.	41,551	74,431
1989	19,257,836	45,659 (0.24%)	66,928 (0.35%)

Source: JICA Study Team based on NSO

Historical Change

25. Table 6-9 shows the bigger number of increments from 1981 to 1989 of inter-regional commodity flow. All of the top 10 except the 4th where is intra-regional flow and out of the study area, are concerned with study areas; Regions VI, VII and VIII. Region VII is the biggest, followed by Regions VI and VIII.

Commodity by Item in 1989

26. The inter-regional commodity flow from 1981 to 1987 reflects only the total and is not identified by item. The JICA Study Team, therefore, made a tabulation of the commodity flow in 1989 by 13 items based from NSO's data base.

Table 6-9 Top 40 Inter-Regional Commodity Flow (1981-1989)

No	Origin	Destination	1981	1982	1983	1984	1985	1986	1987	1989	89-81	89/81 %
1	Region VI	NCR	424649	459437	461362	294090	358816	402313	521389	1259508	834859	297
2	Region VII	Region X	281206	279657	274055	627303	944348	764686	1139862	980198	698992	349
3	Region IV	Region IV	81245	107984	130298	191501	227177	299321	462853	779105	697860	959
4	Region XII	Region XII	54546	43545	34945	24500	14118	12833	10224	645318	590772	1183
5	Region IV	Region VII	118468	149181	162249	246044	199241	276051	332890	532747	414279	450
6	Region X	Region VII	293945	297466	295802	397694	462305	425424	439338	625261	341316	220
7	Region XI	NCR	376611	523964	656113	626701	465657	495531	748275	680025	303414	181
8	Region VII	RegionVIII	90189	121014	211422	423297	598484	433041	636527	388014	297825	430
9	NCR	Region VI	131357	130472	100540	115524	142280	25878	224866	420666	289309	320
10	NCR	Region VII	269720	331692	494500	296293	361593	43231	314153	557082	287362	207
11	Region X	NCR	189244	216982	288987	349344	370708	382513	518511	446751	257507	236
12	Region XI	Region VII	268920	240808	267033	230496	173197	150498	286928	514255	245335	191
13	Region V	RegionVIII	2121	2903	8832	13178	15261	7637	8419	236836	234715	11166
14	Region VII	Region VI	134884	186558	163287	324418	353523	261045	346501	351309	216425	260
15	RegionVIII	NCR	75527	88600	136314	124186	182098	125478	250535	281701	206174	373
16	Region IV	Region VI	118615	112223	142049	170849	135109	198192	207716	302846	184231	255
17	Region III	Region IV	46907	130539	117034	235451	144868	222826	255720	219164	172257	467
18	Region VII	Region VII	244046	221475	248620	253814	314600	269349	290847	397815	153769	163
19	Region IV	Region XI	192051	184617	160119	128107	145912	321895	228481	340573	148522	177
20	Region III	Region VI	85137	84618	87381	172383	216308	239734	189725	229440	144303	269
21	Region IV	Region I	114554	158942	80819	104986	75479	111184	191104	251307	136753	219
22	Region III	Region VII	130947	166817	138049	281263	300508	294960	308560	262068	131121	200
23	NCR	Region X	103933	126879	118429	61731	93224	23309	103063	234749	130816	226
24	NCR	Region XI	244646	303307	281528	111384	243586	22588	146894	357116	112470	146
25	Region XII	NCR	230027	220852	419579	359846	370777	502318	594837	340929	110902	148
26	Region IV	RegionVIII	22636	25763	48910	67168	37285	44290	62681	128096	105460	566
27	Region VI	Region VII	161481	133529	122468	179631	174108	238849	288676	257226	95745	159
28	Region XI	RegionVIII	6486	1255	20108	76125	78804	85404	44149	95939	89453	1479
29	Region IV	Region V	67936	68442	60114	89030	94007	118330	140628	156872	88936	231
30	Region XI	Region VI	3175	5227	10522	30540	22797	30165	43293	91244	88069	2874
31	Region X	Region VI	23480	21627	46409	56958	143284	94684	47704	111195	87715	474
32	Region IV	Region X	65548	90382	122885	134718	217705	150256	135887	147812	82264	226
33	Region I	RegionVIII	0	0	29916	25000	120630	96800	112440	79434	79434	0
34	NCR	RegionVIII	42985	57241	69977	58826	53535	7268	50300	122236	79251	284
35	RegionVIII	Region VI	3681	4297	7140	11004	55435	36264	55082	81648	77967	2218
36	RegionVIII	Region VII	122412	95249	94074	70420	72666	89583	131273	186213	63801	152
37	NCR	Region IV	75960	33160	36761	38855	63271	8511	55382	137930	61970	182
38	NCR	Region XII	31863	30967	41233	36670	61621	6426	56653	93206	61343	293
39	Region XI	Region V	5009	6137	17111	47512	26671	23712	44324	59140	54131	1181
40	Region II	NCR	30526	54666	79086	14565	15541	7383	1875	80242	49716	263

Source: JICA Study Team based on NSO

27. The production and attraction by region and by item are shown in Table 6-10. For production, Regions VII and X rank highest, and for attraction, its NCR and Region VII. That means large quantities of goods move from the producing districts to the consuming areas.

Table 6-10 Production and Attraction by Items in 1989

Commodity Item	Production				Attraction			
	1st		2nd		1st		2nd	
1 Rice	VI	47.4%	IV	16.1%	VII	27.3%	IX	20.1%
2 Corn	X	52.0%	XI	23.3%	NCR	52.9%	VII	38.3%
3 Sugar	VI	87.1%	VII	8.1%	NCR	75.0%	VI	11.7%
4 Copra	VII	21.2%	VI	19.1%	XII	37.0%	NCR	18.7%
5 Wood	XII	45.9%	X	18.0%	XII	38.1%	NCR	32.5%
6 Beer	VII	72.9%	NCR	16.4%	VI	26.0%	X	15.6%
7 Pulp	XI	53.5%	NCR	38.9%	NCR	54.8%	XI	18.9%
8 Iron	XII	32.8%	VII	31.1%	NCR	33.3%	VIII	18.6%
9 Fertilizer	VIII	60.5%	VII	16.0%	VI	25.5%	VII	19.8%
10 Cement	X	40.3%	XI	33.7%	VI	22.8%	VII	20.5%
11 Fruit	X	34.9%	XI	26.3%	NCR	65.1%	VII	19.1%
12 Mineral	III	53.4%	IV	39.9%	NCR	28.3%	VII	16.0%
13 Rest	VII	23.0%	NCR	22.4%	VII	26.6%	X	15.8%

Source: JICA Study Team based on NSO

28. The top three (3) inter-regional commodity flow by item as enumerated in Table 6-11 shows two types of movement; one is from the producing district to the comsuming district, and, the other is among the producing districts, that is, from smaller ports to larger ports.

Table 6-11 Top Three (3) Inter-Regional Commodity Flow by Item

Commodity Item	1st From	1st To	2nd From	2nd To	3rd From	3rd To	Share (%)
1 Rice	VI	VII	VI	IX	IV	IV	2.1
2 Corn	X	VII	XI	NCR	X	NCR	2.5
3 Sugar	VI	NCR	VI	VI	VII	VI	7.9
4 Copra	VIII	XII	XI	XI	VII	X	2.5
5 Woods	XII	XII	XI	NCR	X	VII	8.7
6 Beer	VII	VI	VII	X	VII	XI	5.6
7 Pulp	XI	NCR	NCR	XI	NCR	VII	1.2
8 Iron	XII	NCR	VII	VIII	NCR	VII	1.9
9 Fertilier	VIII	NCR	VIII	VII	VIII	VI	3.2
10 Cement	XI	VI	X	VI	X	NCR	5.2
11 Fruit	XI	NCR	X	NCR	X	VII	1.3
12 Mineral	III	NCR	IV	VII	IV	XI	25.7
13 Rest	VII	X	IV	IV	NCR	VII	32.3

Source: JICA Study Team based on NSO

Note: Share is the percentage of each item to the total.

29. Cargo is carried as a variety kind of goods at the same time. Table 6-12 shows the top ten (10) inter-regional commodity flow. The top two (2) may be considered as one item only, that is, mineral and sugar. The other items are aggregated under "rest" group. So Ro/Ro service will be expected for these routes.

Table 6-12 Top Ten (10) Inter-Regional Commodity Flow

No.	From/To		Ton	Major items
1	III	NCR	1,372,054	Mineral
2	VI	NCR	1,259,508	Sugar
3	VII	X	980,198	Rest
4	IV	IV	779,105	Rest
5	XI	NCR	680,025	Pulp,Fruit,Corn,Woods
6	XII	XII	645,318	Woods
7	X	VII	625,261	Corn,Fruit,Woods
8	NCR	VII	557,082	Rest
9	IV	VII	532,747	Mineral
10	XI	VII	514,255	Rest

Source: JICA Study Team based on NSO

D. Inter-Island Passenger and Commodity Flow by Item in the Visayas Region

30. Nineteen (19) islands, as follows, have been set up for inter-island analysis.

- Luzon	NCR, Region I, II, III, IV, V
- Marinduque	Region IV
- Mindoro	- ditto -
- Palawan	- ditto -
- Romblon	- ditto -
- Catanduanes	Region V
- Masbate	- ditto -
- Panay	Region VI
- Guimaras	- ditto -
- Negros	Region VI, VII
- Cebu	Region VII
- Bohol	- ditto -
- Siquijo	- ditto -
- Samar Leyte	Region VIII

- Basilan	Region IX
- Sulu	- ditto -
- Tawi-Tawi	- ditto -
- Camiguin	Region X
- Mindanao	Region IX, X, XI, XII

Passenger

31. The JICA Study Team has made a tabulation of the passenger flow in 1989 from NSO's data base. The data available at NSO are actually based on PPA records. Table 6-13 shows the inter-island passenger flow in 1989.

32. The NSO data do not include passengers who use the motor banca, like for example, between Iloilo and Jordan at Guimaras, so some inter-island passenger flows are recorded as zero. And the number of the opposite flows are quite different and not reflective of the actual situation.

33. Nonetheless, inter-island passenger flow in Visayas region has a core; the inter-island flow of Cebu to/from neighboring areas is the main.

Commodity Flow by Items

34. Similar to the inter-regional flow, the production and attraction by island and by item is derived and shown in Table 6-14. It reveals that commodity moves basically amongst three (3) large areas, that is, the first is Luzon, the second is Visayas inclusive of Panay, Negros, Cebu and Samar-Leyte islands and the last is Mindanao.

Table 6-13 Inter-Island Passenger Flow in 1989

No	Name	01 Luzon	02 Maridq	03 Mindoro	04 Palawan	05 Romblon	06 Catandu	07 Masbate	08 Panay	09 Guimars	10 Negros	11 Cebu	12 Bohol	13 Siquij
1	Luzon	1357	39731	633110	29840	65404	40656	42477	323745	-	149265	245239	3094	-
2	Marinduqu	122387	-	124	-	-	-	-	-	-	-	-	-	-
3	Mindoro	353898	-	-	-	-	-	-	1337	-	-	-	-	-
4	Palawan	40862	-	-	5989	519	-	-	5420	-	-	-	-	-
5	Romblon	56796	-	2029	-	8090	-	-	1391	-	-	29	-	-
6	Catanduan	25628	-	-	-	-	-	-	-	-	-	-	-	-
7	Masbate	71458	-	-	-	256	-	30457	-	-	-	461	-	-
8	Panay	183910	-	-	485	659	-	-	2207	-	71487	5572	-	-
9	Guimaras	-	-	-	-	-	-	-	-	-	-	-	-	-
10	Negros	48802	-	-	-	-	-	-	31590	-	-	442570	5163	36901
11	Cebu	141027	-	-	-	-	-	21794	176	-	56256	118853	250455	8662
12	Bohol	4792	-	-	-	-	-	644	-	-	5344	307167	-	788
13	Siquijor	-	-	-	-	-	-	-	-	-	18310	16537	6083	347
14	Samar Ley	102289	-	-	-	-	-	4288	3838	-	-	316115	451	-
15	Basilan	-	-	-	-	-	-	-	-	-	-	-	-	-
16	Sulu	29	-	-	-	-	-	-	-	-	-	40	-	-
17	Tawi-Tawi	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Camiguin	-	-	-	-	-	-	-	-	-	-	-	-	-
19	Mindanao	114443	-	-	-	1130	-	-	117545	-	13808	478915	126307	1135
20	Total	1267678	39731	635263	36314	76058	40656	99660	487249	-	314470	1931498	391553	47833

No	Name	14 Smr-Lyt	15 Basilan	16 Sulu	17 TawiTawi	18 Camiguin	19 Mindana	20 Total
1	Luzon	327098	-	-	-	-	134140	2035156
2	Marinduqu	-	-	-	-	-	-	122511
3	Mindoro	-	-	-	-	-	-	355235
4	Palawan	-	-	-	73	-	117	52980
5	Romblon	-	-	-	-	-	-	68335
6	Catanduan	-	-	-	-	-	-	25628
7	Masbate	3521	-	-	-	-	21	106174
8	Panay	-	-	-	-	-	37552	301872
9	Guimaras	-	-	-	-	-	-	-
10	Negros	-	-	-	-	-	69363	634389
11	Cebu	269209	-	-	-	906	284521	1151859
12	Bohol	4639	-	-	-	-	138279	461653
13	Siquijor	-	-	-	-	-	17987	59264
14	Samar Ley	71956	-	-	-	-	43782	542719
15	Basilan	-	-	-	-	-	313050	313050
16	Sulu	-	-	17408	10929	-	18844	47250
17	Tawi-Tawi	-	-	37480	37104	-	63189	137773
18	Camiguin	-	-	-	-	-	-	-
19	Mindanao	94884	323745	68025	1439	28	478672	1820076
20	Total	771307	323745	122913	49545	934	1599517	8235924

Source: JICA Study Team based on NSO

Table 6-14 Inter-Island Production and Attraction by Items in 1989

Commodity Item	Production 1st		Production 2nd		Attraction 1st		Attraction 2nd	
1 Rice	PNY	46.1%	LZN	15.2%	CEB	24.7%	MND	18.0%
2 Corn	MND	90.6%	PNY	2.5%	LZN	58.4%	CEB	36.0%
3 Sugar	NGR	87.5%	PNY	5.2%	LZN	76.9%	PNY	8.2%
4 Copra	MND	25.8%	SMR	21.2%	MND	67.6%	LZN	21.6%
5 Wood	MND	81.8%	LZN	8.6%	MND	51.8%	LZN	33.6%
6 Beer	CEB	72.7%	LZN	20.2%	MND	38.9%	PNY	13.7%
7 Pulp	MND	56.9%	LZN	39.1%	LZN	54.9%	MND	29.8%
8 Iron	MND	37.7%	CEB	29.3%	LZN	34.0%	MND	24.1%
9 Fertilizer	SMR	60.5%	PNY	15.2%	LZN	27.7%	NGR	22.5%
10 Cement	MND	89.3%	LZN	5.9%	LZN	25.5%	CEB	14.7%
11 Fruit	MND	66.3%	LZN	11.1%	LZN	67.5%	CEB	18.2%
12 Mineral	LZN	95.1%	PNY	0.7%	LZN	42.9%	MND	20.7%
13 Rest	LZN	36.9%	MND	23.4%	MND	25.2%	CEB	24.3%

Source: JICA Study Team based on NSO

Note: LZN - Luzon PNY - Panay NGR - Negros CEB - Cebu
SMR - Samar-Leyte MND - Mindanao

35. Table 6-15 shows the inter-island commodity flow in 1989 and Table 6-16 is concerned with Visayas Region, it distinguishes from the others, for example, the main flow of rice which is from Panay to Cebu, Panay to Mindamao and Panay to Negros. This is indicative of the area's production role. On the other hand, the main flow of mineral is from Luzon to Cebu, Luzon to Negros and Luzon to Panay, which relate to the attraction side of commodity flow.

Table 6-15 Inter-Island Commodity Flow in 1989

Origin		Destination	Commodity												
No	Name	No Name	Rice	Corn	Sugar	Copra	Woods	Beer	Pulp	Iron	Fertlzr	Cement	Fruits	Mineral	Rest	Total
01	Luzon	01 Luzon	1873	1127	519	91	84582	760	7	280	3410	2635	8	2096518	194780	2386598
		02 Marinduque	1353	1	777	44	403	3356	0	500	75	4398	117	58210	7753	76989
		03 Mindoro	1625	249	4994	172	1297	36106	107	2036	17066	35551	529	47014	212403	359148
		04 Palawan	4800	18	4475	89	2366	13474	346	1796	3005	3261	1096	37083	43516	115326
		05 Romblon	2065	60	412	3	157	5932	5	581	630	1129	93	7893	8809	27770
		06 Catanduanes	4989	139	1145	33	111	3211	4	877	99	364	5	21688	4771	37435
		07 Masbate	6449	285	310	85	301	7773	161	764	166	619	433	52167	13719	83231
		08 Panay	360	135	1449	972	3555	26995	4599	8637	1024	875	4143	259619	203499	515863
		10 Negros	5007	223	3899	2576	2765	23750	5573	8214	2366	3220	3299	268059	191095	520046
		11 Cebu	17120	267	2818	6153	7607	32691	12616	22729	2130	1828	7556	681078	415666	1210257
		12 Bohol	4	1	117	58	25	5085	1121	386	50	59	120	33521	24685	65231
		14 Samar Leyte	11705	32	764	548	215	10497	855	3365	390	485	3815	160263	402285	595219
		15 Basilan	246	-	23	-	-	240	52	391	-	10	61	7333	3115	11472
		16 Sulu	-	-	-	-	-	-	-	-	-	13	-	12684	-	12697
		19 Mindanao	4437	594	4893	17468	41176	46179	62510	43364	4053	4492	6196	953881	568057	1757300
		20 Total	62032	3131	26595	28292	144561	216058	87955	93920	34465	58938	27470	4697013	2294153	7774582
02	Marinduque	01 Luzon	-	36	-	4323	516	31	12	779	-	5	194	440	6783	13118
		02 Marinduque	-	-	-	7	-	-	-	-	-	-	-	-	1	9
		03 Mindoro	-	-	-	-	-	-	-	-	-	-	-	162	4	166
		05 Romblon	-	-	-	-	1	52	-	28	-	-	-	-	22	102
		07 Masbate	-	-	-	1	1	-	-	4	-	22	1	683	2	714
		08 Panay	-	-	-	-	-	-	-	-	-	-	-	1036	-	1036
		11 Cebu	-	-	-	-	-	-	-	326	-	-	-	-	1168	1494
		14 Samar Leyte	-	-	-	-	-	-	-	-	-	-	-	-	48038	48038
		20 Total	-	36	-	4331	518	83	12	1137	-	26	195	2322	56017	64677
03	Mindoro	01 Luzon	46889	1470	2205	7788	1662	536	15	1503	4	358	5435	0	305326	373191
		02 Marinduque	1110	-	-	-	-	-	-	-	-	-	-	-	-	1110
		03 Mindoro	973	-	3	10	2	82	-	2	30	-	-	-	384	1487
		04 Palawan	1960	-	60	-	12	19	-	4	43	-	2	-	957	3057
		05 Romblon	2001	-	-	-	-	-	-	-	-	-	-	-	149	2150
		07 Masbate	-	-	-	-	-	-	-	-	-	-	-	-	200	200
		08 Panay	240	-	4	-	25	70	1	1	-	6	6	1	4218	4572
		10 Negros	454	-	-	-	-	-	-	-	-	-	-	-	650	1104
		11 Cebu	-	-	-	-	-	153	-	-	-	-	-	-	10064	10217
		12 Bohol	400	-	-	-	-	-	-	-	-	-	-	-	1200	1600
		14 Samar Leyte	3096	-	-	-	-	-	-	-	-	-	0	-	1323	4419
		19 Mindanao	-	-	-	-	-	-	-	-	-	-	-	-	3359	3359
		20 Total	57125	1470	2272	7798	1701	860	16	1511	76	364	5443	1	327830	406467
04	Palawan	01 Luzon	970	14858	4	26315	1453	76	29	1259	1	0	873	7	22851	68696
		03 Mindoro	4	13	-	194	-	10	-	6	-	-	1	-	69	296
		04 Palawan	1128	208	90	476	249	1137	0	112	60	472	64	767	1858	6622
		05 Romblon	-	-	-	-	-	-	-	-	-	-	-	-	3	3
		07 Masbate	-	-	-	-	-	-	-	-	-	-	-	-	0	0
		08 Panay	475	-	2	75	925	1	1	12	-	3	44	7	2558	4103
		10 Negros	-	-	-	-	73	-	-	-	-	-	-	-	-	73
		11 Cebu	20	-	-	-	16	350	-	6	-	-	-	-	14175	14567
		14 Samar Leyte	-	-	-	-	5	-	10	-	-	-	-	-	7	22
		17 Tawi-Tawi	137	-	-	-	-	-	-	-	-	-	4	-	9	150
		19 Mindanao	150	-	-	-	4	382	50	-	-	-	-	-	434	1020
		20 Total	2884	15078	96	27060	2725	1955	90	1395	60	476	986	781	41964	95552
05	Romblon	01 Luzon	23	-	12	3294	167	234	0	236	-	281	10	19	28051	32326
		02 Marinduque	-	-	-	-	-	-	-	-	-	-	-	-	10	10
		03 Mindoro	28	-	-	43	-	-	-	-	-	28	-	-	143	242
		04 Palawan	-	-	-	15	-	-	0	0	-	-	-	-	23	37
		05 Romblon	379	-	-	660	7	68	-	25	27	514	4	7	4790	6481
		07 Masbate	-	-	-	-	-	461	-	12	-	-	-	-	900	1372
		08 Panay	25	-	-	20	2	-	-	-	-	126	-	-	1737	1910
		10 Negros	-	-	-	-	0	-	-	-	-	-	-	-	439	439
		11 Cebu	0	-	-	-	-	-	0	-	-	5	-	-	2216	2222
		14 Samar Leyte	-	-	-	-	-	-	-	-	-	5	-	-	345	350
		20 Total	455	-	12	4031	177	763	0	274	27	960	14	26	38653	45390
06	Catanduanes	01 Luzon	431	-	-	95	4	2	-	42	-	-	-	-	3313	3888
		11 Cebu	-	-	-	-	-	-	-	-	-	-	-	-	227	227
		14 Samar Leyte	62	-	-	-	3	-	-	8	-	-	-	349	113	535
		20 Total	493	-	-	95	7	2	-	50	-	-	-	349	3653	4649

Source: JICA Study Team based on NSO

Cont. Table 6-15

Origin		Destination		Commodity												
No	Name	No	Name	Rice	Corn	Sugar	Copra	Woods	Beer	Pulp	Iron	Fertlzr	Cement	Fruits	Mineral	Rest	Total
07	Masbate	01	Luzon	715	3	27	5998	189	284	0	279	-	426	17	97	14069	22104
		03	Mindoro	-	-	-	-	-	-	-	-	-	-	-	425	-	425
		05	Romblon	-	-	-	-	-	9	-	-	-	640	-	-	-	649
		07	Masbate	357	2	10	45	2	650	-	1	-	227	1	2	1186	2482
		08	Panay	-	-	-	-	-	-	-	-	-	-	-	2574	-	2574
		11	Cebu	1	-	39	115	37	83	-	2	-	-	7	-	7903	8186
		14	Samar Leyte	-	3	-	-	4	1	-	3	-	-	1	-	337	348
		19	Mindanao	-	-	-	8160	-	-	-	-	-	-	-	1343	17	9520
		20	Total	1073	7	77	14317	231	1027	0	284	-	1293	25	4441	23512	46289
08	Panay	01	Luzon	15459	9863	29252	5172	60	1620	651	1151	2285	175	12665	10949	71812	161114
		02	Marinduque	-	-	-	-	-	90	-	-	-	-	-	-	-	90
		03	Mindoro	500	-	-	-	-	3297	-	0	1550	-	-	-	-	5348
		04	Palawan	879	1	954	-	41	1400	6	34	185	203	22	167	1344	5237
		05	Romblon	53	1	3	1	2	-	-	-	-	21	72	1	252	405
		07	Masbate	-	-	-	-	-	-	-	-	-	600	-	-	-	600
		08	Panay	26	-	502	45	4	46	-	2	-	675	85	-	512	1897
		09	Guimaras	-	-	1781	-	-	-	-	-	-	-	-	-	-	1781
		10	Negros	37557	1705	6996	226	512	2192	219	779	80368	1997	2407	19963	34346	189268
		11	Cebu	65253	335	7090	235	123	5258	91	19	506	156	1175	2662	65290	148191
		12	Bohol	965	-	-	-	-	-	-	-	250	-	-	-	-	1215
		14	Samar Leyte	18060	-	3874	-	4	36	-	56	4347	560	14	2	2105	29057
		15	Basilan	6412	-	1295	-	-	-	-	-	-	-	1	-	13	7720
		17	Tawi-Tawi	-	-	-	-	-	10	-	-	-	-	-	10	8	28
		19	Mindanao	42281	219	27480	409	189	353	100	2453	3278	966	547	18	10748	89041
		20	Total	187445	12123	79228	6087	935	14302	1067	4494	92769	5353	16987	33771	186429	640992
09	Guimaras	01	Luzon	-	-	2000	-	-	-	-	-	-	-	-	-	-	2000
		10	Negros	-	-	-	-	-	-	-	-	511	-	-	-	-	511
		20	Total	-	-	2000	-	-	-	-	-	511	-	-	-	-	2511
10	Negros	01	Luzon	325	1191	1105327	1806	1092	284	2171	1473	3399	227	9779	5056	60538	1192666
		02	Marinduque	-	-	-	-	-	-	-	-	625	-	-	-	910	1535
		07	Masbate	-	-	-	-	-	-	-	-	-	-	-	5679	-	5679
		08	Panay	345	3	114065	1009	89	34	55	132	93	614	311	11334	12449	140534
		09	Guimaras	-	-	21798	-	-	-	-	-	-	-	-	-	-	21798
		10	Negros	7	-	22668	-	24	1252	-	-	35	1	2	-	296	24286
		11	Cebu	4745	617	29911	130	1284	456	409	2446	1885	1289	4242	449	182476	230340
		12	Bohol	-	-	1594	-	-	176	19	2	-	-	158	0	983	2931
		13	Siquijor	75	1	134	7	86	431	8	3	77	66	132	617	1899	3536
		14	Samar Leyte	15	-	4087	-	0	1	-	25	-	97	-	-	5933	10158
		19	Mindanao	59	-	33298	64648	341	208	105	622	69	720	220	6220	21787	128296
		20	Total	5571	1812	1332882	67600	2916	2842	2768	4703	6182	3014	14844	29355	287270	1761759
11	Cebu	01	Luzon	672	3883	8892	3987	14824	49429	1502	15495	31573	6128	5745	4651	150955	297736
		02	Marinduque	-	-	-	-	-	4738	-	-	-	14	-	-	-	4752
		03	Mindoro	-	-	-	-	-	6482	-	-	-	500	-	669	11	7662
		04	Palawan	28	4	3	-	1	14960	-	-	-	0	-	1393	139	16529
		05	Romblon	-	-	-	-	-	-	-	-	-	20	-	-	159	179
		06	Catanduanes	-	-	-	-	3	720	-	3	8	32	-	-	65	830
		07	Masbate	137	14	203	20	190	15890	3	546	73	4179	7	920	8604	30784
		08	Panay	780	19	829	142	4035	119114	150	2667	5665	2264	478	7274	21829	165245
		10	Negros	2272	268	5312	493	1096	114359	76	1415	8470	359	148	9222	28268	171758
		11	Cebu	722	2235	99	700	264	16458	39	526	2862	7257	76	23337	26537	81112
		12	Bohol	927	16	3046	156	1522	23761	317	1782	4827	4003	481	9117	37944	87899
		13	Siquijor	597	0	36	74	196	1256	7	207	81	75	5	1269	1648	5451
		14	Samar Leyte	4944	174	4280	262	1862	52747	154	63849	6699	3109	761	46173	177944	362958
		15	Basilan	-	-	-	-	16	3937	-	31	-	-	14	-	53	4050
		16	Sulu	-	-	0	-	0	1937	-	-	-	-	2	-	89	2028
		17	Tawi-Tawi	-	-	0	-	0	21	0	2	-	10	-	-	20	59
		18	Camiguin	928	1	161	2	33	601	8	54	18	2	19	0	421	2247
		19	Mindanao	5085	2908	11804	6664	3135	350911	2498	20866	31657	2186	1587	46742	280488	766531
		20	Total	17097	9521	34665	12499	27178	777320	4754	107443	91932	30138	9322	150768	735174	2007811
12	Bohol	01	Luzon	3	-	251	88	-	1	-	176	-	-	237	-	4038	4793
		03	Mindoro	-	-	-	-	-	-	-	-	-	-	-	-	53	53
		08	Panay	-	-	-	-	-	-	-	-	-	-	-	-	0	0
		10	Negros	509	-	81	129	31	-	0	1	-	680	173	1	1842	3448
		11	Cebu	2896	546	172	5433	957	1433	46	5541	196	61	3967	23	24040	45332
		12	Bohol	-	-	-	-	6	170	-	-	-	-	14	-	614	804

Source: JICA Study Team based on NSO

Cont. Table 6-15

Origin		Destination		Commodity											
No	Name	No	Name	Rice	Corn	Sugar	Copra	Woods	Beer	Pulp	Iron	Fertlzr	Cement	Fruits	Mineral	Rest	Total
12	Bohol	13	Siquijor	824	1	5	-	23	88	1	16	16	0	0	1	135	1110
		14	Samar Leyte	-	-	-	-	-	-	-	-	-	1	4	-	17350	17355
		15	Basilan	-	-	-	-	-	-	-	-	-	-	-	-	8	8
		18	Camiguin	-	-	-	-	56	-	-	-	-	-	-	-	-	56
		19	Mindanao	583	321	77	7679	209	18	16	129	293	1	1213	69	478136	488744
		20	Total	4815	868	586	13329	1281	1710	63	5863	506	744	5628	94	526216	561702
13	Siquijor	10	Negros	1	-	4	478	1	16	2	8	-	0	3	-	83	596
		11	Cebu	21	-	1	1463	194	13	3	30	8	-	173	1	1511	3419
		12	Bohol	0	-	-	76	188	0	-	2	-	-	19	-	718	1003
		19	Mindanao	0	-	-	33	86	-	0	-	-	-	9	0	369	498
		20	Total	22	-	6	2049	469	29	6	40	8	0	204	2	2681	5516
14	Samar Leyte	01	Luzon	166	31	2868	19083	71285	1954	141	2542	126854	1143	436	28	102068	328599
		02	Marinduque	-	-	-	-	-	-	-	-	-	-	-	-	2000	2000
		03	Mindoro	-	-	-	-	-	-	-	-	2100	100	-	-	-	2200
		04	Palawan	-	-	-	-	-	-	-	-	-	-	-	-	102	102
		07	Masbate	6	-	621	616	12	-	-	16	83	-	4	-	287	1645
		08	Panay	411	-	-	69	3273	1	-	-	33893	109	12	-	378	38146
		10	Negros	-	-	315	-	2860	-	-	-	45046	148	-	-	1798	50168
		11	Cebu	980	509	232	14363	10158	1142	98	1899	78707	83	198	3	65852	174224
		12	Bohol	-	-	-	-	-	0	-	-	4550	-	-	-	773	5323
		14	Samar Leyte	7565	-	1518	879	515	4747	3	444	420	4076	10	12	10965	31152
		15	Basilan	-	-	-	-	-	-	-	-	125	-	-	-	-	125
		18	Camiguin	-	-	-	-	18	-	-	-	-	-	-	-	-	18
		19	Mindanao	54	-	429	68398	30606	1	0	2163	78182	-	-	2	16183	196018
		20	Total	9183	540	5983	103408	118726	7845	242	7064	369961	5658	660	44	200405	829719
15	Basilan	01	Luzon	-	-	-	140	1852	-	-	-	-	-	2	-	5111	7105
		08	Panay	-	-	-	-	142	-	-	-	-	-	-	-	4	146
		10	Negros	-	-	-	-	48	-	-	-	-	-	-	-	-	48
		11	Cebu	-	-	-	-	63	-	0	2	-	-	-	-	3279	3345
		15	Basilan	4	-	-	-	-	-	-	-	-	-	-	2	-	6
		16	Sulu	-	-	-	-	161	-	-	-	-	-	-	-	-	161
		19	Mindanao	10	-	-	54426	848	-	-	46	-	1	379	-	9800	65510
		20	Total	14	-	-	54566	3115	-	0	49	-	1	381	2	18194	76321
16	Sulu	04	Palawan	-	-	-	-	-	-	-	-	-	-	-	-	2	2
		11	Cebu	-	-	-	-	-	180	-	-	-	-	-	-	592	772
		15	Basilan	-	-	-	-	-	110	-	-	-	-	-	-	99	209
		16	Sulu	38	-	1	150	38	13	0	-	-	-	758	48	647	1694
		17	Tawi-Tawi	229	-	3	55	25	104	-	4	-	161	104	235	382	1303
		19	Mindanao	135	-	-	13922	11	253	15	4	-	-	253	-	10020	24612
		20	Total	403	-	4	14127	74	660	15	8	-	161	1115	283	11742	28592
17	Tawi-Tawi	01	Luzon	-	-	-	-	477	-	-	-	-	-	-	-	-	477
		11	Cebu	-	-	-	-	115	-	-	0	-	-	-	-	3514	3629
		16	Sulu	-	-	-	186	121	-	-	-	-	-	-	-	508	815
		17	Tawi-Tawi	271	-	10	80	18	303	-	0	-	119	3	14	678	1495
		19	Mindanao	12	-	-	1824	66	-	-	10	-	-	-	-	10602	12514
		20	Total	283	-	10	2090	796	303	-	11	-	119	3	14	15301	18930
19	Mindanao	01	Luzon	1562	245697	20167	26995	384468	833	119145	99520	1773	244841	131372	712	456487	1733574
		02	Marinduque	-	-	-	-	-	-	-	-	-	435	-	-	-	435
		03	Mindoro	-	-	-	-	-	-	-	-	-	6000	-	-	-	6000
		04	Palawan	71	-	2	-	12	573	-	6	-	11564	1	-	2346	14575
		05	Romblon	-	-	-	-	4	-	-	-	-	3304	-	-	-	3308
		06	Catanduanes	-	-	-	-	-	-	-	-	-	1800	-	-	-	1800
		07	Masbate	-	-	-	-	4	-	-	-	-	10140	-	-	827	10971
		08	Panay	4	1420	62	400	8712	60	834	291	-	120240	2851	3	12315	147192
		10	Negros	1558	5911	4986	213	10506	-	79	59	980	120875	556	1	13878	159603
		11	Cebu	8662	167187	2510	10369	171273	3323	6172	18863	2182	136956	27418	472	688756	1244143
		12	Bohol	340	6368	1187	353	2520	50	56	143	287	30013	158	1576	21406	64458
		13	Siquijor	-	-	-	-	-	-	-	-	-	812	-	-	387	1199
		14	Samar Leyte	399	88	37	532	1698	26	0	291	1527	100774	135	1845	79059	186412
		15	Basilan	10063	13	1380	251	256	9122	112	245	1103	3751	103	647	10199	37246
		16	Sulu	13447	5	2142	601	414	8408	19	162	49	9389	131	1421	7624	43811
		17	Tawi-Tawi	1033	2	119	9	98	3402	7	10	1800	1296	14	747	1366	9904
		18	Camiguin	487	-	56	-	217	554	0	79	50	1644	6	4	873	3970
		19	Mindanao	20318	5005	5825	85771	790707	17831	1706	18634	5298	92350	973	12680	160680	1217777
		20	Total	57944	431696	38473	125495	1370889	44183	128132	138304	15048	896185	163718	20110	1456204	4886379

Source: JICA Study Team based on NSO

Cont. Table 6-15

Origin		Destination													
			Commodity												
No	Name	No	Name	Rice	Corn	Sugar	Copra	Woods	Beer	Pulp	Iron	Fertlzr	Cement	Fruits	Mineral	Rest	Total
20	Total	01	Luzon	69089	278160	1171525	105172	562630	56050	123674	124736	169298	256219	166773	2118478	1426182	6627985
		02	Marinduque	2463	1	777	51	403	8184	0	500	700	4847	117	58210	10675	86929
		03	Mindoro	3130	262	4997	419	1298	45977	107	2045	20746	42179	530	48271	213066	383026
		04	Palawan	8868	231	5584	580	2682	31564	352	1952	3293	15501	1185	39410	50288	161489
		05	Romblon	4498	61	414	664	171	6061	5	634	657	5627	169	7901	14182	41046
		06	Catanduanes	4989	139	1145	33	114	3931	4	880	107	2196	5	21688	4835	40065
		07	Masbate	6949	301	1144	767	510	24774	164	1343	322	15786	446	59451	25723	137679
		08	Panay	2667	1577	116913	2732	20763	146321	5639	11741	40675	124912	7929	281848	259499	1023219
		09	Guimaras	-	-	23579	-	-	-	-	-	-	-	-	-	-	23579
		10	Negros	47365	8106	44262	4115	17919	141570	5950	10475	137776	127281	6589	297246	272696	1121348
		11	Cebu	100420	171695	42870	38960	192091	61539	19475	52389	88476	147636	44833	708026	1513265	3181675
		12	Bohol	2636	6384	5944	643	4261	29242	1513	2316	9964	34075	951	44214	88323	230465
		13	Siquijor	1496	2	175	81	305	1775	16	227	174	953	137	1887	4069	11296
		14	Samar Leyte	45846	296	14560	2221	4306	68056	1022	68041	13382	109108	4738	208644	745804	1286024
		15	Basilan	16724	13	2699	251	272	13410	164	667	1228	3761	178	7982	13486	60835
		16	Sulu	13486	5	2143	937	733	10359	19	162	49	9402	891	14153	8867	61206
		17	Tawi-Tawi	1675	2	132	144	141	3840	7	17	1800	1587	124	1006	2464	12939
		18	Camiguin	1415	1	218	2	324	1155	8	133	67	1646	25	5	1294	6292
		19	Mindanao	73124	9047	83807	329402	867377	416135	67000	88292	122830	100714	11375	1020956	1570679	4760738
		20	Total	406838	476283	1522887	487174	1676300	1069943	225121	366548	611544	1003430	246995	4939376	6225398	19257836

Source: JICA Study Team based on NSO

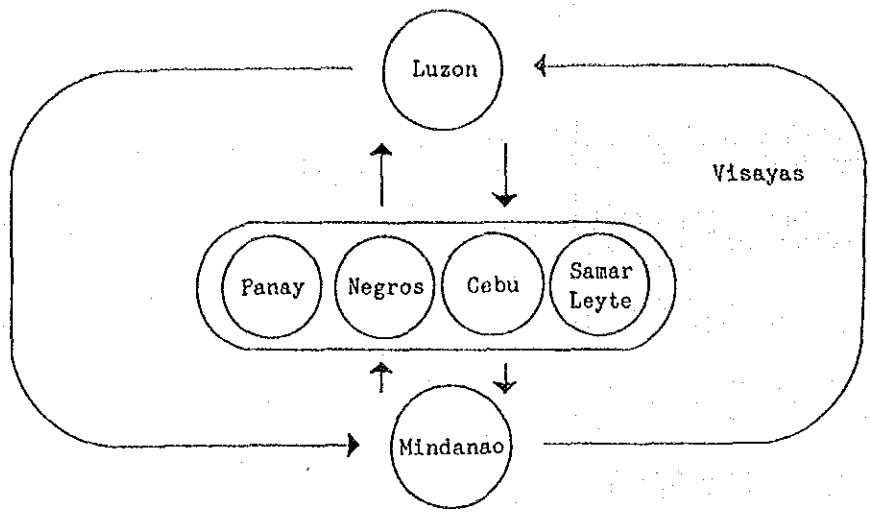

Figure 6-1 Main Cargo Movement

Table 6-16 The Inter-Island Commodity Flow in Visayas Region

Commodity Item	1st From	1st To	2nd From	2nd To	3rd From	3rd To	Feature
1 Rice	PNY	CEB	PNY	MND	PNY	NGR	Intra Production
2 Corn	MND	CEB	PNY	LZN	MND	BHL	-
3 Sugar	NGR	LZN	NGR	PNY	-		Production
4 Copra	SMR	MND	NGR	MND	SMR	LZN	Production
5 Woods	MND	CEB	SMR	LZN	-		-
6 Beer	CEB	MND	CEB	PNY	CEB	NGR	Intra Production
7 Pulp	LZN	CEB	MND	CEB	LZN	NGR	Attraction
8 Iron	CEB	SMR	LZN	CEB	CEB	MND	-
9 Fertilier	SMR	LZN	PNY	NGR	SMR	CEB	Intra Production
10 Cement	MND	CEB	MND	NGR	MND	PNY	Attraction
11 Fruit	MND	CEB	PNY	LZN	NGR	LZN	-
12 Mineral	LZN	CEB	LZN	NGR	LZN	PNY	Attraction
13 Rest	MND	CEB	LZN	CEB	LZN	SMR	Attraction

Source: JICA Study Team
Note: LZN - Luzon PNY - Panay NGR - Negros CEB - Cebu
BHL - Bohol SMR - Samar-Leyte MND - Mindanao

[References]

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7. 1990 Philippine Statistical Yearbook, National Statistical Coordination Board

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Chapter 7 On-Site Traffic Surveys on the Existing Links

A. Outline of the Surveys

1. Supplemental transport surveys were conducted to collect the necessary information for preparing a masterplan and conducting a feasibility study. Listed below are the surveys conducted and their corresponding objectives:

Table 7-1 Supplemental Transport Surveys Conducted

Type of Survey	Objective	Methodology	Survey Items
Origin-Destination Survey	To provide an origin-destination pattern of passengers & related information.	Interview of vessel passengers on subject routes.	Personal information, trip pattern, alternative travel means, private vehicle users, and assessment of service.
Consignor Survey	To determine the characteristics of major Ro/Ro or ferry cargo transport users & related informations	Interview of consignors per route.	Frequency/schedule of use, type of cargo, destinations, problems and assessment of the service.
Operator Survey	To gather operational views & plans of Ro/Ro & ferry operators servicing the subject routes.	Interview of Ro/Ro or ferry operators of routes.	Company ID, fleet info., development plans, problems and recommendations.
Traffic Count Survey	To determine the level of existing passenger traffic on subject routes.	Boarding/alighting count on pier.	Day,time,route,vessel name, type and no. of vehicles and passengers boarding/alighting

Source: JICA Study Team

2. The subject routes where the surveys were conducted are listed in Table 7-2 and a map depicting their locations is shown in Figure 7-1. The survey organization is presented in Figure 7-2.

Table 7-2 Coverage of Surveys

Area No.	Survey Base	Subject Routes of the Study	Survey Type		
			OD/TC	CI*	OI
I	Lucena City	3 Batangas City- Calapan	0	0 0	0
		21 Cavite City - Mariveles	-	- -	0
		22 Batangas City- Abla de Ilog	-	0 0	-
		23 Lucena City - Balanacan	0	0 0	0
		39 Lucena City - Sta. Cruz	0	0 -	0
II	Matnog	1 Matnog - Allen	0	0 0	0
		2 Matnog - San Isidro	0	0 -	0
		24 Tabaco - Virac	0	0 0	0
		25 Bulan - Masbate	0	0 0	0
		33 Matnog - Masbate	-	0 0	-
III	Roxas	20 San Jose - Puerto Princesa	-	0 -	-
		27 San Jose - New Washington	-	0 -	-
		31 Roxas - Odiongan	0	0 -	0
		32 Roxas - New Washington	-	0 -	0
		37 San Jose - El Nido	-	0 -	-
IV	Iloilo City	10 Iloilo City - Bacolod City	0	0 0	0
		11 Iloilo City - Pulupandan	0	0 -	-
		12 Iloilo City - Jordan	0	0 0	0
		26 Milagros - Estancia	0	- 0	0
		42 Ajuy - Manapla	0	0 0	0
V	Dumaguete	6 Escalante - Tuburan	0	- -	0
		8 Tandayag - Bato	0	0 -	0
		13 Toledo City - San Carlos City	0	0 0	0
		15 Dumaguete - Santander	0	0 -	0
		16 Dumaguete - Dapitan	0	0 -	0
		41 Guihulngan - Dumanjug	0	- -	0
VI	Cebu City	5 Argao - Loon	-	- -	0
		14 Cebu City - Tubigon	0	0 0	0
		34 Cebu City - Talibon	0	0 -	0
		38 Cebu City - Tagbilaran	0	0 0	0
		40 Dumaguete - Larena	-	- 0	-
VII	Ormoc	4 Liloan - Lipata	0	- -	0
		7 Carmen - Isabel	-	- -	0
		28 Cebu City - Ormoc	0	0 0	0
		29 Ubay - Ormoc	-	0 0	-
VIII	Cagayan de Oro	17 Jagna - Cagayan de Oro City	0	0 0	0
		35 Jagna - Mambajao	-	0 -	-
		36 Benoni - Balingoan	0	0 -	0
IX	Zamboanga City	9 Tubod - Tangub	0	0 0	-
		18 Zamboanga City- Basilan	0	0 0	0
		19 Zamboanga City- Jolo	0	0 0	0
		30 Davao City - Babak	0	0 0	0
Total No. of Links			30	36	32

Source: JICA Study Team

Note: OD/TC = OD Survey w/ Traffic Counts
CI* = Consignor Interview (columns represent ports of subject routes)
OI = Operator Interview

o : conducted
- : not conducted

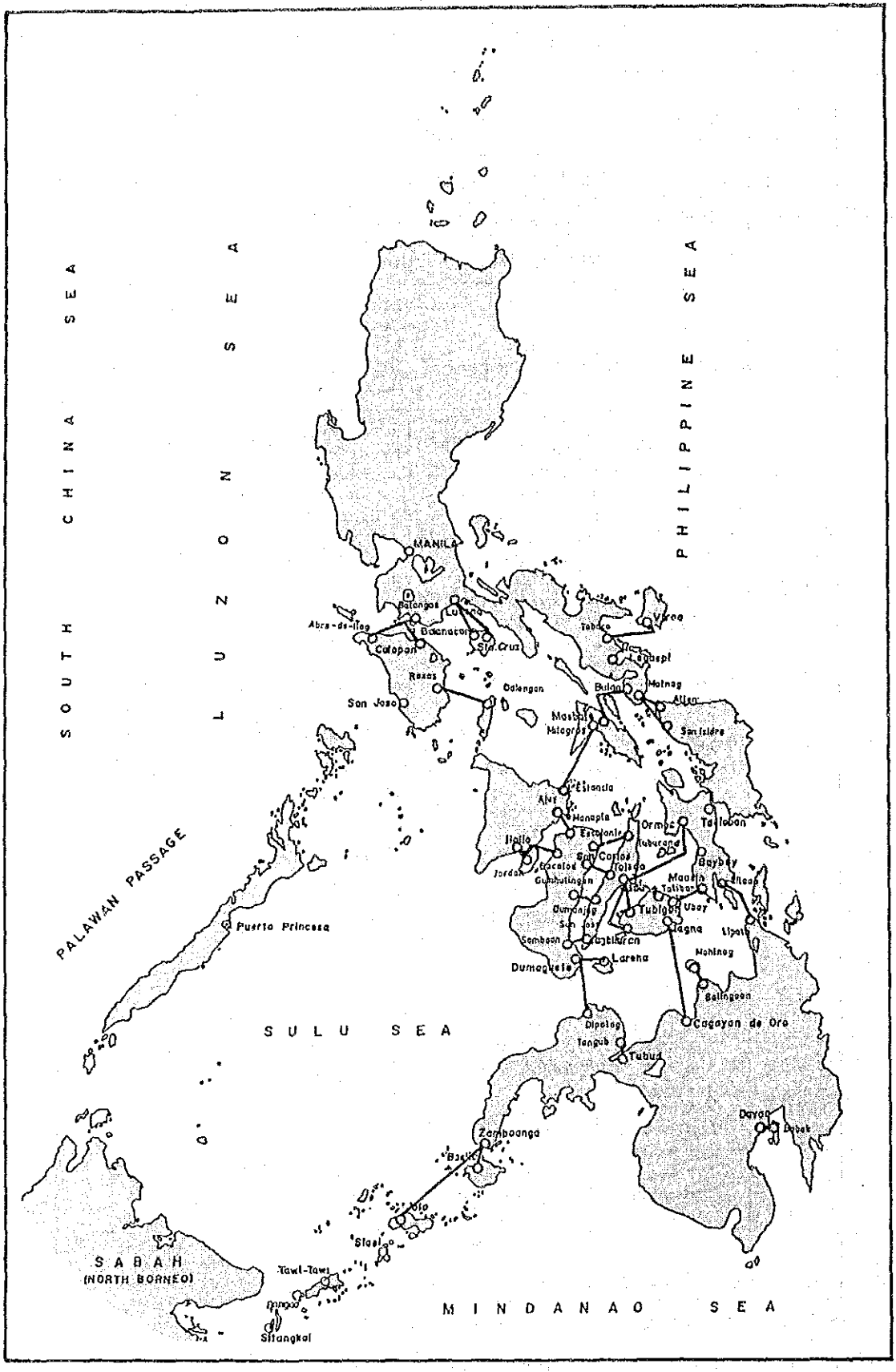

Figure 7-1 Locational Map of Existing and Shipping Links for OD Survey
Source: JICA Study Team

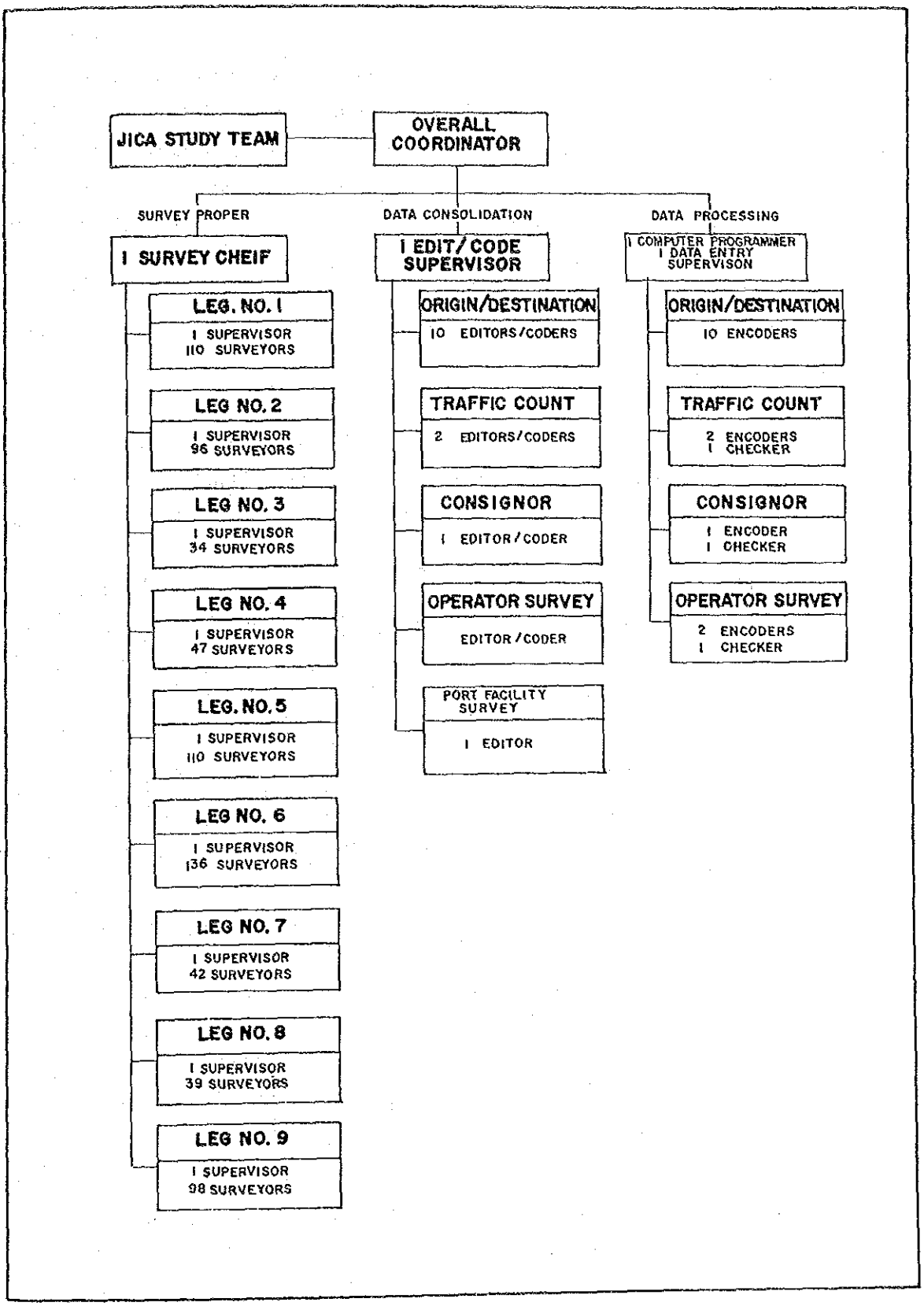

Figure 7-2 Survey Organization

Source : JICA Study Team

Data Processing

3. Computerization is basically the tool used for data storage, retrieval and manipulation. "Data base" is a data file system used to facilitate processing of survey data, statistical data, etc. The process of making a data base is as follows:

a) Compilation and arrangement of survey sheets;
b) Coding of survey data;
c) Data entry;
d) Data check; and
e) Data processing.

A flowchart depicting this process is shown in Figure 7-3.

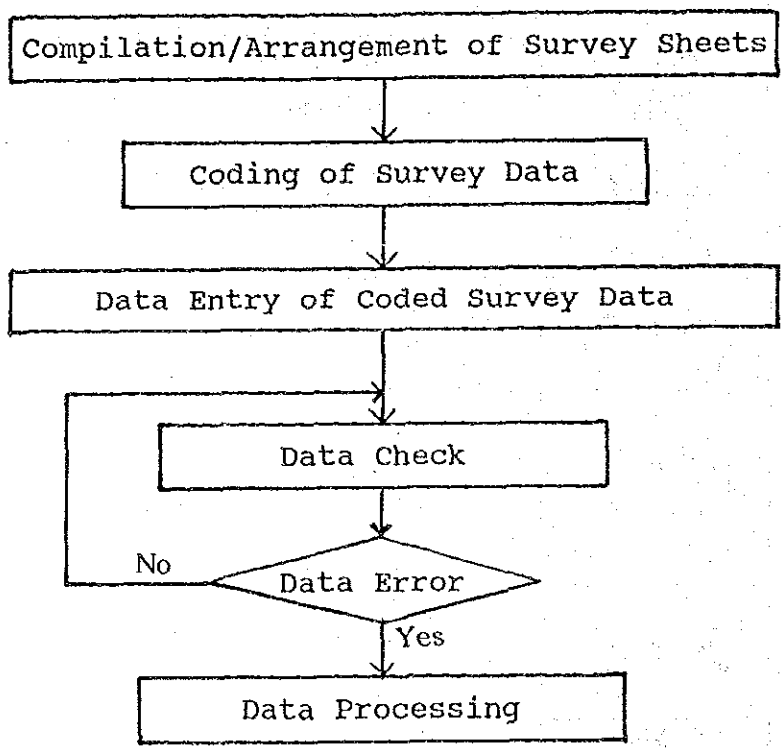

Figure 7-3 Overall Procedure of Data base Development
Source: JICA Study Team

4. Upon the submission of the accomplished survey sheets, the editors checked if all survey items were properly filled out and compiled the survey sheets by type of survey and by route. Then, sequential numbers were assigned to each survey return before passing them on to the coders.

5. The coders were provided with a map and a list of zone codes assigned per municipality. All places identified on the survey sheets were translated into zone codes. Likewise, a list of PPA product classification codes was provided for the coders to jot down corresponding codes of products identified in the accomplished sheets.

6. After complete coding, the data were entered into the microcomputer, a number of logical and data range checking was done. Faulty records were compared with the original survey sheets and corrected. The data check is repeated after the corrected data has been entered.

7. The processing of data did not stop after data checking. Since the survey data are derived from samples only, they are then expanded to cover the total survey area. If the raw sample data are used, the results will be biased.

For this reason, the sampling survey used undergoes an expansion process. Besides this, the data processing for distributing unknown data are required for doing the origin-destination matrices of trip data.

(i) Sum Up Samples and Passengers

The samples and passengers are summed up by category, which is used for calculating the expansion factors. The categories are as follows:

- o Route
- o Vessel
- o Trip Number (not adopted this time)

(ii) Calculation of Expansion Factors

The expansion factors are usually given as an integer number. If a real number is used, a fraction will be produced in a total of categories. For this purpose, the files for quotients resulting from dividing passengers by samples and for fractions are made separately.

(iii) Add Expansion Factors

The expansion factors are added to the file indexed with route number and vessel number. The procedure is as follows:

where:

$$(\text{Expansion Factor})' = \left[\frac{\text{No. of Passengers}}{\text{No. of Samples}}\right] \quad \text{Remainder}$$

$$(\text{Step}) = \left[\frac{\text{No. of Samples}}{\text{Remainder}}\right]$$

The expansion factor is defined as:

(Expansion Factor) = (Expansion Factor)' + 1

When : a total of added one is less than (Remainder) and the order is a multiple of (Step).

or = (Expansion Factor)'

When : other than the above case.

For Example:

No. of Passengers = 99, No. of Samples = 8

So,

(Expansion Factor)'= 12, (Remainder) = 3, (Step) = 2

Therefore:

Order	Expansion Factor	
1	12	= 12
2	12 + 1	= 13
3	12	= 12
4	12 + 1	= 13
5	12	= 12
6	12 + 1	= 13
7	12	= 12
8	12	= 12
Total		99

8. The level of reliability in the sampling of the trip survey can be derived as follows:

$$Lp1 = P1 \pm W \sqrt{P1 \cdot P2 \cdot (1 - N/S)/N} = P1 \pm C$$

Where:

Lp1 : Level of reliability towards P1
N : Number of sampling trips
S : Number of actual trips
(The sampling rate is given as N/S)
n : Number of sampling trips between i-zone and j-zone
P1 : n/N = 1/NZ(NZ+1)/2
NZ : number of zones
P2 : 1 - P1
W : Constant value which depends on the rate of reliability; the rate of reliability are:
95%, W = 1.96
90%, W = 1.65
75%, W = 1.15

Lp1 changes the value between P1 - C and P1 + C, so the range of change is given as C/P1.

9. The relationship between the sampling rate (N/S) and the range of change (C/P1) is assumed to be as follows:

(i) the rate of reliability is 95% or W = 1.96.

(ii) the number of zones is 80, which means that the port route has 40 zones as its hinterland.

(iii) the number of actual trips is 1,000, which is a more severe or conservative condition compared with the number of average passengers by route captured by the survey of 1,428 (44,271/31 or the number of total passengers of the 31 routes is 44,271).

Table 7-3 Sampling Rate with Corresponding Range of Change

Sampling Rate (%)	Range of Change (%)
2	43.4
4	30.4
6	24.5
8	21.0
10	18.6
12	16.8
14	15.4
16	14.2
18	13.2
20	12.4
21	12.0
22	11.7
24	11.0
26	10.5
28	9.9
30	9.5

Source: JICA Study Team

10. The sampling rate of the Study's Passenger Interview Survey reached 21% and, therefore, its range of change is 12.0% which is lower than 20%. This indicates that the survey has a high level of accuracy.

B. Origin and Destination Survey

11. On a per route basis, the amount of sampling done is shown in Table 7-4. This is for the routes mentioned in the official listing of 42 routes.

12. The expansion factor was added to the Form 1 according to the rate between the number of passengers counted and the that of samples interviewed by vessel.

Table 7-4 O/D Passenger Interview

Route Number	Route Name	Vessel Name	Type	Survey Days	No. of Passengers*		Sampling Rate
					T.Volume	Intervived	
1	Matnog-Allen	MV Northern Samar	RoRo	Aug. 1-2	1189	300	25%
2	Matnog-San Isidro	MV Maharlika I	RoRo	Aug. 1-2	2100	300	14%
3	Batangas City-Calapan	MV Sto. Domingo	RoRo	Aug. 9-10	2354	411	17%
		MV St. Kristopher	RoRo	Aug. 9-10	869	306	35%
		MV Sto. Ni$o	RoRo	Aug. 9-10	2529	349	14%
		MV Ruby	RoRo	Aug. 9-10	1144	296	26%
4	Liloan-Lipata	MV Maharlika II	RoRo	Sept.11-12	688	257	37%
5	Argao-Loon	No traffic					
6	Escalante-Tuburan	MV Palawan Trader	RoRo	Aug.10-11	1014	323	32%
7	Carmen-Isabel	No traffic					
8	Tandayag-Bato	MB Marybeth	Ferry	Aug. 1-2	50	45	90%
		ML ABC	Ferry	Aug. 1-2	169	60	36%
		MB James Arnold	Ferry	Aug. 1-2	311	149	48%
		LCM Conqueror	RoRo	Aug. 1-2	4	4	100%
9	Tubod-Tangub	LCT Lorenz	RoRo	Aug.10-11	27	27	100%
		LCM Antonio Jr.	RoRo	Aug.10-11	28	28	100%
		"Pumpboat"	Banca	Aug.10-11	195	12	6%
10	Iloilo-Bacolod City (Banago)	MV Princess of Negros	Ferry	Aug. 1-2	3197	344	11%
		MV Don Vicente	Ferry	Aug. 1-2	3703	434	12%
11	Iloilo-Pulupandan City	No traffic					
12	Iloilo-Jordan City	MB Baby Queen	Banca	Aug. 1-2	25	8	32%
		MB Beach Craft	Banca	Aug. 1-2	25	9	36%
		ML Beach Craft 2	Ferry	Aug. 1-2	718	54	8%
		MB Bee	Banca	Aug. 1-2	47	2	4%
		MB Belinda	Banca	Aug. 1-2	35	2	6%
		MB Borgie	Banca	Aug. 1-2	35	13	37%
		MB Cancer	Banca	Aug. 1-2	45	1	2%
		MB Don John	Banca	Aug. 1-2	75	1	1%
		MB Don John I	Banca	Aug. 1-2	85	5	1%
		MB Don John II	Banca	Aug. 1-2	167	21	13%
		MB Don John 3	Banca	Aug. 1-2	45	1	2%
		MB Don John 4	Banca	Aug. 1-2	77	7	9%
		ML Ferry Queen	Ferry	Aug. 1-2	639	43	7%
		MB Genevieve	Banca	Aug. 1-2	75	11	15%

Cont. Table 7-4

Route Number	Route Name	Vessel Name	Type	Survey Days	No. of Passengers*		Sampling Rate
					T. Volume	Interviwed	
Cont. 12	Iloilo-Jordan City	MB Guard	Banca	Aug. 1-2	25	2	8%
		MB Goodwin	Banca	Aug. 1-2	128	6	5%
		MB Inday Mar	Banca	Aug. 1-2	48	2	4%
		MB Irishman	Banca	Aug. 1-2	30	6	20%
		ML Island Hopper	Ferry	Aug. 1-2	544	42	8%
		MB John Eduard	Banca	Aug. 1-2	45	1	2%
		MB Juracel	Banca	Aug. 1-2	34	3	9%
		MB Meck-Meck	Banca	Aug. 1-2	50	4	8%
		MB Nene Annie	Banca	Aug. 1-2	35	3	9%
		MB Neneng	Banca	Aug. 1-2	100	2	2%
		MB Omega	Banca	Aug. 1-2	35	3	9%
		MB Omega II	Banca	Aug. 1-2	87	2	2%
		MB Picses	Banca	Aug. 1-2	30	2	7%
		MB Ricky	Banca	Aug. 1-2	30	12	40%
		MB R.G	Banca	Aug. 1-2	70	6	9%
		MB Rosary II	Banca	Aug. 1-2	47	1	2%
		MB Saint Theresa	Banca	Aug. 1-2	50	1	2%
		MB Sancha	Banca	Aug. 1-2	74	7	9%
		MB Sea Hunt	Banca	Aug. 1-2	10	1	10%
		ML Superstar	Ferry	Aug. 1-2	679	61	9%
		MB Vim Vim I	Banca	Aug. 1-2	60	10	17%
		MB Zaldy	Banca	Aug. 1-2	102	4	4%
13	San Carlos-Toledo	MV Danilo I	Ferry	Aug. 9-10	739	328	44%
14	Cebu City-Tubigon	MV Queen Leonora	Ferry	Aug. 6	376	198	53%
		MV Tubigon Ferry	Ferry	Aug. 6-7	550	251	46%
		MV Ma. Charisse	Ferry	Aug. 6-7	169	127	75%
15	Santander-Dumaguete	No traffic					
16	Dumaguete-Dapitan (Pulauan)	MV Doña Rosario	Ferry	Aug. 6-7	147	48	33%
		MV Pulauan Ferry	Ferry	Aug. 6-7	140	52	37%
17	Jagna-Cagayan de Oro	MV Our Lady of Guadalupe	RoRo	Aug.11-12	1,734	363	21%
18	Zamboanga-Basilan City (Isabela)	MV Estrella del Mar	Ferry	Aug. 1-2	2414	274	11%
		MV Lenora	Ferry	Aug. 1-2	3675	162	4%
19	Zamboanga-Jolo City	MV Sampaguita Lei	Ferry	Aug. 1	403	154	38%
		MV S. Grandeur	Ferry	Aug. 2	493	134	27%
		MV Magnolia Grandiflora	Ferry	Aug. 2	368	212	58%
		MV Lady Ruth	Ferry	Aug. 4	533	145	27%
20	San Jose-P. Princesa	No traffic					
21	Cavite City-Mariveles	No traffic					
22	Batangas-Abra de Ilog	MV Penafrancia	RoRo	Aug. 9-10	413	227	55%
		MB Don Vicente	Ferry	Aug. 9-10	169	88	52%
23	Lucena City-Balanacan (Dalahican) (Mogpo)	MV Immaculate Concepcion	RoRo	Aug. 2-3	557	267	48%
24	Tabaco-Virac	ML Virac	Ferry	Aug.13-14	479	285	59%
		ML Matea II	Ferry	Aug.13-14	543	304	56%
25	Bulan-Masbate	MB Jojun	Banca	Aug. 4-5	68	64	94%
		MB Kulafu	Banca	Aug. 4-5	42	38	90%
		MB Bulan	Banca	Aug. 4-5	71	57	80%
26	Milagros-Estancia	MB Circle "M"	Banca	Aug.12-13	50	31	62%

Cont. Table 7-4

Route Number	Route Name	Vessel Name	Type	Survey Days	No. of Passengers*		Sampling Rate
					T. Volume	Interviwed	
27	San Jose-New Washington	No traffic					
28	Cebu City-Ormoc	B El Cano	Ferry	Aug.28-30	1,341	197	15%
29	Maasin-Ubay	MB Marina V	Banca	Sept.4-5	56	30	54%
		MB San Isidro	Banca	Sept.4-5	37	28	76%
30	Davao City-Babak	MB Rosie	Banca	Aug.20-21	94	37	39%
		MB Zerich	Banca	Aug.20-21	108	27	25%
		MB Ludel	Banca	Aug.20-21	86	23	27%
		MB Aida	Banca	Aug.20-21	129	28	22%
		MB Pal-Am	Banca	Aug.20-21	45	14	31%
		MB Corazon	Banca	Aug.20-21	73	25	34%
		MB Laurencia	Banca	Aug.20-21	136	22	16%
		MB Rhael	Banca	Aug.20-21	89	19	21%
		MB Delcavan	Banca	Aug.20-21	93	18	19%
		MB Casilac	Banca	Aug.20-21	24	22	92%
		MB Dolor	Banca	Aug.20-21	44	17	39%
		MB Mariflor	Banca	Aug.20-21	42	9	21%
31	Roxas-Odiongan (Dangay)	MB Robert Liner	Banca	Aug. 4-5	108	108	100%
32	Roxas-New Washington (Dangay)	No traffic					
33	Matnog-Masbate	No traffic					
34	Cebu-Talibon	MV Talibon Cruiser	Ferry	Aug. 8-9	166	143	86%
		MV Andy	Ferry	Aug. 9-10	153	88	58%
35	Jagna-Mambajao	No traffic					
36	Benoni-Balingoan	ML Charlie Brown	Ferry	Aug. 2-3	1420	455	32%
37	San Jose-El Nido	No traffic					
38	Cebu City-Tagbilaran	MV Asia-Taiwan	RoRo	Aug. 8-9	574	233	41%
		MV Sweetheart	Ferry	Aug. 8-9	534	304	57%
39	Lucena-Sta. Cruz (Dalahican)	MB Antipolo	Ferry	Aug. 2-3	357	120	34%
40	Dumaguete-Larena	Don Martin 7	Ferry	Aug. 5-7	157	41	26%
		MB JR.Senorita	Banca	Aug. 5-7	52	32	62%
41	Guihulngan-Dumanjug	ML Sta. Maria	Ferry	Aug.14-15	82	63	77%
		ML Tana	Ferry	Aug.14-15	154	52	34%
42	Ajuy-Manapla	MB Mary Grace	Banca	Aug. 5-6	7	7	100%
				Total	44,271	9,975	21%

Source : JICA Study Team

Survey Results and Analysis

13. The following tables have been compiled with the proccessed data by route.

Table 7-5 Personal Information 1 (Sex and Age Group)
Table 7-6 Personal Information 2 (Occupation)
Table 7-7 Personal Information 3 (Household Income & Car Ownership)
Table 7-8 Trip Information 1 (Trip Purpose)
Table 7-9 Trip Information 2 (Access and Egress Mode)
Table 7-10 Alternative Travel Means
Table 7-11 Users of Private Vehicles
Table 7-12 Assessment of Existing Ro/Ro Service (Part 1)
Table 7-13 Assessment of Existing Ro/Ro Service (part 2)
Table 7-14 Assessment of Existing Ro/Ro Service (Part 3)
Table 7-15 Assessment of Existing Ro/Ro Service (part 4)
Table 7-16 Origin-Destination Pattern

14. For the personal information, the rates of answered questions by category are as follows :

Sex	100.0 %
Age	99.0 %
Occupation	95.8 %
Household Income	76.5 %

Based on the above, the survey was conducted well.

Table 7-5 Personal Information 1 (Sex and Age Group) by Route

No	Route Name	Sex		Age Group									No	
		Male	Female	-- 9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	Above 80	Answer	Total
1	Matong - Allen	661	528	30	143	372	346	134	86	39	9	-	30	1189
2	Matong - San Isidro	981	1119	74	271	926	473	226	100	26	-	4	-	2100
3	Batangas City - Calapan	3850	3046	41	1460	2527	1599	741	330	152	20	6	20	6896
4	Lilcan - Lipata(Surigao)	393	295	18	79	147	121	135	101	51	23	13	-	688
5	Argao - Loon	-	-	-	-	-	-	-	-	-	-	-	-	-
6	Escalante - Tuburan	459	555	92	88	361	274	120	46	14	2	-	17	1014
7	Carmen - Isabel	-	-	-	-	-	-	-	-	-	-	-	-	-
8	Tandayag - Bato	273	261	40	86	173	149	59	25	-	-	-	2	534
9	Tubod - Tangub	86	215	18	76	121	24	42	15	3	2	-	-	301
10	Iloilo City - Bacolod City	3556	3344	262	719	2373	1925	1012	390	138	55	6	20	6900
11	Iloilo City - Pulupandan	-	-	-	-	-	-	-	-	-	-	-	-	-
12	Iloilo City - Jordan	2028	2378	191	857	1540	898	428	349	96	47	-	-	4406
13	Toledo - San Carlos	422	317	24	167	304	133	68	32	5	4	-	2	739
14	Cebu City - Tubigon	581	530	32	118	385	231	169	114	50	10	1	1	1111
15	Dumaguete - Santander	-	-	-	-	-	-	-	-	-	-	-	-	-
16	Dumaguete - Dapitan	144	143	16	71	76	85	18	11	6	2	-	2	287
17	Jagna - Cagayan de Oro	861	873	135	186	514	365	256	196	66	8	8	-	1734
18	Zamboanga City - Basilan(Isabela)	2728	3361	120	1843	1925	1137	667	260	115	-	-	22	6089
19	Zamboanga City - Jolo	1112	685	49	395	691	343	195	67	40	10	3	4	1797
20	San Jose - Puerto Princesa	-	-	-	-	-	-	-	-	-	-	-	-	-
21	Cavite City - Mariveles	-	-	-	-	-	-	-	-	-	-	-	-	-
22	Batangas City - Abla de Ilog	404	243	11	134	255	134	69	24	14	4	-	2	647
23	Lucena - Balanacan	292	265	60	51	196	192	37	10	5	4	2	-	557
24	Tabaco - Virac	581	441	29	103	352	219	126	114	51	20	2	6	1022
25	Bulan - Masbate	130	76	17	25	66	51	26	8	10	2	1	-	206
26	Milagros - Estancia	26	24	2	3	9	19	13	2	-	1	1	-	50
27	San Jose - Kalibo	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Cebu City - Ormoc	825	516	47	105	532	381	162	70	23	16	-	5	1341
29	Ubay - Maasin	58	35	6	9	29	16	18	9	4	2	-	-	93
30	Davao City - Babak	413	588	14	214	318	209	122	63	47	14	-	-	1001
31	Roxas (Dangay) - Odiongan	62	55	7	16	39	28	16	7	3	1	-	-	117
32	Roxas (Dangay) - Kalibo	-	-	-	-	-	-	-	-	-	-	-	-	-
33	Matnog - Masbate	-	-	-	-	-	-	-	-	-	-	-	-	-
34	Cebu City - Talibon	163	157	7	46	124	69	37	20	10	4	-	3	320
35	Jagna - Mambajeo	-	-	-	-	-	-	-	-	-	-	-	-	-
36	Benoni - Balingoan	645	775	151	141	355	262	205	168	112	19	2	5	1420
37	San Jose - El Nido	-	-	-	-	-	-	-	-	-	-	-	-	-
38	Cebu City - Tagbilaran	660	448	18	95	472	248	155	81	20	15	2	2	1108
39	Lucena - Sta. Cruz	200	157	5	30	120	141	37	24	-	-	-	-	357
40	Dumaguete - Larana	121	92	10	43	75	27	31	19	7	1	-	-	213
41	Guihulngan - Dumanjug	137	99	-	36	71	88	18	18	5	-	-	-	236
42	Ajuy - Manapla	3	4	-	-	2	5	-	-	-	-	-	-	7
	Total	22855	21625	1526	7610	15450	10192	5342	2759	1112	295	51	143	44480
	(%)	51.4	48.6	3.4	17.1	34.7	22.9	12.0	6.2	2.5	0.7	0.1	0.3	100.0

Source : JICA Study Team based on OD Survey

Table 7-6 Personal Information 2 (Occupation)

No	Route Name	Profes -sional	Admi/ Exec	Cleri -cal	Sales Workr	Servc Workr	Fctry Crtsm	Trans -port	Const -rctn	Agri Workr	Fishr -men	Miner	Studt (Elem)	Studt (HS/U)	House -wife	Job -less	Oth -ers	No Answr	Total
1	Matong - Allen	108	14	30	63	38	29	27	18	50	45	-	24	173	165	147	102	156	1189
2	Matong - San Isidro	123	75	33	85	109	265	38	90	87	92	23	50	307	230	355	72	66	2100
3	Batangas City - Calapan	676	103	194	486	299	351	81	285	349	217	25	124	1383	937	536	469	381	6896
4	Lilcan - Lipata(Surigao)	68	5	4	15	26	15	11	58	88	27	-	14	54	169	42	78	14	688
5	Argao - Loon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	Escalante - Tuburan	134	18	28	34	73	9	15	31	16	23	8	23	178	164	114	86	60	1014
7	Carmen - Isabel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	Tandayag - Bato	59	9	9	72	30	29	9	7	40	18	-	32	67	85	26	39	3	534
9	Tubod - Tangub	6	26	2	-	6	1	-	5	4	2	1	9	105	34	48	52	-	301
10	Iloilo City - Bacolod City	1409	190	255	359	430	112	107	228	200	98	55	285	861	1091	658	428	134	6900
11	Iloilo City - Pulupandan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	Iloilo City - Jordan	658	199	225	183	338	30	59	122	299	113	-	200	927	498	291	136	128	4406
13	Toledo - San Carlos	61	26	26	21	25	19	11	49	14	21	24	43	174	83	82	16	44	739
14	Cebu City - Tubigon	127	8	24	70	41	73	13	33	45	23	4	29	103	161	162	134	61	1111
15	Dumaguete - Santander	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	Dumaguete - Dapitan	8	-	8	23	4	10	-	12	18	13	-	6	80	18	27	54	6	287
17	Jagna - Cagayan de Oro	126	7	16	64	25	49	18	43	115	41	-	28	159	387	162	409	85	1734
18	Zamboanga City - Basilan(Isabela	436	213	65	291	208	126	60	103	209	154	-	229	1925	892	486	556	136	6089
19	Zamboanga City - Jolo	182	21	33	65	33	16	26	102	29	291	15	126	409	169	146	81	53	1797
20	San Jose - Puerto Princesa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	Cavite City - Mariveles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	Batangas City - Abla de Ilog	23	2	7	36	28	35	6	55	20	88	4	16	191	48	50	30	8	647
23	Lucena - Balanacan	99	16	12	69	20	58	5	33	28	10	-	8	42	60	20	56	21	557
24	Tabaco - Virac	104	13	28	53	62	64	23	56	53	28	7	19	125	116	150	57	64	1022
25	Bulan - Masbate	23	9	8	13	22	4	5	8	8	7	2	4	10	21	16	19	27	206
26	Milagros - Estancia	-	-	-	3	14	-	2	2	4	7	-	1	2	11	3	-	1	50
27	San Jose - Kalibo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Cebu City - Ormoc	356	72	27	91	99	44	6	27	41	11	-	12	205	147	72	116	15	1341
29	Ubay - Maasin	1	2	-	4	8	3	1	2	8	8	-	6	12	13	10	10	5	93
30	Davao City - Babak	75	9	14	62	26	10	14	35	25	44	-	55	187	154	110	117	64	1001
31	Roxas (Dangay) - Odiongan	7	-	-	8	1	-	3	2	11	12	-	-	9	15	8	4	37	117
32	Roxas (Dangay) - Kalibo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	Matnog - Masbate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	Cebu City - Talibon	34	11	8	15	17	7	11	5	17	13	1	5	37	52	40	31	16	320
35	Jagna - Mambajeo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36	Benoni - Balingoan	149	23	19	79	23	44	16	22	56	21	-	34	151	240	35	338	170	1420
37	San Jose - El Nido	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	Cebu City - Tagbilaran	233	22	44	70	52	35	15	32	31	61	7	16	166	62	94	148	20	1108
39	Lucena - Sta. Cruz	15	-	15	16	41	41	-	24	11	39	2	3	24	43	15	66	2	357
40	Dumaguete - Larana	31	1	7	9	4	3	-	10	16	7	3	13	38	32	23	11	5	213
41	Guihulngan - Dumanjug	28	9	3	22	10	10	3	19	11	17	-	7	38	42	17	-	-	236
42	Ajuy - Manapla	-	-	-	-	-	-	-	-	-	3	-	-	-	4	-	-	-	7
	Total	5359	1103	1144	2381	2112	1492	585	1518	1903	1554	181	1421	8142	6143	3945	3715	1782	44480
	(%)	12.0	2.5	2.6	5.4	4.7	3.4	1.3	3.4	4.3	3.5	0.4	3.2	18.3	13.8	8.9	8.4	4.0	100.0

Source : JICA Study Team based on OD Survey

Table 7-7 Personal Information 3 (Household Income & Car Ownership)

No.	Route Name	Average Household Income/Month ~ 1000	~ 2000	~ 3000	~ 4000	~ 5000	~ 7000	~10000	~15000	~20000	~30000	~50000	Above 50000	No Answer	Total	Car Owned
1	Matong - Allen	78	51	65	60	30	3	21	3	12	15	12	6	833	1189	33
2	Matong - San Isidro	-	28	44	16	159	84	196	64	48	4	-	-	1457	2100	60
3	Batangas City - Calapan	846	597	1340	828	969	658	751	127	38	57	55	104	526	6896	592
4	Liloan - Lipata(Surigao)	51	102	106	77	136	47	49	17	9	-	2	-	92	688	9
5	Argao - Loon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	Escalante - Tuburan	24	92	161	101	63	21	54	17	2	2	7	3	467	1014	26
7	Carmen - Isabel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	Tandayag - Bato	61	70	71	43	84	44	108	38	12	3	-	-	-	534	10
9	Tubod - Tangub	35	114	97	18	16	6	5	-	5	-	-	-	5	301	16
10	Iloilo City - Bacolod City	723	582	1146	889	827	773	882	411	243	117	97	38	172	6900	1105
11	Iloilo City - Pulupandan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	Iloilo City - Jordan	105	627	765	895	687	788	280	193	14	-	-	-	52	4406	231
13	Toledo - San Carlos	89	76	71	26	12	11	14	28	20	11	12	-	369	739	53
14	Cebu City - Tubigon	110	101	105	67	56	34	17	10	3	10	11	9	578	1111	102
15	Dumaguete - Santander	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	Dumaguete - Dapitan	21	32	49	9	25	36	75	29	4	-	-	-	7	287	27
17	Jagna - Cagayan de Oro	738	369	237	144	112	30	28	-	-	-	-	-	76	1734	65
18	Zamboanga City - Basilan(Isabela)	889	932	539	360	489	146	318	268	16	38	72	48	1974	6089	677
19	Zamboanga City - Jolo	49	75	144	142	165	157	243	103	107	44	31	19	518	1797	501
20	San Jose - Puerto Princesa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	Cavite City - Mariveles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	Batangas City - Abla de Ilog	59	66	71	46	98	87	108	23	6	2	-	3	78	647	2
23	Lucena - Balanacan	4	45	167	78	111	38	49	17	-	3	-	-	45	557	46
24	Tabaco - Virac	31	72	136	114	175	190	199	75	16	6	3	2	3	1022	94
25	Bulan - Masbate	15	23	24	30	19	17	43	28	3	-	3	-	1	206	56
26	Milagros - Estancia	22	9	14	3	2	-	-	-	-	-	-	-	-	50	-
27	San Jose - Kalibo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Cebu City - Ormoc	50	105	209	272	173	105	199	21	5	-	-	-	202	1341	72
29	Ubay - Maasin	27	30	8	1	4	3	6	1	-	-	-	3	10	93	-
30	Davao City - Babak	-	-	11	7	28	10	42	-	-	5	-	4	894	1001	24
31	Roxas (Dangay) - Odiongan	8	12	32	18	14	8	2	13	2	-	3	2	3	117	13
32	Roxas (Dangay) - Kalibo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	Matnog - Masbate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	Cebu City - Talibon	26	34	35	16	8	7	11	6	1	1	2	10	163	320	12
35	Jagna - Mambajeo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36	Benoni - Balingoan	527	256	255	103	99	53	35	16	7	10	19	2	38	1420	71
37	San Jose - El Nido	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	Cebu City - Tagbilaran	111	95	106	152	114	78	122	28	7	2	-	-	293	1108	94
39	Lucena - Sta. Cruz	-	51	60	52	51	70	49	9	-	-	-	-	15	357	24
40	Dumaguete - Larana	32	20	29	10	37	34	46	2	3	-	-	-	-	213	1
41	Guihulngan - Dumanjug	1	35	26	46	41	5	38	3	-	-	-	-	41	236	3
42	Ajuy - Manapla	-	-	6	-	-	-	-	-	-	-	-	1	-	7	-
	Total	4732	4701	6129	4623	4804	3543	3990	1550	583	330	329	254	8912	44480	4019
	(%)	10.6	10.6	13.8	10.4	10.8	8.0	9.0	3.5	1.3	0.7	0.7	0.6	20.0	100.0	9.0

Source : JICA Study Team based on OD Survey

Table 7-8 Trip Information 1 (Trip Purpose)

No.	Route Name	Trip Purpose To Home	To Work	School	Busines	Private	Other	Total
1	Matong - Allen	511	181	38	138	270	51	1189
2	Matong - San Isidro	855	278	32	164	552	219	2100
3	Batangas City - Calapan	3663	1003	376	797	867	190	6896
4	Liloan - Lipata(Surigao)	333	86	27	37	156	45	684
5	Argao - Loon	-	-	-	-	-	-	-
6	Escalante - Tuburan	394	179	86	114	206	35	1014
7	Carmen - Isabel	-	-	-	-	-	-	-
8	Tandayag - Bato	190	85	35	60	91	73	534
9	Tubod - Tangub	180	3	9	58	10	41	301
10	Iloilo City - Bacolod City	2948	957	232	1244	1092	417	6900
11	Iloilo City - Pulupandan	-	-	-	-	-	-	-
12	Iloilo City - Jordan	1368	790	558	645	976	69	4406
13	Toledo - San Carlos	329	37	71	117	136	49	739
14	Cebu City - Tubigon	342	105	41	227	296	100	1111
15	Dumaguete - Santander	-	-	-	-	-	-	-
16	Dumaguete - Dapitan	109	26	49	33	52	18	287
17	Jagna - Cagayan de Oro	561	158	67	110	811	27	1734
18	Zamboanga City - Basilan(Isabela)	2256	453	223	1252	668	1237	6089
19	Zamboanga City - Jolo	766	322	153	254	154	148	1797
20	San Jose - Puerto Princesa	-	-	-	-	-	-	-
21	Cavite City - Mariveles	-	-	-	-	-	-	-
22	Batangas City - Abla de Ilog	270	137	61	54	74	51	647
23	Lucena - Balanacan	295	176	6	14	11	55	557
24	Tabaco - Virac	369	134	54	109	285	71	1022
25	Bulan - Masbate	73	29	7	38	54	5	206
26	Milagros - Estancia	15	7	-	11	17	-	50
27	San Jose - Kalibo	-	-	-	-	-	-	-
28	Cebu City - Ormoc	460	178	53	227	228	173	1319
29	Ubay - Maasin	32	-	-	9	20	32	93
30	Davao City - Babak	306	66	118	76	169	266	1001
31	Roxas (Dangay) - Odiongan	32	15	6	17	4	43	117
32	Roxas (Dangay) - Kalibo	-	-	-	-	-	-	-
33	Matnog - Masbate	-	-	-	-	-	-	-
34	Cebu City - Talibon	125	35	5	49	82	24	320
35	Jagna - Mambajeo	-	-	-	-	-	-	-
36	Benoni - Balingoan	396	181	42	70	678	53	1420
37	San Jose - El Nido	-	-	-	-	-	-	-
38	Cebu City - Tagbilaran	351	224	101	132	203	97	1108
39	Lucena - Sta. Cruz	140	65	6	86	57	3	357
40	Dumaguete - Larana	125	24	18	25	21	-	213
41	Guihulngan - Dumanjug	126	20	3	57	26	4	236
42	Ajuy - Manapla	-	-	-	-	-	7	7
	Total	17920	5964	2477	6224	8266	3603	44454
	(%)	40.3	13.4	5.6	14.0	18.6	8.1	100.0

Source : JICA Study Team based on OD Survey

Table 7-9 Trip Information 2 (Access and Egress Mode)

No.	Route Name	Access to Port							Total	Egress from Port							Total
		Motor cycle	Car	Tri cycle	PU	PUB	Ship	Others		Motor cycle	Car	Tri cycle	PU	PUB	Ship	Others	
1	Matong - Allen	-	30	-	-	886	-	-	916	-	11	-	30	762	35	-	838
2	Matong - San Isidro	-	47	-	8	1576	-	-	1631	-	32	4	-	1496	318	-	1850
3	Batangas City - Calapan	62	1290	235	972	3224	-	29	5812	98	1242	514	1263	2358	26	243	5744
4	Liloan - Lipata(Surigao)	9	81	156	47	385	-	-	678	2	108	31	49	365	9	6	570
5	Argao - Loon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	Escalante - Tuburan	4	73	127	16	657	-	-	877	-	29	104	42	673	16	-	864
7	Carmen - Isabel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	Tandayag - Bato	8	46	27	222	199	-	9	511	-	21	23	160	315	2	3	524
9	Tubod - Tangub	126	102	5	-	5	-	29	267	42	39	12	16	-	-	155	264
10	Iloilo City - Bacolod City	80	1924	442	3819	229	-	101	6595	14	1774	220	4005	169	48	33	6263
11	Iloilo City - Pulupandan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	Iloilo City - Jordan	28	711	276	2896	12	-	-	3923	54	696	763	2200	-	12	15	3740
13	Toledo - San Carlos	26	128	169	60	261	-	5	649	22	97	138	37	236	20	2	552
14	Cebu City - Tubigon	42	200	69	367	309	-	22	1009	3	160	43	505	197	28	17	953
15	Dumaguete - Santander	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	Dumaguete - Dapitan	2	10	192	19	34	-	-	257	-	3	200	30	16	21	-	270
17	Jagna - Cagayan de Oro	7	247	53	830	450	-	14	1601	13	260	69	771	327	3	53	1496
18	Zamboanga City - Basilan(Isabela)	-	2096	1608	517	381	-	590	5192	55	950	884	186	88	60	2161	4384
19	Zamboanga City - Jolo	75	493	465	225	56	-	252	1566	68	255	345	96	12	2	607	1385
20	San Jose - Puerto Princesa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	Cavite City - Mariveles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	Batangas City - Abla de Ilog	7	19	53	145	147	-	-	371	8	3	133	186	121	25	8	484
23	Lucena - Balanacan	-	235	1	72	188	-	-	496	-	218	42	60	196	2	4	522
24	Tabaco - Virac	5	103	148	254	434	-	8	952	4	37	72	334	378	1	18	844
25	Bulan - Masbate	-	10	41	29	90	-	2	172	-	6	4	8	35	6	-	59
26	Milagros - Estancia	-	2	9	19	10	-	-	40	-	-	9	25	2	-	3	39
27	San Jose - Kalibo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Cebu City - Ormoc	-	243	60	473	291	-	-	1067	5	59	181	405	349	66	18	1083
29	Ubay - Maasin	7	6	-	1	36	-	-	50	10	1	-	9	39	-	-	59
30	Davao City - Babak	170	41	309	353	46	-	45	964	119	9	139	6	-	-	664	937
31	Roxas (Dangay) - Odiongan	2	-	61	41	-	-	-	104	4	6	56	34	-	-	2	102
32	Roxas (Dangay) - Kalibo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	Matnog - Masbate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	Cebu City - Talibon	8	75	56	89	45	-	8	281	3	94	44	65	50	4	9	269
35	Jagna - Mambajao	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36	Benoni - Balingoan	3	160	19	845	289	-	7	1323	30	67	42	845	235	-	5	1224
37	San Jose - El Nido	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	Cebu City - Tagbilaran	27	249	447	198	69	-	13	1003	2	377	185	286	63	23	4	940
39	Lucena - Sta. Cruz	-	38	175	117	18	-	-	348	-	6	39	211	83	-	-	339
40	Dumaguete - Larena	-	-	165	10	5	-	-	180	-	-	171	12	9	2	-	194
41	Guihulngan - Dumanjug	7	20	42	16	121	-	-	206	9	23	21	20	133	-	1	207
42	Ajuy - Manapla	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total	705	8679	5410	12660	10453	-	1134	39041	565	6583	4488	11896	8707	729	4031	36999
	(%)	1.8	22.2	13.9	32.4	26.8	-	2.9	100.0	1.5	17.8	12.1	32.2	23.5	2.0	10.9	100.0

Source : JICA Study Team based on OD Survey

Table 7-10 Alternative Travel Means

No	Route Name	Alternative		Reason for Not Using					
		Yes	Mode	Expnsv	Long	NotCon	NotAcs	NotAvl	Others
1	Matong - Allen	146	Mini Bus	39	-	-	-	-	-
2	Matong - San Isidro	320	Others	304	12	-	4	-	-
3	Batangas City - Calapan	1618	Others	375	18	8	-	-	13
4	Liloan - Lipata(Surigao)	4	-	-	-	-	-	-	-
5	Argao - Loon	-	-	-	-	-	-	-	-
6	Escalante - Tuburan	-	-	-	-	-	-	-	-
7	Carmen - Isabel	-	-	-	-	-	-	-	-
8	Tandayag - Bato	52	Ro/Ro	17	24	2	-	-	-
9	Tubod - Tangub	115	Others	-	2	19	3	29	62
10	Iloilo City - Bacolod City	27	PU	8	6	-	-	-	-
11	Iloilo City - Pulupandan	-	-	-	-	-	-	-	-
12	Iloilo City - Jordan	190	Jeep	-	42	-	-	-	-
13	Toledo - San Carlos	146	Ro/Ro	22	22	16	-	10	-
14	Cebu City - Tubigon	21	Jeep	-	-	-	3	-	-
15	Dumaguete - Santander	-	-	-	-	-	-	-	-
16	Dumaguete - Dapitan	10	Others	-	-	-	-	10	-
17	Jagna - Cagayan de Oro	163	Ro/Ro	17	66	58	-	22	-
18	Zamboanga City - Basilan(Isabela)	401	Tricycle	-	-	-	6	11	-
19	Zamboanga City - Jolo	1619	Others	1017	98	55	25	50	314
20	San Jose - Puerto Princesa	-	-	-	-	-	-	-	-
21	Cavite City - Mariveles	-	-	-	-	-	-	-	-
22	Batangas City - Abla de Ilog	6	Jeep	-	-	-	-	-	-
23	Lucena - Balanacan	458	Others	415	3	6	-	8	-
24	Tabaco - Virac	71	Others	41	-	4	-	20	-
25	Bulan - Masbate	27	Others	11	3	-	-	-	1
26	Milagros - Estancia	-	-	-	-	-	-	-	-
27	San Jose - Kalibo	-	-	-	-	-	-	-	-
28	Cebu City - Ormoc	251	Others	219	10	11	-	-	-
29	Ubay - Maasin	9	Mini Bus	-	2	-	-	7	-
30	Davao City - Babak	-	-	-	-	-	-	-	-
31	Roxas (Dangay) - Odiongan	9	Ro/Ro	-	-	-	-	7	-
32	Roxas (Dangay) - Kalibo	-	-	-	-	-	-	-	-
33	Matnog - Masbate	-	-	-	-	-	-	-	-
34	Cebu City - Talibon	-	-	-	-	-	-	-	-
35	Jagna - Mambajao	-	-	-	-	-	-	-	-
36	Benoni - Balingoan	358	Ro/Ro	76	18	159	10	7	66
37	San Jose - El Nido	-	-	-	-	-	-	-	-
38	Cebu City - Tagbilaran	89	Others	54	12	7	14	1	1
39	Lucena - Sta. Cruz	9	Others	6	-	-	-	-	-
40	Dumaguete - Larena	-	-	-	-	-	-	-	-
41	Guihulngan - Dumanjug	-	-	-	-	-	-	-	-
42	Ajuy - Manapla	-	-	-	-	-	-	-	-
	Total	6119		2621	338	345	65	182	457

Source : JICA Study Team based on OD Survey

Table 7-11 Users of Private Vehicles

No	Route Name	Who Owns the Vehicle: Self	Family	Company	Friends	Others	Reason for Using the Vehicle: Cheaper	Shorter	Comftbl	Accessbl	Availbl	Others	Use Ro/Ro: Yes	No	Total
1	Matong - Allen	6	21	3	9	-	-	6	33	6	-	-	96	-	96
2	Matong - San Isidro	-	12	-	32	-	8	-	24	-	12	-	44	-	44
3	Batangas City - Calapan	197	134	46	59	31	46	157	110	6	9	113	2819	220	3039
4	Lilcan - Lipata(Surigao)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	Argao - Loon	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	Escalante - Tuburan	11	-	10	9	-	20	-	10	-	-	-	30	-	30
7	Cannen - Isabel	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	Tandayag - Bato	-	7	-	-	-	-	1	-	6	-	-	7	-	7
9	Tubod - Tangub	2	8	3	-	-	-	8	5	-	-	-	58	-	58
10	Iloilo City - Bacolod City	280	359	272	93	-	87	265	281	64	215	-	2244	17	2261
11	Iloilo City - Pulupandan	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	Iloilo City - Jordan	35	77	24	12	-	-	61	48	-	27	-	136	12	148
13	Toledo - San Carlos	7	24	-	2	-	-	-	6	-	8	-	196	4	200
14	Cebu City - Tubigon	22	12	4	-	-	1	27	16	-	1	-	119	-	119
15	Dumaguete - Santander	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	Dumaguete - Dapitan	3	4	-	6	-	-	7	-	6	-	-	12	1	13
17	Jagna - Cagayan de Oro	7	35	7	14	-	-	3	46	-	7	-	56	-	56
18	Zamboanga City - Basilan(Isabela)	16	-	11	17	-	22	11	6	-	-	-	2373	429	2802
19	Zamboanga City - Jolo	93	113	199	56	207	61	168	85	117	47	68	685	243	928
20	San Jose - Puerto Princesa	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	Cavite City - Mariveles	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	Batangas City - Abla de Ilog	-	-	-	4	-	1	3	-	-	-	-	315	2	317
23	Lucena - Balanacan	-	1	-	-	-	-	-	1	-	-	-	190	244	434
24	Tabaco - Virac	1	20	1	2	-	2	2	13	-	7	-	3	3	6
25	Bulan - Masbate	-	2	-	-	-	-	-	-	-	1	-	1	-	1
26	Milagros - Estancia	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	San Jose - Kalibo	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Cebu City - Ormoc	5	-	5	-	-	-	-	-	-	10	-	10	-	10
29	Ubay - Maasin	-	-	-	-	-	-	-	-	-	-	-	1	-	1
30	Davao City - Babak	-	6	10	-	-	-	9	-	-	1	-	15	-	15
31	Roxas (Dangay) - Odiongan	4	7	-	1	-	1	1	6	-	-	-	111	-	111
32	Roxas (Dangay) - Kalibo	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	Matnog - Masbate	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	Cebu City - Talibon	-	3	1	1	-	-	-	-	-	3	-	5	-	5
35	Jagna - Mambajao	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36	Benoni - Balingoan	17	13	9	2	5	5	8	23	-	2	2	31	8	39
37	San Jose - El Nido	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	Cebu City - Tagbilaran	2	6	-	-	-	1	3	4	-	-	-	133	1	134
39	Lucena - Sta. Cruz	3	6	-	-	-	-	3	6	3	-	-	351	-	351
40	Dumaguete - Larana	-	1	-	-	-	1	-	-	-	-	-	1	-	1
41	Guihulngan - Dumanjug	-	-	-	6	-	-	-	-	-	6	-	6	-	6
42	Ajuy - Manapla	-	-	-	-	-	-	-	-	-	-	-	5	-	5
	Total	711	871	605	325	243	256	743	723	208	356	183	10053	1184	11237

Source : JICA Study Team based on OD Survey

Table 7-12 Assessment of Existing Ro/Ro Service (Part 1)

No	Route Name	Service Route: Good	Reasnbl	Bad	VeryBad	Total	Facilities: Good	Reasnbl	Bad	VeryBad	Total
1	Matong - Allen	1046	138	5	-	1189	824	227	135	3	1189
2	Matong - San Isidro	2038	56	6	-	2100	1696	256	148	-	2100
3	Batangas City - Calapan	5932	913	51	-	6896	5579	1156	155	6	6896
4	Lilcan - Lipata(Surigao)	626	47	15	-	688	417	268	3	-	688
5	Argao - Loon	-	-	-	-	-	-	-	-	-	-
6	Escalante - Tuburan	869	145	-	-	1014	672	322	20	-	1014
7	Cannen - Isabel	-	-	-	-	-	-	-	-	-	-
8	Tandayag - Bato	305	221	8	-	534	159	346	28	1	534
9	Tubod - Tangub	261	39	1	-	301	48	129	16	108	301
10	Iloilo City - Bacolod City	4839	1825	228	8	6900	3126	2608	1150	16	6900
11	Iloilo City - Pulupandan	-	-	-	-	-	-	-	-	-	-
12	Iloilo City - Jordan	1593	2693	120	-	4406	1672	2495	239	-	4406
13	Toledo - San Carlos	307	417	7	6	737	140	558	37	2	737
14	Cebu City - Tubigon	745	290	75	1	1111	531	435	136	9	1111
15	Dumaguete - Santander	-	-	-	-	-	-	-	-	-	-
16	Dumaguete - Dapitan	195	84	8	-	287	120	110	57	-	287
17	Jagna - Cagayan de Oro	1723	4	-	-	1727	101	1122	347	157	1727
18	Zamboanga City - Basilan(Isabela)	5777	268	17	5	6067	109	1501	4457	-	6067
19	Zamboanga City - Jolo	1410	226	106	55	1797	455	520	789	33	1797
20	San Jose - Puerto Princesa	-	-	-	-	-	-	-	-	-	-
21	Cavite City - Mariveles	-	-	-	-	-	-	-	-	-	-
22	Batangas City - Abla de Ilog	609	33	5	-	647	519	89	39	-	647
23	Lucena - Balanacan	406	77	45	24	552	436	74	42	-	552
24	Tabaco - Virac	655	243	91	33	1022	535	272	141	74	1022
25	Bulan - Masbate	140	36	28	2	206	110	51	28	17	206
26	Milagros - Estancia	5	21	24	-	50	1	24	25	-	50
27	San Jose - Kalibo	-	-	-	-	-	-	-	-	-	-
28	Cebu City - Ormoc	945	391	-	-	1336	749	371	216	-	1336
29	Ubay - Maasin	50	35	8	-	93	49	31	13	-	93
30	Davao City - Babak	488	422	91	-	1001	261	539	199	2	1001
31	Roxas (Dangay) - Odiongan	114	3	-	-	117	46	67	1	3	117
32	Roxas (Dangay) - Kalibo	-	-	-	-	-	-	-	-	-	-
33	Matnog - Masbate	-	-	-	-	-	-	-	-	-	-
34	Cebu City - Talibon	210	74	31	5	320	174	94	41	11	320
35	Jagna - Mambajao	-	-	-	-	-	-	-	-	-	-
36	Benoni - Balingoan	1252	163	5	-	1420	216	812	353	39	1420
37	San Jose - El Nido	-	-	-	-	-	-	-	-	-	-
38	Cebu City - Tagbilaran	516	561	31	-	1108	377	600	120	11	1108
39	Lucena - Sta. Cruz	3	342	12	-	357	-	186	168	3	357
40	Dumaguete - Larana	188	19	6	-	213	95	112	6	-	213
41	Guihulngan - Dumanjug	201	35	-	-	236	164	72	-	-	236
42	Ajuy - Manapla	-	7	-	-	7	-	7	-	-	7
	Total	33448	9828	1024	139	44439	19381	15454	9109	495	44439
	(%)	75.3	22.1	2.3	0.3	100.0	43.6	34.8	20.5	1.1	100.0

Source : JICA Study Team based on OD Survey

Table 7-13 Assessment of Existing Ro/Ro Service (Part 2)

No.	Route Name	Frequency					Comfort				
		Good	Reasnbl	Bad	VeryBad	Total	Good	Reasnbl	Bad	VeryBad	Total
1	Matong - Allen	1070	116	3	-	1189	963	193	30	3	1189
2	Matong - San Isidro	1912	188	-	-	2100	1807	244	33	16	2100
3	Batangas City - Calapan	5859	956	81	-	6896	5209	799	876	12	6896
4	Liloan - Lipata(Surigao)	463	219	6	-	688	586	102	-	-	688
5	Argao - Loon	-	-	-	-	-	-	-	-	-	-
6	Escalante - Tuburan	639	361	14	-	1014	544	458	12	-	1014
7	Carmen - Isabel	-	-	-	-	-	-	-	-	-	-
8	Tandayag - Bato	178	342	14	-	534	174	333	27	-	534
9	Tubod - Tangub	45	213	38	5	301	39	135	64	63	301
10	Iloilo City - Bacolod City	3626	2981	293	-	6900	3767	2071	1062	-	6900
11	Iloilo City - Pulupandan	-	-	-	-	-	-	-	-	-	-
12	Iloilo City - Jordan	1947	2382	77	-	4406	1836	2131	439	-	4406
13	Toledo - San Carlos	285	440	10	2	737	203	506	12	16	737
14	Cebu City - Tubigon	511	519	77	4	1111	557	452	96	6	1111
15	Dumaguete - Santander	-	-	-	-	-	-	-	-	-	-
16	Dumaguete - Dapitan	129	119	39	-	287	80	154	53	-	287
17	Jagna - Cagayan de Oro	276	692	524	235	1727	197	929	345	256	1727
18	Zamboanga City - Basilan(Isabela)	109	4526	1432	-	6067	109	4511	1447	-	6067
19	Zamboanga City - Jolo	619	664	466	48	1797	723	504	486	84	1797
20	San Jose - Puerto Princesa	-	-	-	-	-	-	-	-	-	-
21	Cavite City - Mariveles	-	-	-	-	-	-	-	-	-	-
22	Batangas City - Abla de Ilog	215	402	24	6	647	278	324	37	8	647
23	Lucena - Balanacan	406	97	33	16	552	454	62	34	2	552
24	Tabaco - Virac	530	267	131	94	1022	527	236	175	84	1022
25	Bulan - Masbate	110	58	28	10	206	124	39	31	12	206
26	Milagros - Estancia	12	24	14	-	50	5	22	23	-	50
27	San Jose - Kalibo	-	-	-	-	-	-	-	-	-	-
28	Cebu City - Ormoc	615	504	217	-	1336	454	487	395	-	1336
29	Ubay - Maasin	53	27	11	2	93	47	29	15	2	93
30	Davao City - Babak	394	511	96	-	1001	237	509	255	-	1001
31	Roxas (Dangay) - Odiongan	99	18	-	-	117	69	47	1	-	117
32	Roxas (Dangay) - Kalibo	-	-	-	-	-	-	-	-	-	-
33	Matnog - Masbate	-	-	-	-	-	-	-	-	-	-
34	Cebu City - Talibon	205	84	26	5	320	158	84	71	7	320
35	Jagna - Mambajao	-	-	-	-	-	-	-	-	-	-
36	Benoni - Balingoan	258	813	323	26	1420	74	595	371	380	1420
37	San Jose - El Nido	-	-	-	-	-	-	-	-	-	-
38	Cebu City - Tagbilaran	340	653	110	5	1108	347	578	177	6	1108
39	Lucena - Sta. Cruz	3	313	41	-	357	-	225	129	3	357
40	Dumaguete - Larena	55	150	8	-	213	165	42	6	-	213
41	Guihulngan - Dumanjug	190	45	1	-	236	217	18	1	-	236
42	Ajuy - Manapla	-	7	-	-	7	-	7	-	-	7
	Total	21153	18691	4137	458	44439	19950	16826	6703	960	44439
	(%)	47.6	42.1	9.3	1.0	100.0	44.9	37.9	15.1	2.2	100.0

Source : JICA Study Team based on OD Survey

Table 7-14 Assessment of Existing Ro/Ro Service (Part 3)

No.	Route Name	Fare					Speed				
		Good	Reasnbl	Bad	VeryBad	Total	Good	Reasnbl	Bad	VeryBad	Total
1	Matong - Allen	977	170	36	6	1189	1012	114	63	-	1189
2	Matong - San Isidro	2024	76	-	-	2100	2002	98	-	-	2100
3	Batangas City - Calapan	4843	1134	875	44	6896	5457	1268	171	-	6896
4	Liloan - Lipata(Surigao)	593	92	3	-	688	562	119	5	2	688
5	Argao - Loon	-	-	-	-	-	-	-	-	-	-
6	Escalante - Tuburan	881	124	9	-	1014	757	241	16	-	1014
7	Carmen - Isabel	-	-	-	-	-	-	-	-	-	-
8	Tandayag - Bato	113	351	70	-	534	208	227	99	-	534
9	Tubod - Tangub	78	158	57	8	301	42	90	19	150	301
10	Iloilo City - Bacolod City	2036	3048	1794	22	6900	3427	2685	764	24	6900
11	Iloilo City - Pulupandan	-	-	-	-	-	-	-	-	-	-
12	Iloilo City - Jordan	1334	2852	220	-	4406	1861	2458	79	8	4406
13	Toledo - San Carlos	385	279	58	15	737	337	374	26	-	737
14	Cebu City - Tubigon	376	631	101	3	1111	615	390	99	7	1111
15	Dumaguete - Santander	-	-	-	-	-	-	-	-	-	-
16	Dumaguete - Dapitan	91	168	28	-	287	76	130	81	-	287
17	Jagna - Cagayan de Oro	526	539	342	320	1727	257	788	508	174	1727
18	Zamboanga City - Basilan(Isabela)	165	4336	1566	-	6067	77	4353	1637	-	6067
19	Zamboanga City - Jolo	725	547	460	65	1797	553	708	498	38	1797
20	San Jose - Puerto Princesa	-	-	-	-	-	-	-	-	-	-
21	Cavite City - Mariveles	-	-	-	-	-	-	-	-	-	-
22	Batangas City - Abla de Ilog	241	246	136	24	647	227	68	296	56	647
23	Lucena - Balanacan	12	509	31	-	552	451	87	14	-	552
24	Tabaco - Virac	435	410	107	70	1022	425	202	222	173	1022
25	Bulan - Masbate	131	66	6	3	206	133	30	36	7	206
26	Milagros - Estancia	5	26	19	-	50	11	20	19	-	50
27	San Jose - Kalibo	-	-	-	-	-	-	-	-	-	-
28	Cebu City - Ormoc	513	660	163	-	1336	642	509	185	-	1336
29	Ubay - Maasin	38	51	4	-	93	49	31	13	-	93
30	Davao City - Babak	615	353	33	-	1001	545	419	37	-	1001
31	Roxas (Dangay) - Odiongan	58	54	5	-	117	20	70	27	-	117
32	Roxas (Dangay) - Kalibo	-	-	-	-	-	-	-	-	-	-
33	Matnog - Masbate	-	-	-	-	-	-	-	-	-	-
34	Cebu City - Talibon	125	144	48	3	320	188	69	61	2	320
35	Jagna - Mambajao	-	-	-	-	-	-	-	-	-	-
36	Benoni - Balingoan	356	652	359	53	1420	127	791	422	80	1420
37	San Jose - El Nido	-	-	-	-	-	-	-	-	-	-
38	Cebu City - Tagbilaran	501	530	77	-	1108	276	639	188	5	1108
39	Lucena - Sta. Cruz	-	339	18	-	357	-	327	30	-	357
40	Dumaguete - Larena	148	50	15	-	213	156	39	18	-	213
41	Guihulngan - Dumanjug	98	135	3	-	236	222	13	1	-	236
42	Ajuy - Manapla	-	7	-	-	7	-	7	-	-	7
	Total	18423	18737	6643	636	44439	20715	17364	5634	726	44439
	(%)	41.5	42.2	14.9	1.4	100.0	46.6	39.1	12.7	1.6	100.0

Source : JICA Study Team based on OD Survey

Table 7-15 Assessment of Existing Ro/Ro Service (Part 4)

No	Route Name	Punctuality				Total
		Good	Reasnbl	Bad	Verybad	
1	Matong - Allen	1106	80	-	3	1189
2	Matong - San Isidro	2084	16	-	-	2100
3	Batangas City - Calapan	5345	1318	233	-	6896
4	Liloan - Lipata(Surigao)	599	85	4	-	688
5	Argao - Loon	-	-	-	-	-
6	Escalante - Tuburan	726	277	11	-	1014
7	Carmen - Isabel	-	-	-	-	-
8	Tandayag - Bato	185	233	115	1	534
9	Tubod - Tangub	52	160	63	26	301
10	Iloilo City - Bacolod City	4478	2159	233	30	6900
11	Iloilo City - Pulupandan	-	-	-	-	-
12	Iloilo City - Jordan	1677	2309	420	-	4406
13	Toledo - San Carlos	491	235	11	-	737
14	Cebu City - Tubigon	707	303	98	3	1111
15	Dumaguete - Santander	-	-	-	-	-
16	Dumaguete - Dapitan	70	124	85	8	287
17	Jagna - Cagayan de Oro	622	851	198	56	1727
18	Zamboanga City - Basilan(Isabela)	77	4407	1583	-	6067
19	Zamboanga City - Jolo	744	441	504	108	1797
20	San Jose - Puerto Princesa	-	-	-	-	-
21	Cavite City - Mariveles	-	-	-	-	-
22	Batangas City - Abla de Ilog	260	369	18	-	647
23	Lucena - Balanacan	417	90	24	21	552
24	Tabaco - Virac	644	224	60	94	1022
25	Bulan - Masbate	137	25	38	6	206
26	Milagros - Estancia	12	21	17	-	50
27	San Jose - Kalibo	-	-	-	-	-
28	Cebu City - Ormoc	571	561	204	-	1336
29	Ubay - Maasin	47	46	-	-	93
30	Davao City - Babak	420	509	72	-	1001
31	Roxas (Dangay) - Odiongan	-	34	76	7	117
32	Roxas (Dangay) - Kalibo	-	-	-	-	-
33	Matnog - Masbate	-	-	-	-	-
34	Cebu City - Talibon	238	46	34	2	320
35	Jagna - Mambajao	-	-	-	-	-
36	Benoni - Balingoan	380	752	247	41	1420
37	San Jose - El Nido	-	-	-	-	-
38	Cebu City - Tagbilaran	521	494	87	6	1108
39	Lucena - Sta. Cruz	12	336	9	-	357
40	Dumaguete - Iarana	127	72	14	-	213
41	Guihulngan - Dumanjug	175	61	-	-	236
42	Ajuy - Manapla	-	7	-	-	7
	Total	22924	16645	4458	412	44439
	(%)	51.6	37.5	10.0	0.9	100.0

Source : JICA Study Team based on OD Survey

Table 7-16 Origin-Destination Pattern

No	Route Name	No. of Passengers							Percentage (%)					
		M-M	M-P	P-P	P-R	R-R	Oth	Total	M-M	M-P	P-P	P-R	R-R	Oth
1	Matong - Allen	39	56	15	129	22	928	1189	3.3	4.7	1.3	10.8	1.9	78.0
2	Matong - San Isidro	47	-	16	68	34	1935	2100	2.2	-	0.8	3.2	1.6	92.1
3	Batangas City - Calapan	1039	1522	839	456	7	3033	6896	15.1	22.1	12.2	6.6	0.1	44.0
4	Liloan - Lipata(Surigao)	88	62	10	172	84	272	688	12.8	9.0	1.5	25.0	12.2	39.5
6	Escalante - Tuburan	119	282	602	9	-	2	1014	11.7	27.8	59.4	0.9	-	0.2
8	Tandayag - Bato	16	84	427	-	-	7	534	3.0	15.7	80.0	-	-	1.3
9	Tubod - Tangub	102	151	34	-	-	14	301	33.9	50.2	11.3	-	-	4.7
10	Iloilo City - Bacolod City	3197	2460	595	566	-	82	6900	46.3	35.7	8.6	8.2	-	1.2
12	Iloilo City - Jordan	3344	1016	15	7	-	24	4406	75.9	23.1	0.3	0.2	-	0.5
13	Toledo - San Carlos	210	288	101	12	-	128	739	28.4	39.0	13.7	1.6	-	17.3
14	Cebu City - Tubigon	249	576	227	4	-	55	1111	22.4	51.8	20.4	0.4	-	5.0
16	Dumaguete - Dapitan	86	117	14	37	2	31	287	30.0	40.8	4.9	12.9	0.7	10.8
17	Jagna - Cagayan de Oro	216	945	135	328	-	110	1734	12.5	54.5	7.8	18.9	-	6.3
18	Zamboanga City - Basilan(Isabela)	1857	4062	66	27	-	77	6089	30.5	66.7	1.1	0.4	-	1.3
19	Zamboanga City - Jolo	1648	93	-	50	-	6	1797	91.7	5.2	-	2.8	-	0.3
22	Batangas City - Abla de Ilog	196	133	23	70	-	225	647	30.3	20.6	3.6	10.8	-	34.8
23	Lucena - Balanacan	21	80	9	54	-	393	557	3.8	14.4	1.6	9.7	-	70.6
24	Tabaco - Virac	39	151	73	88	-	671	1022	3.8	14.8	7.1	8.6	-	65.7
25	Bulan - Masbate	61	12	-	36	-	97	206	29.6	5.8	-	17.5	-	47.1
26	Milagros - Estancia	13	15	13	6	3	-	50	26.0	30.0	26.0	12.0	6.0	-
28	Cebu City - Ormoc	491	496	154	154	-	46	1341	36.6	37.0	11.5	11.5	-	3.4
29	Ubay - Maasin	24	41	15	12	-	1	93	25.8	44.1	16.1	12.9	-	1.1
30	Davao City - Babak	936	59	-	-	-	6	1001	93.5	5.9	-	-	-	0.6
31	Roxas (Dangay) - Odiongan	49	50	18	-	-	-	117	41.9	42.7	15.4	-	-	-
34	Cebu City - Talibon	151	127	32	-	-	10	320	47.2	39.7	10.0	-	-	3.1
36	Benoni - Balingoan	30	331	786	156	-	117	1420	2.1	23.3	55.4	11.0	-	8.2
38	Cebu City - Tagbilaran	487	480	80	-	-	61	1108	44.0	43.3	7.2	-	-	5.5
39	Lucena - Sta. Cruz	155	50	6	27	-	119	357	43.4	14.0	1.7	7.6	-	33.3
40	Dumaguete - Iarana	94	84	33	-	-	2	213	44.1	39.4	15.5	-	-	0.9
41	Guihulngan - Dumanjug	10	156	63	-	-	7	236	4.2	66.1	26.7	-	-	3.0
42	Ajuy - Manapla	7	-	-	-	-	-	7	100.0	-	-	-	-	-

Note) M-M : Inter-Municipality M-P : between Municipality and Province
P-P : Inter-Province P-R : between Province and Region
R-R : Inter-Region Oth : Others
Source : JICA Study Team based on OD Survey

Personal Information

15. There is almost an equal share of male and female passengers on most routes. The predominant age group is 20 - 29 (with 35% share) followed by 30 - 39 (23%).

16. On the whole, the rider-market tends to be more of the "student (HS/U)" occupation, followed by the "housewife", "professional" and "jobless" with overall total share of 18%, 14%, 12% and 9%, respectively. However, it is noted that for the routes of Iloilo-Bacolod, Cebu-Ormoc, Cebu-Tagbilaran, and Balingoan-Guinsiliban, there are more riders with the occupation of "professional".

17. The household income bracket which most passengers belong to are within the range of 1,000 (13%), 2,000 (13%), 3,000 (17%), 4,000 (13%), and 5,000 (14%) pesos per month accounting for a total of 70% passengers excluding "No Answer" on all routes.

Trip Information

18. For the trip information of these passengers, the overall breakdown of trip purposes are as follows; "to home" (41%), "private" (18%), "business" (14%), "to work" (13%), "others" (8%), and "to school" (6%). As such, most of the trips made are non-daily trips.

19. Public transport modes are predominantly used for access and egress to the ports.

Alternative Travel Means

20. About 14% of the total surveyed passengers indicated that they have alternative travel means but they do not use it since they are mostly expensive or have longer travel time.

Users of Private Vehicles

21. Approximately 9% of the surveyed passengers are car-owners. However, regardless of car-ownership, a lot of passengers favor the use of Ro/Ro if made available on their respective routes. This is true for the Iloilo-Bacolod, Zamboanga-Basilan, Ozamis-Kolambugan, and Tubod-Ozamis routes.

Assessment of Existing Service by Route

22. The assessment of existing Ro/Ro service is summarized in Table 7-17 and given in detail in the aforementioned Tables 7-12 to 7-15. Generally, the passengers gave low ratings for facility, comfort, fare and speed. Detailed assessments by route reveal the following:

a) Service Route: All routes were favorably assessed as good or reasonable.

b) Facilities: Those assessed as bad are Zamboanga-Basilan, Zamboanga-Jolo, Zamboanga-Lamitan, Benoni-Balingoan, Balingoan- Guinsiliban, Dumaguete-Cebu, Davoa-Kaputian & Penaplata, Ozamis- Kolambugan and Tubod-Ozamis.

c) Frequency: Those assessed with poor or bad frequency are Jagna-Cagayan de Oro (understandably due to its once-a-week trip) and Ozamis-Kolambugan (with high frequecy of 3 round trips a day).

d) Fare & Speed: All routes have fairly assessed fare and speed level of good or reasonable except for Tubod-Ozamis.

Table 7-17 Assessment of Existing Ro/Ro Service (Summary)

Service Type	Good	Reasonable	Bad	Very Bad	Total
Route	33448	9828	1024	139	44439
(%)	(75.3)	(22.1)	(2.3)	(0.3)	
Facilities	19381	15454	9109	495	44439
(%)	(43.6)	(34.8)	(20.5)	(1.1)	
Frequency	21153	18691	4137	458	44439
(%)	(47.6)	(42.1)	(9.3)	(1.0)	
Comfort	19950	16826	6703	960	44439
(%)	(44.9)	(37.9)	(15.1)	(2.2)	
Fare	18423	18737	6643	636	44439
(%)	(41.5)	(42.2)	(14.9)	(1.4)	
Speed	20715	17364	5634	726	44439
(%)	(46.6)	(39.1)	(12.7)	(1.6)	
Punctuality	22924	16645	4458	412	44439
(%)	(51.6)	(37.5)	(10.0)	(0.9)	

Source: JICA Study Team

Origin-Destination Pattern

23. Trip pattern of passengers basically categorizes the origin and destination of passengers to be as follows: inter-municipality, inter-province, inter-region, between municipality and province, between province and region, and others. The trip pattern of passengers by route are shown in Table 7-16. The routes under "Others" have percentages of more than 30%. These routes actually connects mainland Luzon with some small islands or reflects the passenger traffic to/from Metro Manila.

C. Interview Survey of Major Consignors

24. The places with consignors' survey returns are listed in Table 7-18. Likewise, the water transport modes used by these respondents for shipment are shown in the same table. Ro/Ro is predominantly used by the consignors located at Batangas, San Jose, Calapan, Lucena, Masbate, Estancia, Jagna, Cebu, Tangub, Cagayan de Oro and Tubod.

Table 7-18 Shipment Modes Used by Consignors

Code	Port Name	Total Respondents	Shipment Mode Used		
			Ro/Ro	Ferry	Tramp
040205	Batangas City	3	3	-	-
040504	Mogpog	2	2	1	-
040610	San Jose	10	10	8	4
040705	Calapan	7	6	1	-
040712	Roxas	10	-	-	9
040918	Lucena	12	12	1	-
050117	Tabaco	4	-	1	3
050411	Virac	11	-	11	2
050511	Masbate	10	7	2	-
050603	Bulan	4	1	-	3
050612	Matnog	1	1	-	-
060401	Ajuy	7	-	7	-
060418	Estancia	12	12	-	-
060421	Iloilo City	20	1	20	-
060502	Jordan	10	-	9	1
060601	Bacolod	6	-	6	1
060618	Manapla	10	-	10	-
060625	San Carlos	11	-	11	1
070126	Jagna	10	7	-	3
070143	Tagbilaran	6	4	6	-
070146	Tubigon	7	-	7	-
070147	Ubay	4	-	3	-
070217	Cebu City	19	16	14	7
070251	Toledo	1	-	1	-
070317	San Jose	2	1	1	1
070310	Dumaguete	27	5	18	5
080230	Ormoc	10	3	6	5
080401	Allen	3	1	2	-
080608	Maasin	10	-	10	-
090102	Isabela	10	-	1	8
090202	Jolo	10	-	7	6
090542	Zamboanga	16	-	14	7
100403	Mahinog	8	-	8	3
100516	Tangub	8	7	-	-
100605	Cagayan de Oro	19	18	6	-
110102	Babak	5	-	-	5
110202	Davao City	5	-	1	1
120123	Tubod	10	7	2	-
	Total	340	124	195	75

Source: JICA Study Team based on Consignor Survey

25. On the whole, the respondents are fairly distributed in terms of their years in operation. About 30% have been in operation 5 years or less, the other 34% have been existing 5 to 15 years, and the long managed companies of more than 15 years account for about 30% of the respondents.

Table 7-19 Age of Respondents

No. of Years	No. of Respondents
below 2	31
3 - 5	74
6 - 10	70
11 - 15	46
16 - 20	32
21 - above	70
Not Known	17
Total	340

Source: JICA Study Team based on Consignor Survey

26. The respondents' preference for their selected shipment modes are attributed to the following reasons shown below. It seems that "accessability" is the major reason, "speed" is next for Ro/Ro and Ferry, and "cheap" for the tramping mode.

Table 7-20 Reason for Shipment Mode Preference

Reason	Ro/Ro	Ferry	Tramping
Accessability	97	117	57
Speed	86	76	47
Punctuality	64	60	38
Frequency	40	70	38
Cheap	19	71	49
Others*	14	7	23
No. of Users	124	195	75

Source: JICA Study Team based on Consignor Survey

*"Others" by mode are:

Ro/Ro : Availability, Comfortable, Convenient, Easy loading, Hassle, Less damage
Ferry : Availability, Near to the place, No alternative
Tramping: Availability, Cargo is bulk, Safe, No alternative, Over cargo.

Problems Encountered

27. The problems encountered by the companies using the Ro/Ro or Ferry transport are ranked (10 being most problematic and 1 being least) as shown at Table 7-21. Consignors in the areas of Matnog, San Carlos, Toledo and Allen refrained from answering this particular questionnaire item. On the other hand, those in the area of Jolo ranked 10 for all problems.

Table 7-21 Ranked Problems for Ro/Ro ro Ferry Transport Users

Port Name	Problems								
	Port Facility	Road Network	Handling Charge	Clearing Procedure	Steve-doring	Freight Rate	Peace Order	Others	Total
Batangas City	2	1	1	-	-	1	1	1	7
Mogpog	1	-	-	-	-	2	-	1	4
San Jose	5	5	8	1	6	3	-	3	31
Calapan	2	-	-	-	1	3	-	5	11
Roxas	9	10	4	-	8	-	-	5	36
Lucena	5	-	3	-	5	1	3	2	19
Tabaco	2	1	1	1	3	-	2	1	11
Virac	8	-	2	3	8	5	-	3	29
Masbate	3	2	7	-	9	3	4	-	28
Bulan	3	2	-	-	1	1	1	-	8
Matnog	-	-	-	-	-	-	-	-	-
Ajuy	3	-	1	1	-	-	-	-	5
Estancia	12	9	-	-	2	3	9	-	35
Iloilo City	-	-	-	-	2	5	2	2	11
Jordan	4	-	-	-	-	-	-	8	12
Bacolod	4	2	4	2	3	2	1	1	19
Manapla	6	5	-	-	-	-	-	-	11
San Carlos	-	-	-	-	-	-	-	-	-
Jagna	8	-	10	-	-	8	-	-	26
Tagbilaran	1	-	-	-	-	-	3	2	6
Tubigon	-	-	2	-	2	-	-	-	4
Ubay	1	-	-	-	-	-	-	-	1
Cebu City	9	8	5	9	5	4	5	3	48
Toledo	-	-	-	-	-	-	-	-	-
San Jose	-	-	-	-	1	1	-	-	2
Dumaguete	8	4	3	2	5	1	-	3	26
Ormoc	6	-	1	-	-	-	-	8	15
Allen	-	-	-	-	-	-	-	-	-
Maasin	4	2	3	1	1	4	-	3	18
Isabela	-	-	1	1	1	-	-	-	3
Jolo	10	10	10	10	10	10	10	10	80
Zamboanga	-	4	3	3	2	1	2	-	15
Mahinog	7	-	8	-	8	7	-	-	30
Tangub	-	1	-	-	-	-	-	1	2
Cagayan de Oro	8	-	6	-	1	10	-	1	26
Babak	-	4	1	1	1	-	-	3	10
Davao City	-	-	-	-	3	-	-	-	3
Tubod	4	-	4	-	-	-	-	3	11
Total	135	70	88	35	88	75	43	69	603
Ranking	1	5	2	8	2	4	7	6	

Source : JICA Study Team based on Consignor Survey

28. A scrutiny of the aforementioned top 4 problem areas reveal basically the same problem statements by the consignors. These are as follows:

Port Facilities
- o Lack of equipments
- o Lack of space/area
- o Double handling
- o Congested/Crowded by traffic

Arrastre/Stevedoring
- o Expensive
- o Slow work
- o Lack of laborers

Port Handling Charges
- o Expensive
- o Poor handling

Freight Rates
- o Expensive
- o Not in uniform rate

29. A number of consignors (90% of respondents) indicated that they will convert to Ro/Ro from their present ferry mode if it is available (see Table 7-22). However, it is noted that consignors from Jordan and Zamboanga City are against Ro/Ro.

Table 7-22 Potential Users for Ro/Ro

Code	Port Name	Total Respondents	Use Ro/Ro Yes	Use Ro/Ro No
040205	Batangas City	3	2	-
040504	Mogpog	2	2	-
040610	San Jose	10	10	-
040705	Calapan	7	3	-
040712	Roxas	10	10	-
040918	Lucena	12	8	4
050117	Tabaco	4	-	-
050411	Virac	11	8	2
050511	Masbate	10	7	2
050603	Bulan	4	4	-
050612	Matnog	1	1	-
060401	Ajuy	7	7	-
060418	Estancia	12	12	-
060421	Iloilo City	20	16	4
060502	Jordan	10	3	7
060601	Bacolod	6	6	-
060618	Manapla	10	9	-
060625	San Carlos	11	11	-
070126	Jagna	10	7	3
070143	Tagbilaran	6	6	-
070146	Tubigon	7	7	-
070147	Ubay	4	4	-
070217	Cebu City	19	15	1
070251	Toledo	1	1	-
070317	San Jose	2	1	-
070310	Dumaguete	27	22	-
080230	Ormoc	10	10	-
080401	Allen	3	3	-
080608	Maasin	10	9	-
090102	Isabela	10	8	-
090202	Jolo	10	10	-
090542	Zamboanga	16	7	8
100403	Mahinog	8	7	1
100516	Tangub	8	5	-
100605	Cagayan de Oro	19	18	1
110102	Babak	5	4	-
110202	Davao City	5	5	-
120123	Tubod	10	10	-
	Total	340	278	33

Source: JICA Study Team based on Consignor Survey

30. The given reasons why some consignors are against Ro/Ro conversion are:

- o Affects the livelihood of the people
- o Ro/Ro do not accept small cargoes
- o Monopoly
- o To have alternative in choosing transportation
- o Our port of discharge has their own facilities
- o Not advisable in Phils. because of many islands
- o What we need is a fast transport to ferry
- o Very risky
- o Charges in Ro/Ro is expensive
- o Lack of port facility
- o Most of our workers will lose their jobs
- o Not applicable in our kind of business

Recommended Routes for Ro/Ro

31. A number of consignors recommended the conversion or introduction of Ro/Ro in their respective areas or routes as shown in Table 7-23. However, those in Region IX (covering Zamboanga City, Jolo and Isabela) hardly recommended the Ro/Ro.

Table 7-23 No. of Routes Recommended for Ro/Ro

Code	Port Name	Total Respond -ents	Ro/Ro Conver -sion	Ro/Ro Introduc -tion
040205	Batangas City	3	1	1
040504	Mogpog	2	-	2
040610	San Jose	10	2	5
040705	Calapan	7	1	2
040712	Roxas	10	2	7
040918	Lucena	12	1	11
050117	Tabaco	4	-	1
050411	Virac	11	5	5
050511	Masbate	10	5	1
050603	Bulan	4	4	-
050612	Matnog	1	-	-
060401	Ajuy	7	-	6
060418	Estancia	12	12	2
060421	Iloilo City	20	5	18
060502	Jordan	10	1	9
060601	Bacolod	6	-	4
060618	Manapla	10	10	10
060625	San Carlos	11	11	-
070126	Jagna	10	1	6
070143	Tagbilaran	6	3	-
070146	Tubigon	7	6	1
070147	Ubay	4	1	2
070217	Cebu City	19	8	3
070251	Toledo	1	1	-
070317	San Jose	2	1	2
070310	Dumaguete	27	1	9
080230	Ormoc	10	9	1
080401	Allen	3	1	2
080608	Maasin	10	9	-
090102	Isabela	10	-	-
090202	Jolo	10	1	-
090542	Zamboanga	16	-	-
100403	Mahinog	8	8	7
100516	Tangub	8	-	4
100605	Cagayan de Oro	19	18	9
110102	Babak	5	1	-
110202	Davao City	5	2	1
120123	Tubod	10	9	-
	Total	340	140	131

Source : JICA Study Team based on Consignor Survey

32. The specific routes recommended for conversion to Ro/Ro are shown in Table 7-24. Twelve (12) consignors would like to have a Ro/Ro service connecting their respective areas to Cebu while 8 consignors favor a Ro/Ro connection to Manila.

Table 7-24 Routes for Conversion to Ro/Ro

Link No.*	From Port, Province	To Port, Province
	Batangas	Puerto Galera, Ori. Mindoro
	Cagayan de Oro	Cebu
	Cagayan de Oro	Manila
	Calapan, Ori. Mindoro	Puerto Galera, Ori. Mindor
	Cebu	Bacolod
	Cebu	Bulan, Sorsogon
	Cebu	Dipolog
	Cebu	Dipolog - Zamboanga
	Cebu	Dumaguete
34	Cebu	Maasin, Southern Leyte
	Cebu	Masbate
28	Cebu	Ormoc, Leyte
	Cebu	Ormoc, Leyte - Masbate
	Cebu	Tacloban
	Cebu	Tudela, Poro Is.
	Davao	Samal, Samal Is.
	Iligan	Ormoc, Leyte
10	Iloilo	Bacolod
12	Iloilo	Jordan, Guimaras
	Iloilo	Manila
36	Mahinog, Camiguin	Balingoan, Misamis Ori.
	Manila	Bulan, Sorsogon
	Manila	Estancia, Iloilo
	Manila	Masbate
	Manila	Ormoc, Leyte
	Manila	San Jose, Occ. Mindoro
	Manila	Virac, Catanduanes
	Masbate	Ticao Is.
	Ormoc, Leyte	Masbate
20	Palawan	San Jose, Occ. Mindoro
	Roxas(Dangay), Ori. Mindoro	Looc, Romblon
31	Roxas(Dangay), Ori. Mindoro	Odiongan, Romblon
24	Tabaco, Albay	Virac, Catanduanes
	Tagbilaran	Tubigon, Bohol
29	Ubay, Bohol	Maasin, Southern Leyte

* Link No. - Link Number specified in this Study

Source: JICA Study Team based on Consignor Survey

33. On the other hand, the routes recommended for the introduction of Ro/Ro are shown at Table 7-25.

Table 7-25 Routes for Introduction of Ro/Ro

Link No.*	From Port, Province	To Port, Province
	Ajuy, Iloilo	Victorias, Negros Occ.
	Bacolod	Cebu
	Batangas	Palawan
	Cagayan de Oro	Cebu
	Cagayan de Oro	Manila
	Cagayan de Oro	Tacloban
	Calapan, Ori. Mindoro	Bansud, Ori. Mindoro
	Cebu	Davao/Gen. Santos
	Cebu	Dumaguete
	Cebu	Iloilo
28	Cebu	Ormoc, Leyte
	Cebu	Tacloban/Masbate
	Dumaguete	Siquijor
	Dumaguete	Tagbilaran
26	Estancia, Iloilo	Masbate
10	Iloilo	Bacolod
12	Iloilo	Jordan
	Iloilo	Manila
	Iloilo	Mindanao
	Jagna, Bohol	Gingoog, Misamis Ori.
	Jagna, Bohol	Maasin, Southern Leyte
35	Jagna, Bohol	Mambajao, Camiguin
	Lucena	Gasan, Marinduque
39	Lucena	Sta. Cruz, Marinduque
36	Mahinog, Camiguin	Balingoan, Misamis Ori.
	Mahinog, Camiguin	Cebu/Bohol
	Mahinog, Camiguin	Gingoog, Misamis Ori.
	Manila	Dumaguete
	Ozamis, Misamis Occ.	Kolambungan, Lanao del Nort
	Ozamis, Misamis Occ.	Tubod, Lanao del Norte
31	Roxas(Dangay), Ori. Mindoro	Looc/Odiongan, Romblon
	Roxas(Dangay), Ori. Mindoro	Batangas
	Roxas(Dangay), Ori. Mindoro	Batangas - Manila
	Roxas(Dangay), Ori. Mindoro	Romblon
	Roxas(Dangay), Ori. Mindoro	Romblon - Batangas
	San Jose, Negros Ori.	Cagayan de Oro
	San Jose, Occ. Mindoro	Batangas
	San Jose, Occ. Mindoro	Cebu
	San Jose, Occ. Mindoro	Manila
	San Jose, Occ. Mindoro	Zamboanga
24	Tobaco, Albay	Virac
29	Ubay, Bohol	Maasin, Southern Leyte
	Virac, Catanduanes	Legaspi
	Virac, Catanduanes	Manila

* Link No. - Link Number specified in this Study.

Source: JICA Study Team based on Consignor Survey

Volume of Production/Trading and Distribution Pattern

34. Production of commodity, number of distribution patterns and that of expansion plans are shown at Table 7-26.

Table 7-26 Volume of Trading and Expansion Plan

Code	Port Name	Present Volume Count	MT	Plan Count
040205	Batangas City	6	160	7
040504	Mogpog	2	18	1
040610	San Jose	23	424	-
040705	Calapan	2	5	8
040712	Roxas	12	191	14
040918	Lucena	14	1578	27
050117	Tabaco	3	182	6
050411	Virac	29	79	1
050511	Masbate	5	7	2
050603	Bulan	6	15	3
050612	Matnog	1	2	-
060401	Ajuy	9	66	-
060418	Estancia	43	39	-
060421	Iloilo City	51	207	13
060502	Jordan	19	62	-
060601	Bacolod	12	563	2
060618	Manapla	27	62	-
060625	San Carlos	50	1018	43
070126	Jagna	9	6264	11
070143	Tagbilaran	17	368	-
070146	Tubigon	12	82	-
070147	Ubay	7	1	2
070217	Cebu City	35	6485	24
070251	Toledo	3	2	-
070317	San Jose	4	32	1
070310	Dumaguete	24	1872	5
080230	Ormoc	26	6377	24
080401	Allen	-	-	-
080608	Maasin	15	62	5
090102	Isabela	13	2098	-
090202	Jolo	57	1662	44
090542	Zamboanga	78	14280	67
100403	Mahinog	9	465	4
100516	Tangub	18	134	10
100605	Cagayan de Oro	49	2750	2
110102	Babak	7	49	1
110202	Davao City	15	113	7
120123	Tubod	29	5976	-
	Total	741	53750	334

Source : JICA Study Team based on Consignor Survey

35. Top 3 of volume of trading are Zamboanga City, Cebu City and Ormoc, their distribution patterns by commodity type are shown in Tables 7-27 to 7-29.

Table 7-27 Commodity Distribution from Zamboanga City

(Unit:MT)

No	Commodity	Iloilo	Cebu	Basln	Sulu	Tawi	ZamN	ZamS	Total
01	Live Animal	-	-	-	-	-	-	-	-
02	Dairy Products	-	-	-	-	-	-	-	-
03	Fish & Fish Prep.	-	2	152	-	-	-	-	154
04	Palay & Rice	-	-	1175	-	-	150	8	1333
05	Corn	-	200	1800	250	-	-	50	2300
06	Wheat	-	400	7	-	-	-	8	414
07	Fruits & Vegetable	25	500	200	535	50	-	600	1910
08	Sugar	-	-	-	-	-	-	-	-
09	Molasses	-	-	-	-	-	-	-	-
10	Animal Feeds	-	500	-	150	-	-	-	650
11	Bottled Cargo	-	-	-	-	-	-	-	-
12	Tabacco & Mft'res	-	-	-	-	-	-	-	-
21	Copra	-	-	-	25	500	-	1650	2175
22	Logs	-	-	-	-	-	-	-	-
23	Lumber	-	451	-	-	-	-	60	511
24	Paper & Pulp	-	-	-	-	-	-	-	-
25	Abaca	-	225	-	-	-	-	-	225
26	Textile Fibers	-	-	24	-	-	-	-	24
27	Fertilizer	-	-	-	250	-	-	40	290
28	Crude Minerals	-	-	-	-	-	-	-	-
29	Metalliferous Ores & Metal Scrap	-	-	-	-	-	-	-	-
31	Crude Petroleum	-	-	-	-	-	-	-	-
32	Refined Petroleum & Products	-	-	-	-	-	-	-	-
33	Mineral Fuels	-	-	-	-	-	-	-	-
41	Coconut Oil	-	-	-	-	-	-	-	-
51	Chemicals	-	-	-	-	-	-	-	-
61	Plywood & Veneer	-	-	-	-	-	-	3	3
62	Textile & Garment	-	-	-	-	-	-	-	-
63	Cement	-	-	-	-	-	-	-	-
64	Iron & Steel	-	-	-	-	-	-	-	-
65	Manufactures of Metal	-	-	500	-	-	-	9	509
71	Machinery & Electrical Equipment	-	-	-	-	-	-	-	-
72	Transport Equipment	-	-	-	-	-	-	-	-
81	Furniture	-	-	-	-	-	-	-	-
91	Other General Cargo	-	508	68	25	-	1375	1806	3782
	Total	25	2786	3926	1235	550	1525	4233	14280

Source: JICA Study Team based on Consignor Survey

Table 7-28 Commodity Distribution from Cebu City

(Unit: MT)

No	Commodity	Palawn	Masbt	Bohol	Cebu	NgrOr	Squjr	Leyte	Bilrn	S-Lyt	AgsnN	MsmOc	MsmOr	DavaS	LanaN	Manil	Total
01	Live Animal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02	Dairy Products	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
03	Fish & Fish Prep.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04	Palay & Rice	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
05	Corn	-	-	15	-	-	-	92	-	-	100	-	-	-	-	5	212
06	Wheat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07	Fruits & Vegetables	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
08	Sugar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
09	Molasses	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	Animal Feeds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	Bottled Cargo	800	200	3000	1450	-	-	-	-	-	-	-	-	-	-	-	5450
12	Tabacco & Mft'res	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	Copra	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	Logs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	Lumber	-	-	-	30	-	-	-	-	-	-	-	-	-	-	-	30
24	Paper & Pulp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	Abaca	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	Textile Fiber	-	-	-	-	-	-	-	-	-	-	-	-	25	-	-	25
27	Fertilizer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	Crude Minerals	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Metalliferous Ores & Metal Scrap	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	Crude Petroleum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	Refined Petroleum & Products	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	Mineral Fuels	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	Coconut Oil	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	10
51	Chemicals	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
61	Plywood & Veneer	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	10
62	Textile & Garment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
63	Cement	-	-	-	-	-	-	-	-	-	-	-	-	-	600	-	600
64	Iron & Steel	-	-	0	83	15	-	0	0	0	-	2	-	-	-	-	100
65	Metal Manufactures	-	-	-	-	-	1	2	-	-	-	0	1	-	-	-	3
71	Machinery & Electrical Equipment	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-	0
72	Transport Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
81	Furniture	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
91	Other General Cargo	-	-	0	25	5	-	-	-	-	-	-	-	-	-	-	30
	Total	800	200	3026	1588	20	1	94	0	0	100	2	1	25	610	5	6471

Source : JICA Study Team based on Consignor Survey

Table 7-29 Commodity Distribution from Ormoc

(Unit:MT)

No	Commodity	Masbat	Cebu	Leyte	DavaS	LanaN	Manil	Total
01	Live Animal	-	-	-	-	-	1	1
02	Dairy Products	-	-	-	-	-	-	-
03	Fish & Fish Prep.	-	-	-	-	-	-	-
04	Palay & Rice	-	-	2000	-	-	-	2000
05	Corn	-	-	-	-	-	-	-
06	Wheat	-	-	-	-	-	-	-
07	Fruits & Vegetables	-	-	-	-	-	-	-
08	Sugar	65	20	-	-	-	56	141
09	Molasses	-	-	-	-	-	-	-
10	Animal Feeds	-	-	-	-	-	-	-
11	Bottled Cargo	-	190	270	-	-	-	460
12	Tabacco & Manufactures	-	-	-	-	-	-	-
21	Copra	-	-	-	-	1700	-	1700
22	Logs	-	-	-	-	-	-	-
23	Lumber	-	-	-	-	-	-	-
24	Paper & Pulp	-	-	-	-	-	-	-
25	Abaca	-	-	-	-	-	-	-
26	Textile Fiber	-	-	-	-	-	-	-
27	Fertilizer	-	-	-	-	-	-	-
28	Crude Minerals	-	-	-	-	-	-	-
29	Metalliferous Ores & Metal Scrap	-	-	-	-	-	-	-
31	Crude Petroleum	-	-	-	-	-	-	-
32	Refined Petroleum & Products	-	-	-	-	-	-	-
33	Mineral Fuels	-	-	-	-	-	-	-
41	Coconut Oil	-	-	-	-	-	-	-
51	Chemicals	-	14	14	-	-	-	28
61	Plywood & Veneer	-	-	-	-	-	-	-
62	Textile & Garment Prod.	-	-	-	-	-	-	-
63	Cement	-	-	-	2000	-	-	2000
64	Iron & Steel	-	-	-	-	-	-	-
65	Manufactures of Metal	-	-	-	-	-	-	-
71	Machinery & d Electrical Equipment	-	-	-	-	-	-	-
72	Transport Equipment	-	1	-	-	-	-	1
81	Furniture	-	-	-	-	-	-	-
91	Other General Cargo	-	15	-	-	-	30	45
	Total	65	240	2284	2000	1700	87	6377

Source : JICA Study Team based on Consignor Survey

36. Plans for distribution expansion of all are as follows.

Table 7-30 Plans for Distribution Expansion

(Unit:Count)

No	Commodity	Attraction by Region IV	V	VI	VII	VIII	IX	X	XI	XII	NCR	Total
01	Live Anima	-	-	-	2	-	-	-	-	-	1	3
02	Dairy Prod	-	-	-	-	-	-	-	-	-	-	-
03	Fish & Fish Preparation	-	-	1	7	-	2	1	4	1	7	23
04	Palay & Rice	13	1	1	10	3	9	12	2	1	5	57
05	Corn	-	3	6	6	3	1	4	4	-	1	28
06	Wheat	-	-	2	1	-	2	-	-	-	-	5
07	Fruits & Vegetables	2	-	5	13	-	10	1	3	-	6	40
08	Sugar	-	4	-	4	-	-	1	-	-	5	14
09	Molasses	-	-	-	-	-	-	-	-	-	-	-
10	Animal Feeds	3	-	3	1	-	-	-	-	-	-	7
11	Bottled Cargo	5	3	-	4	-	-	2	-	-	2	16
12	Tabacco & Manufactures	-	-	-	1	-	-	-	-	-	-	1
21	Copra	2	2	7	7	2	4	7	4	3	12	50
22	Logs	-	-	-	-	-	-	-	-	-	-	-
23	Lumber	5	-	4	2	-	2	3	1	3	2	22
24	Paper & Pulp	-	-	-	-	-	-	-	-	-	-	-
25	Abaca	-	-	-	2	-	-	-	-	-	4	6
26	Textile Fiber	-	-	-	-	-	-	-	1	-	-	1
27	Fertilizer	2	-	2	1	-	-	-	-	-	-	5
28	Crude Minerals	-	-	-	-	-	-	-	-	-	-	-
29	Metallifer Ores and Metal Scrap	-	-	1	1	-	-	-	-	-	-	2
31	Crude Petroleum	-	-	-	-	-	-	-	-	-	-	-
32	Refined Petroleum and Products	1	1	-	-	-	-	-	-	-	-	2
33	Mineral Fuels	-	-	-	1	-	-	1	-	1	-	3
41	Coconut Oil	-	-	-	-	-	-	1	1	-	-	2
51	Chemicals	1	-	2	2	-	-	3	-	-	-	8
61	Plywood & Veneer	1	-	4	-	-	-	-	-	-	-	5
62	Textile & Garment Prod.	-	-	1	-	-	-	-	-	-	-	1
63	Cement	1	2	2	-	-	1	-	-	-	-	6
64	Iron & Steel	1	-	3	1	-	-	-	-	-	-	5
65	Manufactures of Metal	2	-	4	-	-	1	-	-	-	-	7
71	Machinery & Electrical Equipment	5	-	3	-	-	-	-	-	-	-	8
72	Transport Equipment	-	-	-	1	-	-	-	-	-	-	1
81	Furniture	2	-	-	-	-	-	-	-	-	-	2
91	Other General Cargo	5	4	3	13	2	15	3	5	4	6	60
	Total	51	20	54	80	10	47	39	25	13	51	390

Source : JICA Study Team based on Consignor Survey

D. Interview Survey of Vessel Operators

37. The interview survey of vessel operators was undertaken for 32 routes and the profile of the sampled operators is specified in Table 7-31.

Table 7-31 Profile of Vessel Operators

Profile	No. of Operators
Operation Years	
Below 2	5
3 - 5	17
6 - 10	7
11 - 15	12
16 - 20	4
21 above	10
unknown	2
Total	57
Vessel Ownership	
1	30
2	12
3 - 5	8
6 above	7
Total	57

Source : JICA Study Team based on Vessel Operator Survey

38. The perceived obstacles in the development of Ro/Ro operations ranked from 1 (least) to 10 (most) are :

Problem Area	Aggregate Scores	Consignors with Most*
Port Facilities	320	30
Road Network	202	3
Passenger/Cargo Volume	165	2
Fare and Freight Rates	119	1
Port Handling Charges	118	1
Financial Returns	114	1
Port Clearing Procedures	103	1
Acquisition of Vessels	102	1
Peace and Order	64	-
Others	77	3
Total	1384	43

* - number of consignors assigning rank of 10 for the problem

Source : JICA Study Team based on Vessel Operator Survey

"Port Facilities" is the problem which received the highest score. Its corresponding problem statements are as follows:

- o No port facilities, low water level
- o Need for Ro/Ro facilities (ramp)
- o No available port for commercial vessel
- o Pier being renovated and transferred
- o Berth problems, too congested piers or no space
- o Repair of pier is very slow
- o No strong rubber fenders
- o No waiting shed/terminal for passengers/consignors
- o Unrepaired port flooring
- o Difficulty in docking

39. The surveyed operators were asked to provide information as to their development/expansion thrusts. As it is, their plans are mostly on the improvement and development of their vessels and port/port facilities. These are as follows:

a) Vessel Improvement:

- o Provide fast/efficient vessel
- o Introduce Ro/Ro
- o Upgrade vessel service

b) Port and Port Facilities Improvement/Development:

- o Construct wharf, build temporary wharf
- o Terminal area/port extension
- o Arrival/Departure area
- o More forklifts
- o Port police
- o Problem consultation

Chapter 8 Demand Forecast

A. Future Socio-economic Framework

Population

1. After World War II, the population of the Philippines grew sharply and in 1960 recorded a 3.06 percent growth rate. Due to the rapidly increasing population, the Population Commission was created in 1969 to formulate policy and program recommendations on population and relating them to socioeconomic development. Population growth recorded an annual growth rate of 3.01 percent from 1960 to 1970. The National Statistics Office (NSO) recently took a census, the first one 1980, in May, 1990. The 1990 Philippine Population Census placed the total population of the country at 60,680 thousand as of May 1990. This means an increase of 12,581 thousand or 2.35 percent over that of 1980. (Table 8-1 and Figure 8-1)

Table 8-1 Nationwide Population: Census Year 1877-1990
(In Thousands)

Year	Population
1877	5,568
1887	5,984
1896	6,261
1903	7,635
1918	10,314
1939	16,000
1948	19,234
1960	27,088
1970	36,684
1975	41,071
1980	48,098
1990	60,680

Note 1) Population 1877 to 1896 excludes non-christians
2) Population of 1896 is Prof. Plehn's estimate based on census records

Source: 1) Philippine Yearbook 1989 National Statistics Office
2) 1990 Philippine Statistical Yearbook, National Statistical Coordination Board

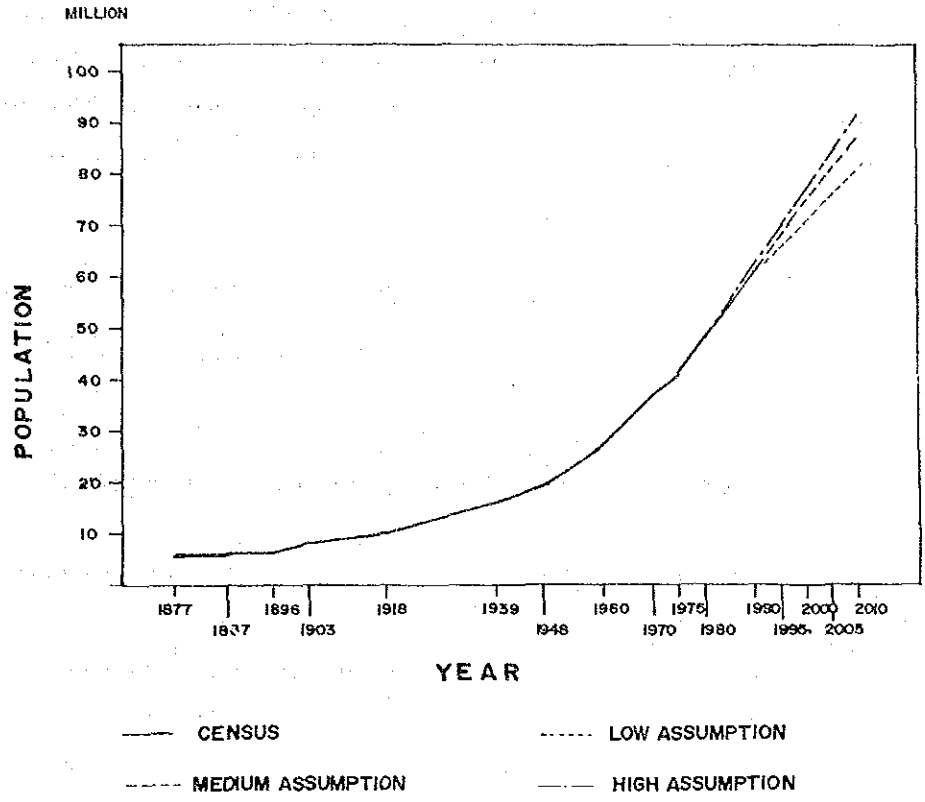

Figure 8-1 Population: 1887-2010

Source: JICA Study Team based on
1) Philippine Yearbook 1989
National Statistics Office
2) 1990 Philippine Statistical
Yearbook, National Economic and
Development Authority
3) Philippine Population Projections 1980-2030
National Economic and Development Authority

2. The highest increase in population is recorded for the region of Central Mindanao with 3.40 percent and the second is Southern Tagalog with 3.05 percent. In contrast, the least increase in population is in the region of Eastern Visayas with 0.88 percent. The rates of increase of the four regions in Luzon Island are over 2.0 percent, but those of Western and Central Visayas are under 2.0 percent. (Table A-1-8-1)

3. The Philippine Population Projections 1980-2030 were prepared by the National Statistics Office in collaboration with the Inter-Agency Committee on Population and Vital Statistics based on the 1980 Census of Population and Housing. And these projections were based on several assumptions on mortality, fertility and migration.

4. The Population projections of 1980-2030 produced a total of three alternative paths for determining the future national, regional and provincial populations. These alternatives are as follows:

(i) Low Assumption - Slow fertility decline and moderate mortality decline
(ii) Medium Assumption - Moderate fertility decline and moderate mortality decline
(iii) High Assumption - Rapid fertility decline and moderate mortality decline.

(See Figure 8-1, Table A-1-8-2)

Economy

(1) Present Situation

5. After the economic crisis in 1983, negative growth of the economy continued in 1984 and 1985. Gross national product in 1985 fell to the 1979 level at constant 1972 prices. In 1986, gross national product shifted to positive growth after three years. In the following year (1987), growth rate was 5.81 percent. Consequently, gross national product recovered to its level prior to 1980. (Table 8-2)

Table 8-2 Gross National Product: 1970-1989
(At Constant 1972 Prices)

Year	GNP Million Pesos	Growth Rate (%)	Year	GNP Million Pesos	Growth Rate (%)
1970	50,035		1980	95,597	7.73
1971	52,921	5.77	1981	96,041	0.46
1972	55,526	4.92	1982	97,539	1.56
1973	60,881	9.64	1983	98,767	1.26
1974	64,739	6.34	1984	91,933	-6.92
1975	68,530	5.86	1985	87,867	-4.42
1976	72,718	6.11	1986	89,504	1.86
1977	77,162	6.11	1987	94,705	5.81
1978	83,070	7.66	1988	101,093	6.75
1979	88,736	6.82	1989	106,803	5.65

Source: 1) 1970-1986, to Philippine Yearbook 1989
National Statistics Office
2) 1987-1989, 1990 Philippine Statistics Yearbook
National Economic and Development Authority

6. The economic growth achieved in 1986 and 1987 was sustained in 1988, with gross national product expanding by 6.75 percent, the biggest increase realized since 1979. In 1989, gross national product reached 106,803 million pesos, at constant 1972 prices, up by 5.65 percent from the 1988 level. Compared to 1988, however, the performance in 1989 reflected a slowing down of economic activities. Moreover, the year ended with the manifestation of a macroeconomic imbalance. (Table 8-2 and Figure 8-2)

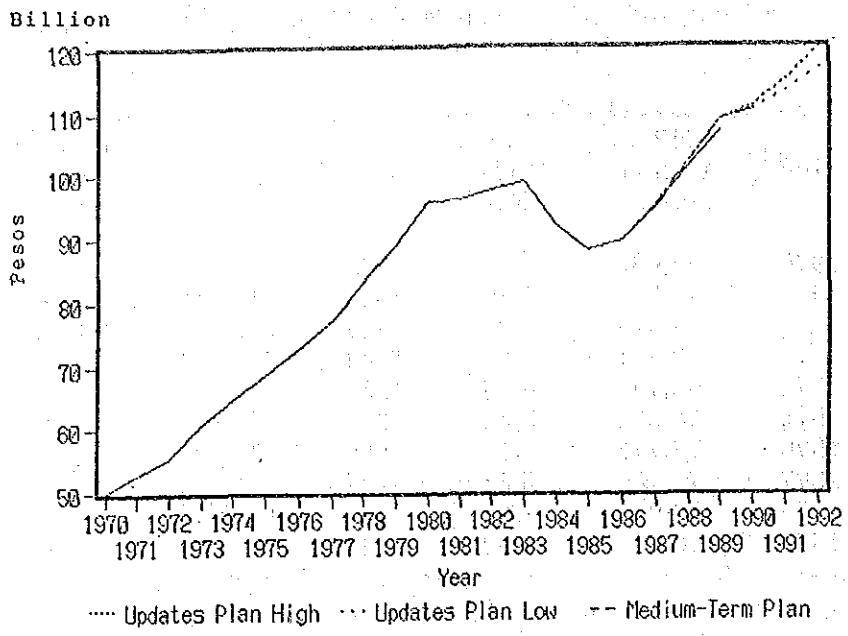

Figure 8-2 GNP at Constant 1972 Prices
Source: JICA Study Team

7. Per capita gross domestic product at constant 1972 prices reached its peak of 1,949 pesos in 1982. After that, it continued to register negative growths till 1986 and fell to the minimum level of 1,628 pesos, down by 16.50 percent from the 1982 level. As an effect of economic growth, gross national product recovered and per capita gross domestic product rose to 1,783 pesos in 1989. Despite this, per capita gross domestic product was still down by 8.53 percent from the 1984 level. (Table A-1-8-5)

8. Per capita gross domestic product by region in 1989 showed Metropolitan Manila Area (NCR) with the highest at 4,281 pesos at constant 1972 prices, followed by Southern Tagalog Region with 1,821 pesos. The Metropolitan Manila Area was 2.40 times that of the national average of 1,783 pesos at the constant 1972 price and 5.34 times that of the Bicol Region of 801 pesos, the lowest. (Table A-1-8-5)

9. Personal consumption expenditures have continued to expand since 1985, reaching 78,929 million pesos at constant 1972 prices in 1989. This represents an increase of 5.74 percent from 1988 to 1989. (Table A-1-8-6) Although per capita personal consumption expenditure is not shown, it can be estimated by determing the population in 1989 based on the assumption that population growth rates have been constant from 1980 - 1990. It is estimated that per capita personal consumption expenditure in 1989 reached 1,328 pesos at constant 1972 prices, and increased by 3.4 percent over the previous year. (Table A-1-8-7, Table A-1-8-8)

(2) Medium-Term Philippine Development Plan 1987-1992

10. Memorandum Circular No. 4, dated March 18, 1986, directed the formulation of the Medium-Term Philippine Development Plan for 1987 to 1992 to guide development efforts in both public and private sectors for the six year period from 1987 to 1992. This plan was endorsed by the Cabinet Steering Committee on Development Plan Formulation and the National Economic and Development Authority Board, and the President of the Philippines proclaimed the approval and adoption of the Medium-Term Philippine Development Plan for 1987 to 1992, including the supporting regional development plans and investment programs.

11. During the plan period, real gross national product is targeted to increase by an average of 6.8 percent. Gross national product at current prices is expected to reach 1,438.0 billion pesos by 1992, resulting in per capita income of 22,378 pesos. Gross national product growth rates from 1987 to 1990 are shown on Table 8-2. In real terms, this represents an average annual increase on per capita income of 4.4 percent during the period; higher than the recorded increase in real per capita income in 1961-80. This increase in per capita income provides for the recovery of the national income which has been set back by ten years when the level in 1985 fell to its 1975 level. It is expected that the 1981 real per capita income of 1,933 pesos, the highest ever achieved by the country, will be regained by 1991. Gross national product and other indicator projections, 1986-1992, are shown in the Appendices. (Table A-1-8-9)

12. The objectives of regional development are:

(i) To promote the growth of the less developed regions/areas and achieve a more balanced spatial development; and

(ii) To promote efficient development and utilization of land and other physical resources.

13. As for regional development targets, Cagayan Valley and Eastern Visayas are expected to attain the highest growth rates in gross regional product followed by Northern Mindanao, Ilocos, and Western Mindanao. The National Capital Region is expected to register a moderate growth, which is consistent with the current strategy to balance the development of regions. (Table A-1-8-10 and Table A-1-8-11)

(3) Updates of the Philippine Development Plan 1990-1992

14. The series of shocks experienced by the country in 1989-1990 created major set backs in the plans and targets to sustain the momentum for rapid growth attained in previous years. These shocks were the failed coup d'etat attempt in December 1989, the long drought from October 1989 to May 1990, the power outages during the second quarter of 1990, the July Killer earthquake, the Middle East Crisis that exacerbated Philippine oil supply problems and typhoon Ruping that caused heavy damage to agriculture in the Visayas and Northern Mindanao. In view of these developments, and considering the urgent need to make Philippine development plans and targets operationally relevant and realistic, updates to the original plan targets had to be made. Thus, updates on the Medium-Term Philippine Development Plan, 1990-1992, has been prepared. NEDA Memorandum Order dated April 20, 1990 reconvened the Inter-Agency Technical Sub-Committees previously under the NEDA Memorandum Order dated 13 May 1986, for the purpose of assessing and updating the plan.

15. This plan is prepared based on two projections; high assumption and low assumption. In the case of high assumption, during the plan period, real gross national product is targeted to increase by 3.9 percent on average. Gross national product at current prices is expected to reach 1,309.4 billion pesos by

1992, resulting in a per capita gross domestic product at constant 1972 prices of 1,816 pesos. In real terms, this represents an average annual increase in per capita gross national product of 1.3 percent. (Table A-1-8-12)

16. On gross domestic product, in the case of high assumption, it is targeted to increase by 3.7 percent on average. Gross domestic product at constant 1972 prices is expected to reach 119.5 billion pesos by 1992. In particular, construction production is expected to increase by 9.7 percent on the average, the highest achieved by the sector. (Table A-1-8-13)

17. On gross regional domestic product targets, Metro Manila Area is the region expected to post the greatest increase or growth, with 5.90 percent. The second is Central Visayas with 5.84 percent. (Table A-1-8-14)

18. The highways development program will improve the road density by 1992 to 0.54 kilometers per square kilometer of land area. All weather type of roads is expected to increase from 58 percent of total road length in 1989 to about 71 percent in 1992. Moreover, the percentage of paved national roads will be raised from 49 to 75 percent. Arterial routes are to be 100 percent paved. (Table A-1-8-15)

19. The water transport development program focuses on the rehabilitation/improvement of 150 feeder ports, 51 secondary ports and 22 major ports, and the construction of 5 regional fishing ports. (Table A-1-8-16)

20. The PNR's Manila South Line, North Line and Commuter Line in Panay are being rehabilitated/upgraded to be able to carry 4 million long-distance passenger per year and 70,000 METROTREN commuters daily starting 1992.

(4) Macro Development Framework 1993-1998

21. Assuming that the objectives of the stabilization program presented and the growth targets for 1991-1992 are achieved, the stage of this plan is set for a higher growth scenario in later years. This plan has a target that the economy should grow at an accelerated pace, to average at least 6.6 percent from 1993 to 1998, and that recovering of the per capita income achieved in 1981 will be, likewise, realized by 1994. (Table A-1-8-15)

22. The growth in personal consumption is kept to no more than 6 percent in 1993 after which it should stabilize at 5 percent by 1998. This will mean an increase in per capita consumption averaging 3.3 percent yearly. (Table A-1-8-16)

23. On sectorial gross domestic product, manufacturing is expected to grow from 1.7 percent in 1990 to 12.3 percent in 1998. (Table A-1-8-17)

(5) Long-Term Projections 1993-2010

24. The Long-Term Projections 1993-2010 reflect a perspective of the desired development direction to be taken by the Philippines in order to be a newly-industrialized economy (NIE) by the year 2010. From these projections, to attain the status of a newly-industrialized economy by the year 2010, it is estimated that the gross national product should grow by an annual average of 6.8 percent from 1993-2000 and 7.7 percent from 2001-2010.

25. Based on the gross national product growth rates, real income per capita is expected to grow by an average of 4.5 percent for the period 1993-2000, and 5.8 percent for the period 2001-2010.
(Table A-1-8-18)

26. Personal consumption expenditures are expected to have an average annual growth rate of 5.6 percent for the period 1993-2000, and 6.2 percent for the period 2001-2010. (Table A-1-8-18)

27. On per capita gross national product at constant 1972 prices, it is expected to reach 581.4 US dollars (18,837 pesos) in 2010, from 301.1 US dollars (7,287 pesos) in 1992. (Table A-1-8-18)

B. Methods of Demand Forecast

General Methods

28. Several types of shipping links are included in the long list. On some of the links Ro/Ro ferry vessels ply daily, and on some of the other links no traffic can be admitted so far. Some of the links connect major islands such as Panay Island and Negros Island, and some of the links connect a small island with a major island. This is the case for Davao City-Babak link.

29. Table 8-3 summarizes general information on shipping activities on each route and availability of PPA statistics for link traffic.

30. Characteristics of ferry traffic vary from link to link, reflecting lifestyles of residents and economic activities in the hinterland region. A method for demand forecast for a specific link should be a suitable one, corresponding to the nature of its link traffic. The 42 study routes are composed of different types of routes. Therefore, it is very difficult to find a uniform method which can be applied to every route.

31. In this study, traffic projections shall be done for most routes in two steps:

- establishing a base year link traffic from 1990 statistics
- applying annual growth rates to get the target year traffic

The method described below will be generally applied. Specific methods applied for particular links are described separately.

Table 8-3 Shipping Activities and Availability of Traffic Statistics

No.	Link		Scheduled		Not Scheduled	
			PPA Stats	No Stats	PPA Stats	No Stats
1.	Matnog	Allen	○			
2.	Matnog	San Isidro	○			
3.	Batangas City	Calapan	○			
4.	Liloan	Lipata	○			
5.	Argao	Loon				○
6.	Escalante	Tuburan	○			
7.	Carmen	Isabel				○
8.	Tandayag	Bato	○			
9.	Tubodo	Tangub		○		
10.	Iloilo City	Bacolod	○			
11.	Iloilo City	Pulupandan	○			
12.	Iloilo City	Jordan		○		
13.	Toledo	San Carlos	○			
14.	Cebu City	Tubigon	○			
15.	Dumaguete	Santander				○
16.	Dumaguete	Dapitan	○			
17.	Jagna	Cagayan de Oro	○			
18.	Zamboanga City	Basilan	○			
19.	Zamboanga City	Jolo	○			
20.	San Jose	Puerto Princesa			○	
21.	Cavite City	Mariveles				○
22.	Batangas City	Abra de Ilog		○		
23.	Lucena City	Balanacan	○			
24.	Tabaco	Virac	○			
25.	Bulan	Masbate	○			
26.	Milagros	Estancia		○		
27.	San Jose	New Washington				○
28.	Cebu City	Ormoc	○			
29.	Ubay	Maasin		○		
30.	Davao City	Babak		○		
31.	Roxas	Odiongan		○		
32.	Roxas	New Washington				○
33.	Matnog	Masbate				○
34	Cebu City	Talibon	○			
35.	Jagna	Mambajao				○
36.	Benoni	Balingoan		○		
37.	San Jose	El Nido			○	
38.	Cebu City	Tagbilaran	○			
39.	Lucena City	Sta. Cruz	○			
40.	Dumaguete	Larena	○			
41.	Guihulngan	Dumanjug	○			
42.	Ajuy	Manapla				○

Sources: JICA Study Team based on
1) PPA Monthly Report
2) JICA Field Survey

Establishing a Base Year Link Traffic

32. Traffic forecast for each link is generally obtained by applying annual growth rates to base year traffic. Therefore, information on base year traffic is a key element in forecasting future traffic. It is crucial to obtain reliable figures that reflect the existing shipping situation.

33. Unfortunately, no official traffic data are available for each link. Although PPA has been publishing the port statistics for some ports under PPA system, these statistics do not show link traffic, but combined entire traffic at the port. However, PPA has revised its statistical system since 1st January, 1991 as mentioned earlier. Port Management Office of PPA summarizes monthly the Port Traffic Statistics, and this Summary Statistical Report shows the last port of call and next port of call for each ship visited. Analysis of the monthly report leads to the information of traffic on each study link. These tasks were undertaken jointly by the study team and the Philippine counterpart.

34. Another information source for link traffic is NSO statistics. Unlike PPA statistics, NSO port statistics contain information on port of origin and port of destination of each sea traffic. This information can be used as a base year traffic for each link. Data of the year 1989 were available for the study team.

35. The two (2) information sources for the base year traffic are available only for the ports which are manned by PPA staffs. However, there are several shipping links which ferry boats ply while no shipping activities are recorded. O/D and head count surveys were implemented by the study team on the study links where shipping activities presently exist. The on-site surveys were carried out only for two days, but gave vivid information on the present status of link traffic.

36. It is widely recognized that the reported figures to PPA by shipping companies are understated. By conducting the on-site traffic surveys mentioned above, actual number of passengers can be obtained, and this survey enables us to compare the two: the reported figures and the actual figures. Conducting on-site head count survey gives us advantage of cross check as well as adjusting factors to obtain clear pictures of the link traffic.

Applying Annual Growth Rates

37. The formula presented in Highway Planning Manual by the Ministry of Public Works and Highways (1982) will be applied.

It is as follows:

$$T = \left\{(E \times I / 100 + 1) \times (P / 100 + 1) - 1\right\}$$

Where:

T = the traffic growth rate per annum
E = the transport demand-income elasticity
I = the growth rate for per capita income in constant prices
P = the average population growth rate per annum

38. Normally, (E) elasticity has been taken equal to between 1.2 and 1.5 for forecasting future passenger traffic in several port studies in the Philippines such as Feeder Ports Study and updating of the Ferry Study under the Road Feasibility Studies.

39. Between 1983 and 1985, the Philippine economy suffered from recession, and then emerged into a period of steady economic growth. During the period 1983 through 1990, growth factors are summarized herein.

Population Growth Rate	2.35 percent
Per Capita Consumption Expenditure Growth Rate	0.94 percent

Assuming the transport demand-income elasticity to be 1.5, the annual traffic growth rate is calculated as 3.7 percent.

40. Between 1983 and 1990, numbers of passengers embarking and disembarking at Philippine ports has been increasing from 18.782 million to 27.949 million, resulting in annual growth rate of 5.8 percent. This annual growth rate recorded for passenger is higher than the calculated one which is induced from the assumption of the said value of the elasticity. This fact shows that

the elasticity of sea traffic during this period has a somewhat higher value than 1.5. Although the income elasticity of demand for the sea transport may require further investigation, the maximum value 1.5 among previous studies should be applied for forecasting future passenger traffic.

41. Consumption goods include goods such as food, beverages, kerosene, clothes and other goods which are passing through the ports. The same formula can be used in calculating the growth rates for household consumption goods, which are generally transported by passenger/cargo ferry boats. In many studies a lower elasticity has been used for consumption goods. The recorded annual growth rate of domestic throughput between 1983 and 1990 is 5.3 percent (Table A-1-8-19), which is lower than the growth rate of passenger traffic. In this study 1.2 will be utilized as an elasticity for consumption goods. Flowcharts for forecasting passenger traffic and cargo traffic are presented in Figure 8-3 and Figure 8-4, respectively.

Commodity Traffic

42. During the on-site traffic surveys, several interviews with ship operators, shippers and drivers were carried out. Information on present situation and future prospect of cargo movement and opinions about development of Ro/Ro ferry transportation system will assist the forecasting of future commodity traffic.

43. Commodity flow analysis, which was carried out by IATCTP Nationwide Roll-on Roll-off Transportation System Development Study, reveals that "rest group" occupies almost half of the total throughput in the Visayas Region. This "rest group" is composed of miscellaneous commodities such as processed goods and consumable products. From this fact it can be said that very few types of commodities moving between islands in the Visayas region are not fit for Ro/Ro traffic. However, in the course of commodity forecasting, modal split especially between Ro/Ro ferry vessels and conventional vessels will be considered, if necessary.

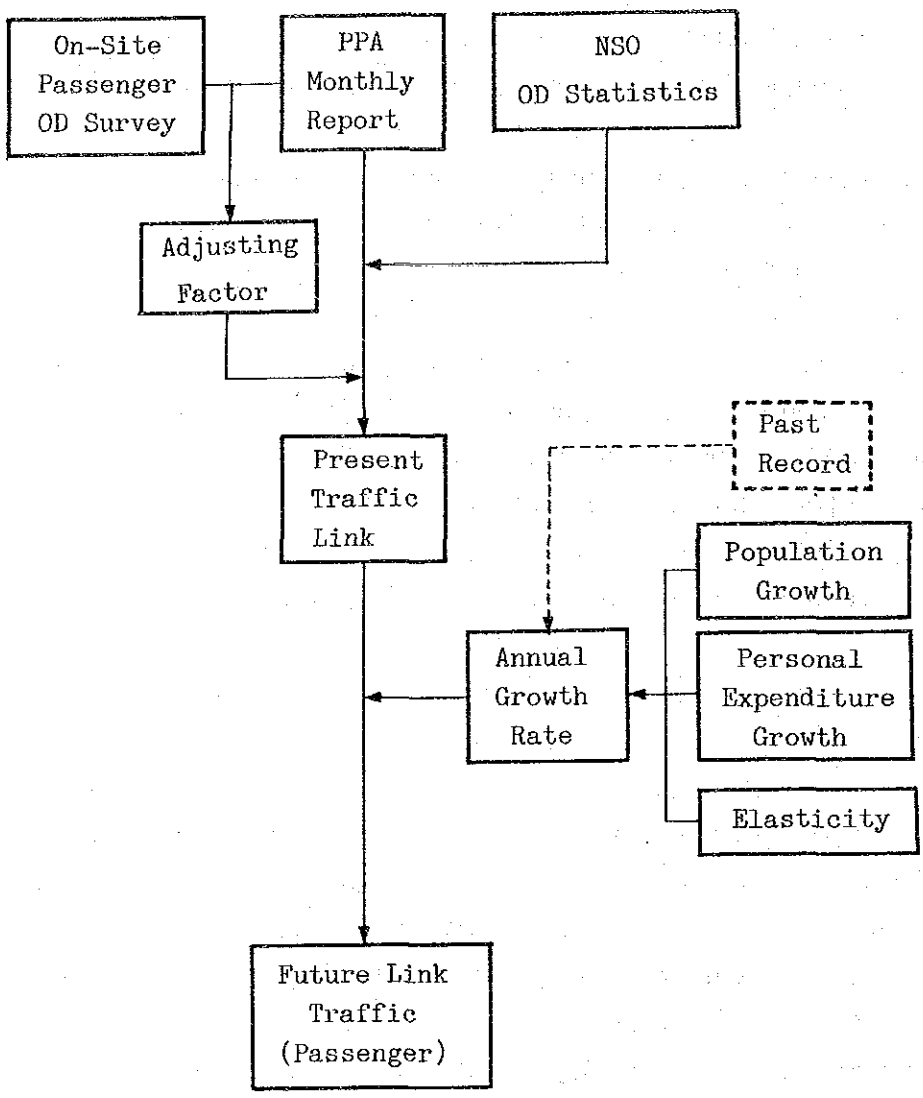

Figure 8-3 Demand Forecast on Passenger Traffic for Each Link

Source: JICA Study Team

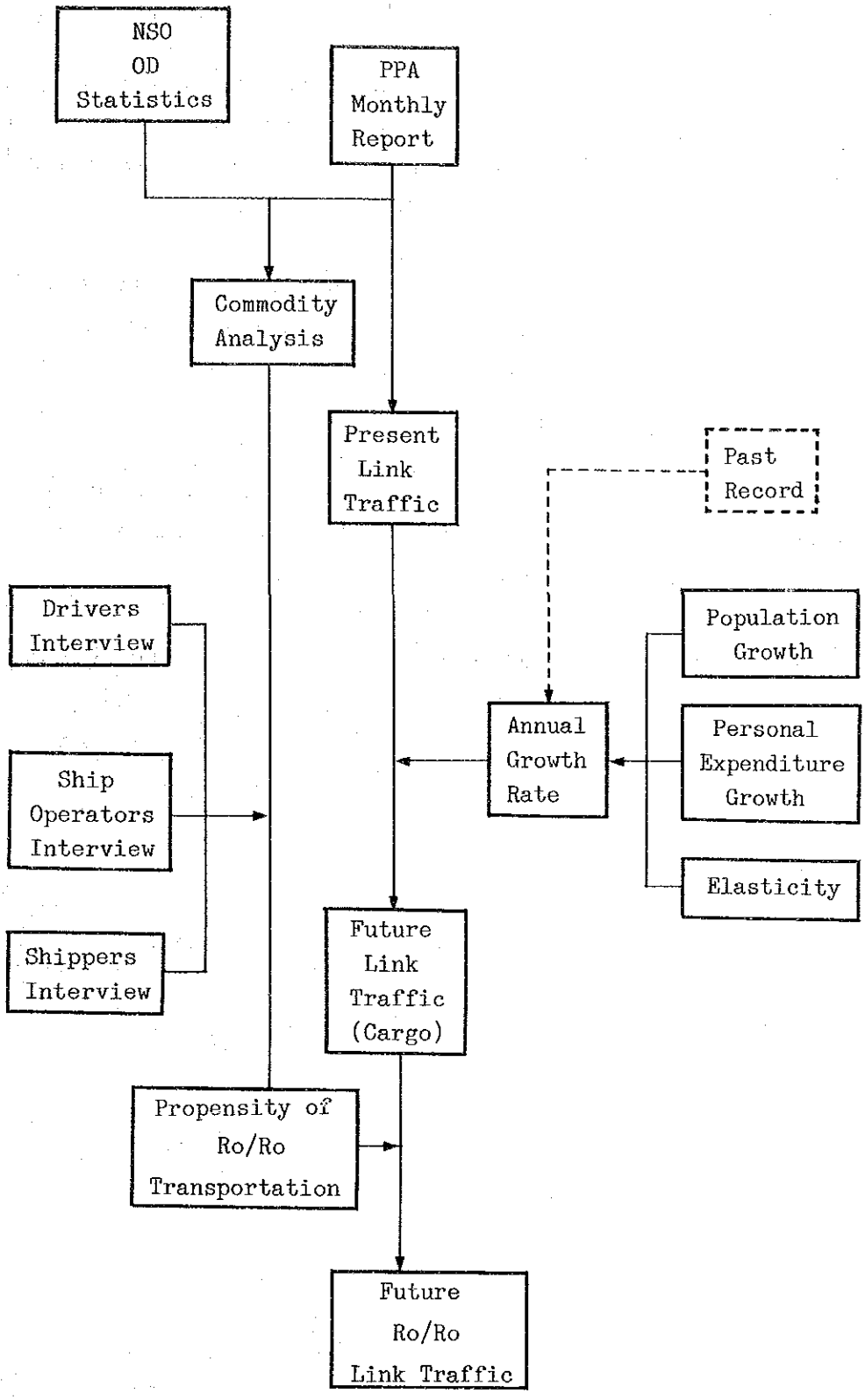

Figure 8-4 Demand Forecast on Cargo Traffic for Each Link

Source: JICA Study Team

Traffic Demand Forecast for Not Existing Links

44. Above mentioned methodology, namely two steps method, requires the base year traffic for each route. For not-existing links, base year traffic is zero. Applying this method to not existing links requires the estimation of potential traffic demand for each route at the base year.

45. Shipping links with no regular services can be categorized into several groups. For each category, suitable methodology should be applied. Table 8-4 and Table 8-5 summarize methodologies to be applied to each category.

46. For a route which connects a small island with a major island such as Jagna-Mambajao, traffic of similar routes will be referred to. An attempt to establish a gravity model will be made.

47. For inter island routes such as San Jose - El Nido and Milagros-Estancia, a gravity model based on PPA or NSO Statistics will be tested.

Table 8-4 Methods of Forecasting Potential Cargo Traffic at Base Year for Each Type of Link

Classification	Methodology	Link	
1) Inter Island Link	i) Gravity Model	Carmen	- Isabel
		Dumaguete	- Santander
		Batangas City	- Abra de Ilog
		Milagros	- Estancia
		San Jose	- New Washington
		Ubay	- Maasin
		Roxas	- New Washington
		Matnog	- Masbate
		San Jose	- El Nido
		Guihulngan	- Dumanjug
		Ajuy	- Manapla
2) Solitary Island Link	i) Gravity Model	Roxas	- Odiongan
		Jagna	- Mambajao
	ii) Other Method	Iloilo City	- Jordan
		Davao City	- Babak
		Benoni	- Balingoan
3) Short Cut Link	i) On-site Survey	Tubod	- Tangub
	ii) Gravity Model	Cavite City	- Mariveles
4) Abandoned Link	i) Past Record	Argao	- Loon

Source: JICA Study Team

Table 8-5 Methods of Forecasting Potential Passenger Traffic at Base Year for Each Type of Link

Classification	Methodology	Link	
1) Inter Island Link	i) Gravity Model	Carmen	- Isabel
		Iloilo City	- Pulupandan
		Dumaguete	- Santander
		Batangas City	- Abra de Ilog
		San Jose	- Puerto Princesa
		San Jose	- New Washington
		Ubay	- Maasin
		Roxas	- New Washington
		Matnog	- Masbate
		San Jose	- El Nido
		Guihulngan	- Dumanjug
		Ajuy	- Manapla
2) Solitary Island Link	i) Gravity Model	Jagna	- Mambajao
3) Short Cut Link	i) Gravity Model	Cavite City	- Mariveles
4) Abandoned Link	i) Past Record	Argao	- Loon

Source: JICA Study Team

C. Base Year Link Traffic

1) Realized Link Traffic

Cargo

48. There are two data sources for grasping the link traffic of cargo, namely:

i) Monthly Report, Philippine Ports Authority
ii) Cargo Tonnage, Value and Freight Charges of PSCC Items, Ports of Origin and Destination, 1989, National Statistics Office.

Each link traffic of cargo can be obtained by analyzing Philippine Ports Authority (PPA) data and National Statistics Office (NSO) data. Generally speaking, PPA data is more reliable than NSO data.

49. Consequently, PPA data take precedence over NSO data on links in which there is data from both sources. NSO data is adopted for the links where PPA data is not available. And for the links where there is no existing data, the traffic volume will be estimated using the gravity model and other methods. In cases where the annual data cannot be obtained, link traffic can be estimated by considering seasonal variations (as data is often incomplete, adjustments are necessary).

50. Because the commodity carried out by Ro/Ro or ferry vessels is consumer goods, cargo traffic volume is affected by the inward (consumer) side, not the outward(production) side. However, due to time constraints, it is impossible to study each commodity to determine whether it originates in a production district or a consumer district. Therefore in this study, one side of the traffic volume of cargo is adopted; the traffic volume of the larger side.

Passenger

51. There are three data sources for grasping passenger traffic, namely;

i) Monthly Report, Philippine Ports Authority

ii) Cargo Tonnage, Value and Freight Charges of PSCC Items, Ports of Origin and Destination, 1989, National Statistics Office

iii) Head Count.

Each link traffic of cargo can be obtained by analyzing Philippine Ports Authority (PPA) data and National Statictics Office (NSO) data.

52. PPA data take precedence over NSO data in cases where there is data from both sources. Head Count data is adopted for links where PPA data is not available. NSO data has not been adopted for passenger link traffic because it has proved to be unreliable. And in cases where annual data cannot obtained, link traffic can be estimated by considering the seasonal variation. For links on which there is no existing data, the traffic volume will be estimated using the gravity model and other methods, as in the case of cargo traffic.

53. For some ports, there is a great difference between the number of embarked passengers and disembarked passengers. However, this difference is not considered to be great since most passengers surely return to their place of embarkation. Therefore, one side of the trffic volume of passengers will be considered; the traffic volume of the larger side.

Seasonal Variation

(1) Cargo Traffic

54. The seasonal variation of cargo is shown in Table 8-6. These figures were obtained by averaging the seasonal variation of each link in which annual data was available, as follows:

i) Liloan - Lipata

ii) Iloilo City - Bacolod

iii) Cebu City - Tubigon

iv) Lucena City - Balanacan

Table 8-6 Seasonal Variation of Cargo and Passenger

Month	Cargo	Passenger
January	85	99
February	116	96
March	103	86
April	93	131
May	94	143
June	95	126
July	92	85
August	101	88
September	88	85
October	113	90
November	97	82
December	125	91

Remark: Average value is 100

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

(2) Passenger Traffic

55. The seasonal variation of passenger is shown also in Table 8-6. These figures were obtained by averaging the seasonal variation of each link in which annual data was available, as follows:

i) Liloan - Lipata
ii) Iloilo City - Bacolod
iii) Cebu City - Tubigon
iv) Lucena City - Balanacan
v) Cebu City - Talibon

56. The comparison table of cargo traffic volume and passenger traffic by data source is shown in Table 8-7.

Table 8-7 Comparison of Cargo Traffic and Passenger Traffic by Data Source

No.	Link		Cargo (Metric Ton)		Passenger	
			PPA 1990	NSO 1989	PPA 1990	Head Count 1991
1	Matnog	- Allen	36,338		177,600	131,643
2	Matnog	- San Isidro	22,619		139,670	232,500
3	Batangas City	- Calapan	240,744	313,510	527,444	763,486
4	Liloan	- Lipata	15,710		76,212	76,171
5	Argao	- Loon	8,830	3,490	11,074	
6	Escalante	- Tuburan	12,572	82,707	74,166	112,264
7	Carmen	- Isabel				
8	Tandayag	- Bato	5,958	25	107,922	59,121
9	Tubod	- Tangub				27,679
10	Iloilo City	- Bacolod	118,171	141,369	783,843	763,929
11	Iloilo City	- Pulupandan		24,870		
12	Iloilo City	- Jordan		1,782		487,807
13	Toledo	- San Carlos	43,003	15,344	214,954	81,821
14	Cebu City	- Tubigon	28,869	13,849	194,878	121,236
15	Dumaguete	- Santander				
16	Dumaguete	- Dapitan	7,924	443	75,521	31,779
17	Jagna	- Cagayan de Oro	5,812	6,004	54,045	191,979
18	Zamboanga City	- Basilan	18,092	50,046	412,836	674,143
19	Zamboanga City	- Jolo	25,310	32,736	40,818	302,914
20	San Jose	- Puerto Princesa	2,580	386		
21	Cavite City	- Mariveles				
22	Batangas City	- Abra de Ilog				
23	Lucena	- Balanacan	33,944	190	130,442	61,671
24	Tabaco	- Virac	14,808	10,980	55,085	113,150
25	Bulan	- Masbate	6,320	2,532	19,615	20,043
26	Milagros	- Estancia				5,536
27	San Jose	- New Washington				
28	Cebu City	- Ormoc	19,080	17,357	184,323	148,471
29	Ubay	- Maasin				8,719
30	Davao City	- Babak				28,900
31	Roxas	- Odiongan				11,957
32	Roxas	- New Washington				
33	Matnog	- Masbate				
34	Cebu City	- Talibon	14,060	8,957	53,445	35,321
35	Jagna	- Mambajao				
36	Benoni	- Balingoan				157,214
37	San Jose	- El Nido				
38	Cebu City	- Tagbilaran	51,330	35,681	154,459	122,671
39	Lucena	- Sta. Cruz	15,261	6,853	66,417	39,529
40	Dumaguete	- Larena	2,217		20,925	15,429
41	Guihulngan	- Dumanjug	225	265	24,985	26,129
42	Ajuy	- Manapla				1,107

Remark: Traffic volumes represent one way traffic only

Source: JICA Study Team Based on
1) PPA Monthly Report, Philippine Ports Authority
2) Cargo Tonnage, Volue and Freight Charges of PSCC Items, Ports of Origin and Destination, 1989, National Statistics Office
3) Ship, Cargo, and Passenger Traffic Classified by Ports of Origin and Destination and Type of Service, 1989, National Statistics Office
4) Head Count, JICA O/D survey

2) Potential Link Traffic

Gravity Model

57. Potential link traffic is obtained using the gravity model based on population and distance. The formula for the gravity model is as follows:

$$Tij = \frac{k*(Pi*Aj)^{\alpha}}{Dij^{r}}$$

Where:

Tij : the weight from i-zone to j-zone
Pi : the production of i-zone
Aj : the attraction of j-zone
Dij : the distance between i-zone and i-zone
k, α, r : the parameter

Inter Island Link

58. For cargo traffic, two cases for correlation coefficient have been compared, as follows:

i) a correlation between total population of each province and PPA cargo traffic data.
ii) a correlation between total population of each municipality and PPA cargo traffic data.

59. For passenger traffic, two cases, the same as in cargo traffic, have been compared. (Table A-1-8-24)

60. The gravity model is used to calculate passenger and cargo traffic based on the population of each province and each municipality and PPA actual data. Referred PPA data are links No.3, 5, 6, 8, 10, 13, 14, 16, 17, 20, 22, 25, 28, 34, 38 and 41. Population number and actual traffic volume of each link which are used to construct the gravity model of inter island link are shown in Table

A-1-8-26(1) and Table A-1-8-26(2). The correlation coefficient, calculated by the regression analysis is shown in Table 8-8. Comparing the correlation coefficient, the population of each municipality is given for both cargo traffic and passenger traffic(Table 8-9). Parameters, calculated by the analysis, are shown in Table 8-10. Cargo and passenger traffic of each link is shown in Table 8-11.

Table 8-8 Correlation Coefficient of Inter Island Link

Item	Data Source	Population	
		Province and Province	Municipality and Municipality
Cargo	PPA	0.49737	0.83604
Passenger	PPA	0.46045	0.76704

Source: JICA Study Team

Table 8-9 Base Data of Gravity Model

Link	Cargo		Passenger	
	Actual Traffic Data	Total Population	Actual Traffic Data	Total Population
Solitary Island Link	PPA	Each Municipality	PPA	Each Municipality
Inter Island Link	NSO	Each Municipality	PPA	Municipality and Island

Source: JICA Study Team

Table 8-10 Gravity Model Parameter

Parameter	Cargo	Passenger
κ	0.1516	0.0907
α	0.6352	0.7441
γ	0.8934	1.0306

Source: JICA Study Team

Table 8-11 Cargo and Passenger Traffic

No.	Link		Cargo (Metric Ton)	Passenger
7	Carmen	- Isabel	1,869	6,010
9	Tubod	- Tangub	39,083	-
11	Iloilo City	- Pulupandan	-	70,475
15	Dumaguete	- Santander	19,939	92,215
20	San Jose	- Puerto Princesa	-	7,754
21	Cavite City	- Mariveles	12,796	56,408
22	Batangas City	- Abra de Ilog	8,004	32,534
26	Milagros	- Estancia	2,138	-
27	San Jose	- New Washington	2,626	8,999
29	Ubay	- Maasin	8,630	-
32	Roxas	- New Washington	1,822	5,837
33	Matnog	- Masbate	4,308	15,833
37	San Jose	- El Nido	1,356	4,175
41	Guihulngan	- Dumanjug	19,234	-
42	Ajuy	- Manapla	10,456	44,034

Remark: Traffic volumes represent one way traffic only

Source: JICA Study Team

Solitary Island Link

61. For cargo traffic, two cases for correlation coefficient have been compared, as follows (Table A-1-8-25(1)):

i) a correlation between total population of city or municipality and island, and cargo traffic data of PPA.

ii) a correlation between total population of city or municipality and island, and cargo traffic data of NSO.

62. For passenger traffic, four cases for correlation coefficient have been compared, as follows (Table A-1-8-25(25)):

i) a correlation between total population of each city or each municipality and passenger traffic data of PPA.

ii) a correlation between total population of city or municipality and island, and passenger traffic data of PPA.

iii) a correlation between total population of each city or each municipality and passenger traffic data of NSO.

iv) a correlation between total population of city or municipality and island, and passenger traffic data of NSO.

63. The gravity model is used to calculate cargo based on the population of each municipality and NSO actual data. Referred NSO data are links No.18, 19, 24 and 39. On the other side, the gravity model is used to calculate the number of passengers based on population of municipality and island, and PPA actual data. Referred PPA data are links No.18, 19, 23, 24 and 39. Population number and actual traffic volume of each link which are bases of the gravity model of solitary island link are shown in Table A-1-8-27(1) and Table A-1-8-27(2) of the Appendices. The correlation, calculated by the passenger analysis is shown in Table 8-12. Comparing the correlation coefficient, for cargo traffic, the actual data of cargo traffic is set up based on NSO data, and for passenger traffic, the population is set up as the total population of each municipality (Table 8-9). Parameters, calculated by the regression analysis, are shown in Table 8-13. And cargo and passenger traffic of each link is shown in Table 8-14.

Table 8-12 Correlation Coefficient of Solitary Island Link

Item	Data Source	Population	
		Province and Province	Municipality and Municipality
Cargo	PPA	0.20744	0.31237
	NSO	0.87405	0.58216
Passenger	PPA	0.96374	0.98988

Source: JICA Study Team

Table 8-13 Gravity Model Parameter

Parameter	Cargo	Passenger
κ	0.00002861	630.5546
α	0.9114	0.4243
γ	0.2536	1.5294

Source: JICA Study Team

Table 8-14 Cargo and Passenger Traffic

No.	Link			Cargo (Metric Ton)	Passenger
31	Roxas	-	Odiongan	2,118	-
35	Jagna	-	Mambajao	1,317	28,511
36	Balingoan	-	Benoni	256	-

Remark: Traffic volumes represent one way traffic only

Source: JICA Study Team

64. 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 Iloilo City - Jordan link is 4.5 nautical miles and Davao City -Babak link is 6 nautical miles. When estimating cargo traffic volume by the gravity model based on long distance links, it is considered that the estimated value by the gravity model method on short distance links is more than the actual traffic volume. The cargo traffic volumes of these two links are estimated according to the required cargo volume per capita and population number. The method of estimation is shown in Note A-1-8-1 of the Appendices.

Cargo Traffic Volume

Iloilo City - Jordan link: 20,000 metric ton

Davao City - Babak link : 10,000 metric ton

65. The cargo traffic volume of Benoni - Balingoan link using the gravity model method is 256 metric tons. In contrast, the passenger traffic by the head count of JICA field survey is 157,214. It is considered that the cargo traffic volume is too small compared to the passenger traffic. The cargo traffic volume is estimated according to the required cargo volume per capita and population number also. The method of estimation is shown in Note A-1-8-1.

Cargo Traffic Volume

Benoni - Balingoan link : 3,394 metric ton