has worked well, this kind of combined team has an inherent disadvantage in that its efficiency and integrity is generally weaker than that of strong single agency. The IATCTP Agreement does not include detailed engineering design, construction, management, repair and maintenance. Furthermore, under the Local Government Code which is recently promulgated, some Ro/Ro ports may devolve upon the local government concerned in all or some aspects of development.

With these points in mind, it is suggested that DOTC should assume the role of planning coordination in terms of Ro/Ro transport system, and in particular sustained by its local branches in order to coordinate within the local circle for transport planning.

39. For the second phase, in which the plans are implemented, whether or not to divide the responsibility of the port construction into agencies maybe an issue. The 1975 Revised Charter of PPA provides that all existing and completed port facilities shall be transferred to PPA, and PPA has the responsibility to formulate a plan, draw up the implementation program, execute construction and maintenance, and operate facilities/services of ports belonging to it. However, while DPWH is in fact executing construction and maintenance of municipal ports, recently DOTC is also executing construction of some municipal ports. Having in mind the fact that characteristics of the marine engineering which is essential for port works are diferred from those utilized for civil works on the land, in future PPA should be more actively involved in works for port construction with its upgraded technological skills.

40. The third phase is carried out by MARINA and PPA. MARINA is responsible for the enforcement of policies affecting to the maritime transport and maritime industries, including franchising, pricing and safety measures. PPA operates its own ports and gives authorities of stevedoring, arrastring, pilots, and so on. Although MARINA, by virtue of EO No.125 and 125-A, are vested with regulatory functions for safety of vessels pertaining to shipbuilding and vessels' operation, it lacks the sufficient manpower resouces for enforcing safety regulations. Furthermore, PMMRR which outlines the fundamental safety rules and was effective in 1976, are based on 1960 SOLAS Convention, and many sections of the PMMRR said to be copied from rules of American Bureau of Shipping. Many international rules, which nare indispensable for keeping up maritime safety measures, are circulated from time to time in

the form of a Memorandum Circular. This kind of promulgation is not considered to provide sufficient means for enforcing rules. With the high death toll of maritime casualty in mind, it is required that the amending work of PMMRR now taken jointly by MARINA and PCG to catch up with internationally established safety measures should be expedited. To cope with the current situation of the limited technological resources, as many reports suggests, internationally accredited classification societies should be utilized for certifying compliance of safety regulations, at least in the transitional period until Philippine are sufficiently provided for by technically qualified staffs. This point is considered by MARINA including in particular establishing of the Philippine Register of Shipping (PRS). The study team wish to suggest, i) prompt revision of PMMRR, and ii) early setting up of PRS with getting international endorsement.

41. Administrative practices of PPA in terms of cargo handling give rise to several issues, two of which are pertinent to achieving high efficiency and low cost. One is for the contract with port operators, and the other is for a pricing system of cargo handling operations. Although PPA gradually moves toward dual/multi operators in one port there are many ports where one operator handles all the cargo of the port. This practice is, according to several preceeding studies, keeping operation cost high, and thus alternative suppliers should be provided to create a competitive market. The team, however, has a different view. While it is true to say that a competitive market improves handling efficiency and the cost of operations, the free market mechanism works well only in market of a certain size. In small and isolated markets, a competition tends to be cut-throat and leads to make losing suppliers withdraw from the market as a result of extremely low margin. Although it is not easy to define the market scale for each port, most of the Ro/Ro ferry port under this study do not have enough clients to ensure revenues being sufficient for dual/multi operators to continue their business. The study team, therefore, considers it appropriate that for the ports located in remote areas, where vessels' operation service is small, a license should not be extended to more than one operator.

Generally speaking, the term of the contract between PPA and priviledged operator is, according to some studies, restrcted to one year. Although the renewal of the contract is normal practice, it is presumed that cargo handling operators refrain from investing on the birth. Recently, PPA has taken a

position for a contract term longer than one year. Such position should be encouraged with the view to stimulating of the operator's investment.

42. Another facet of the issues around port operation is about port pricing. The rationalization of port tariff structure is a long standing problem to be solved and PPA is continuously reviewing the tariff policy. In this context, it is already pointed out that the principle of "no work, no pay" should be adherred to for the charges of port operation. This principle is particularly important in view of encouraging Ro/Ro transport, because Ro/Ro transport drastically reduces cargo maneuvering in the port. If the port tariff stay as it is now, the advantage of Ro/Ro transport may be canceled. With this in mind, after a short transitional period, say 3-5 years, the stevedore/arrastre firms practice collecting the charges for services which are not rendered should be discontinued, and consideration should be given to the PPA practice levying the charges in the port where it does not perform maintenance or management. 1/

For the Ro/Ro transport, ports are required to furnish special facilities such as ramps and parking areas mainly for car maneuvering, and accordingly restructuring of tariff will be inevitable with the view to recovering such investment. Instead of levying charges per cargo volume or weight, it is recommended to levy the charge on the size of car in terms of Ro/Ro facilities.

43. It is particularly important for implementing a policy to maintain constant communication between the department which has the major responsibility and the attached agencies, and between the headquarter and its local branches. The importance of communication will increase in accordance with the decentralization of the administration, which is now ongoing in the relevant agencies. During the course of the research, the study team found that the headquarters were unaware of action taken by their local branches. Furthermore, it is observed that some of the local branches are still invoking

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1/ It is argued that the charges collected by PPA in the ports where it neither maintains nor manages should be regarded as the rent of land or water where the facility is located. If this is acceptable, then the rent should be a fixed price, but not a certain percentage of the handling fees.

an abandoned rule which was replaced by a new rule more than fifteen years ago. This kind of misapplication of rules is also due to inadequate communications. A better communication system accompanied by a proper recording system enhances the administration's capability not only in terms of policy implementation but also in terms of better drafting of policies (also see paragraph 31). With this in view, following steps should be urgently taken:

i) A reporting system from local branches to their headquarters and from attached agencies to the Department should be reviewed and improved as appropriate;
ii) From the Department to the attached agencies and from headquarters to the local branches, a notification system should be reviewed; and
iii) Central filing system with respect to the action taken by the local branches for implementing policies should be established.

44. While some of above suggestions may be attained without any overall review of the administrative structures and practices, majority of them should only be executed after a comprehensive study is conducted, because administrative structures and practices are closely interconnected and unique in each country. For resolving many problem and effectively improving structures and practices which will ultimately encourage development of Ro/Ro transport, it may be opportune to ask an experienced consultant to look into these matters and come up with an effective and workable proposal for improving in this respect.

Facilitation of Clearance Formalities

45. Among the various issues concerning institutional matters, the issue of clearance formality directly affects the efficiency and cost of ship's operation. The succeeding table enumerates requiring agencies, documentary requirements and the legal ground of the requirments currently enforced. According to the findings of the team to date, inasmuch as cumbersome proceedings still exist, slight improvements have been made. These are as follows:

- According to PISA's position paper in 1980, the number of agencies requiring clearances were sixteen (16), however, according to CISO's

position paper in 1991 the number is fifteen (15) and seven (7) of which do not require clearance for each voyage.

- PPA formerly requested seven copies but now requests two copies of documents.
- Bureau of Posts does no more request the departure clearance.
- In June 1991, Bureau of Customs issued the Memorandum Order 53-91 to all Customs Collectors, Service/Division Chiefs, Shipowners/Operators/Agents and all other concerned to the effect that in compliance with PD No. 857, as amended by Sec. 39 (a), customs officers shall desist from imposing and collecting entrance and clearance fees on vessel engaged in domestic/coast wise trade.

46. Two problems can be identified to be promptly reviewed in view of making faculty of Ro/Ro transport brought into full play. One of which is to reduce the number of requiring agencies, and the other is to simplify procedures.

47. Of the fifteen agencies which appears in the attached table, the following requirements are normally defunct for domestic transportation in many countries;

(1)	Bureau of Customs	Entrance/Departure Clearance
(2)	Bureau of Quarantine	Sanitary Clearance
(3)	Bureau of Animal Industry	Vet Quarantine Clearance
(4)	Bureau of Forest Industry	Veparture Clearance/Permission to load timber etc.
(5)	Bureau of Plant Industry	Plant Quarantine Clearance

All these requirement are based on concerns of the requiring agencies, and thus are prescribed by legal instruments. However, for (2), (3), (4) and (5), these concerns will be fulfiled by periodic inspections, and for (1), Bureau of Customs has no jurisdiction on port since setting up of PPA. Even with the Bureau's concern on transit of illegally imported cargo, inspection of case by case basis can discharge the concern, just as done for inland container transport. It is argued that since the requirements are prescribed by law, it cannot be dispensed without repealing the existing law. However, as there are many cases where legal requirements are incompletely enforced by the discretion of relevant agencies/personnel mainly due to understaffing, some measures to reduce the burden of formality requirement could be introduced.

48. The master's oath imposes masters/owners unnecessary burden, and in many cases masters are not in a position to ascertain the document which they are requested. It is sufficient for the requesting agencies that operators or agents furnish the documents without being sworn by the masters.

49. December 31, 1991, EO No.493 was signed to cut red tape in the inter-island shipping business by reducing the number of vessel clearance required to domestic vessels from eight (8) to three, assuming the port agencies (PPA and PCG) responsibility to coordinate vessel clearance procedures. However, the implementing guideline has yet to be drafted, and it is said that some agencies move toward to renewing their position to request clearance. For the efficient operation of domestic vessels, it is highly desirable that the implementing guideline be formulated by the responsible agencies.

50. Pilot is compulsory, however, it is observed by the team that vessels frequently plying the route are enter into and exit from the ports without pilot. Since the cost of pilotage including transport cost and hotel accommodation for pilots is expensive, and for the masters and crews routinely sailing the area, pilot is actually of little use, practice of omitting pilot should be encouraged.

CLEARANCE FORMALITIES

PPA

Entrance/Departure Clearance Berthing Permit Compulsary Pilotage	Two copies of: Cargo Manifest, Crew List, Sailing Notice Master's Oath	PD 857, Sec.6 (a) ii & v, PPA Administrative Order13-77 Article IV & XII, PD 1087

Bureau of Customs

Entrance/Departure Clearance	Cargo Manifest, Crew List, Master's Oath, Passenger Manifest, Transit Manifest, Sailing Notice	Tariff and Customs Code Sec.(5) 906-909

Philippine Constabulary

Anti-Carnapping Unit

ANCAR Clearance	Report on all motor vehicles, engines, chassis, etc.	Republic Act No. 6539 Sec.11

Bureau of Quarantine

Sanitary Clearance	Clearance Certificate	Republic Act No.123 Sec.10

Bureau of Animal Industry

Veterinarian	Clearance Certificate	Revised Adm. Code

Quarantine Clearance		Sec.1765 (b)

- subject to inspection of all domestic animals, as being deemed necessary to prevent the introduction and spread of dangerous and communicable diseases.

Bureau of Forest Industry

Departure Clearance Permission to load timber and Forest products	Clearance Certificate	PD as amended Sec.68

Bureau of Plant Industry

Plant Quarantine Clearance	Clearance Certificate	PD 1437 Sec. 8

PCG

Entrance/Departure Clearance Special Permission for Carriage of Dangerous Goods	Cargo Manifest, Crew List, Master's Oath Passenger Manifest	Republic Act 5178 Sec.1 PMMRR Chapter XIV Sec.1407-1407

National Telecommunication

Commission	Radio Operator's Licenses (presently thru PCG)	Republic Act 3846 & 3396

C. Vessel Acquisition

51. In compliance with the guideline and limitation provided in MC 25-D, 1986, MARINA has placed restrictions on the size and age of importing or bare-boat chartering vessels for inter-island use; they must be more than 500 grt and less than 15 years old. The rule also provides that passenger, passenger/cargo and ferry vessels, acquired either by importation or bare-boat charter, have to be classed by internationally recognized classification societies to ensure the safety of passengers.

52. Not only the members of CISO but also small and medium scale companies authorized by MARINA are subject to its ruling for the purpose of stabilizing inter-island trade. However, the restriction on the size of vessels to be imported for inter-island trade is clearly not beneficial for operators of small vessels, including passenger/cargo ferry vessel engaged in trading on secondary and/or tertiary routes.

53. Currently, when a domestic shipowner wants to acquire a vessel for interisland trade, he has the following options:

(i) New construction at a local or foreign shipyard;

(ii) Importation of a foreign second hand vessel; or,

(iii) Bare-boat charter of a foreign vessel.

New constructions at local or foreign shipyards and importation of a second hand vessel cannot be considered without any governmental financial assistance (including foreign currency) due to the high costs involved.

54. Consequently, the current rules and regulations directly favours bare-boat charter of foreign vessels where only 4.5% tax is levied on the charter because, in this case, the vessel is not considered as an importation, but merely temporary registration under the Philippine flag.

Thus, the bare-boat charter system has been a practical way to solve the problem of upgrading and modernizing the inter-island fleet without financing from the government.

55. According to recent information, a new bill, which would introduce financial incentives to the industry, is currently being deliberate on in the House of Representatives. Heralded as "a monumental piece of maritime legislation" by

the domestic shipping industry, this bill, co-sponsored by 17 representatives, attempts to reduce the need for governmental assistance in the development of the inter-island shipping industry. Entitled "An act to promote the development of the inter-island shipping industry", House Bill 34234 seeks to "encourage the vigorous development of inter-island shipping in order to provide a safe, reliable, adequate, economic, and affordable means of transportation for passenger and cargo and to "create an attractive area for investments by local shipowners and operators."

56. According to the same information the bill proposes that foreign exchange requirements for the importation of a vessel and its spare parts, when recommended by the MARINA, be made available by the Central Bank.

More importantly, the bill proposes the tax-free importation of vessels for inter-island service with a minimum of 500 gross registered tons, including spare parts and ancillary cargo handling equipment for domestic use.

However, this would only hold for 8 years after the enactment of the bill, provided the vessel would not be more than 12 years old for passenger ships and 15 years old for cargo ships.

57. Also it is informed that the bill calls for tax-exemptions for all inter-island shipping companies accredited by MARINA for 8 years after its inception. Instead, these companies would pay a carriers' tax of 3.5% of their quarterly gross receipts for this 8 years period and 5% for the succeeding years.

Dividends earned by the stockholders of the shipping companies will thereafter be limited to 10% of the profits earned by the firm while the other 90% should be allocated for reinvestment.

Under the proposed bill, violation of its provisions would be punishable by a "forfeiture of all tax credits and incentives earned by the violator" and fine or imprisonment.

58. The introduction of tax-free importation of inter-island shipping vessels in House Bill 34234 will be an attractive incentive to make investment for most inter-island shipowners who want to have a foreign second hand vessel because, currently, they have no practical means of acquiring a suitable vessel unless they opt for the bare-boat charter system as mentioned previously.

59. On the other hand, the introduction of common carrier's tax, instead of tax-exemptions for importation of inter-island vessels is not favorable for small local shipowners. Because, if they can have foreign second hand vessel without tax, their financial conditions will not be improved still to the favorable level owing to the increasing burden of new tax levyed on their gross revenues for a certain period.

60. Although the restriction on the size of vessels to be imported would seem to have as its basis a wish to protect the domestic small shipbuilder, shipbuilding is not area to be covered by this study.

However, it is questionable what a size restriction serves any useful purpose for the local shipowners and operators which play important role using small sized vessels under 500 grt. on the secondary or tertiary routes where the revenue basis cannot support the costly new building of vessels. Furthermore, also it has another influence on the introduction of 300 grt sized Ro/Ro vessels which are recommended as a suitable size to be used on several service routes in JICA Master Plan as can be seen in the following chapters.

61. According to recent information, the size restriction of the vessels is now under review by MARINA. JICA Study Team recommends, MARINA to take a step to abolish the size restriction expeditiously to encourage the development of inter-island shipping and improved the circumstances for Ro/Ro services system.

62. As pointed out in the report of Presidential Task Force most of inter-island shipping companies cannot finance acquisition of vessels with internally-generated funds. Due to inherently volatile market for second hand vessels, inter-island shipowners are very much concerned with the availability and speedy process of acquiring loans with favorable financing terms in the form of longer repayment period and reasonable interest rates. To implement the nation-wide Ro/Ro ferry service system, specialized financing programs supported by government and other financial institutions to meet the needs of inter-island shipowners are to be designed as soon as possible.

[References]

1. Medium Term Philippine Development Plan, 1987-1992

2. Updates of the Philippine Development Plan, 1990-1992

3. Five-year Development Plan for the Domestic Shipping Sector, 1992-1996 (MARINA)

4. Transportation and Public Service Law, Generoso O. Almarino, 1966

5. Final Report, Interisland Shipping Regulation Study, 1986 IBRD

6. Philippine Transport Sector Review, Mar. 1988 IBRD

7. Final Report, Presidential Task Force on Inter-Island Shipping, Feb. 1989

8. The Philippine Coastal Fleet Renewal Project, Mar. 1989 SHIPDECO AS

9. Final Report, Feeder Ports Project Feasibility Study, Oct. 1989, BCEOM, France, DCCD, Philippines, SGV. & Co. Philippines (ADB)

10. Inception Report, Nationwide Roll on Roll off Transport System Development Study, Oct. 1989 IATCTP

11. Sub-sector Study on Inter-island Shipping /Ship Repair Vol.1, 1990 DBP

12. Report of the Study on Maritime Safety Policy, Mar. 1990 MICC (JMOT), original Japanese

13. ABC of Overseas Shipping, Hiroo Kawakami 1990, original Japanese

14. Manila Star, Shipping and Trade

Chapter 3 Shipping Links in the Study

A. IATCTP Long List for the Ro/Ro Transport Study Links

1. A number of studies were undertaken in the past and new proposals have been formulated to investigate the feasibility of establishing the Ro/Ro service systems. In 1988, the "Nationwide Ro/Ro Transport System Development Study" was created to integrate the proposals by the different agencies of the government to develop viable Ro/Ro systems focusing on the effective utilization of existing and proposed shipping services. The main objective of the study is to prepare a development strategy for Ro/Ro transport systems.

2. Taking into account factors such as present traffic, population, economic benefits, future potential and geological suitability etc., 42 links including existing Ro/Ro links are selected and proposed by IATCTP as the nationwide Ro/Ro study links. These 42 links are shown in Table 3-1, and will serve as base links for the JICA Ro/Ro study.

B. Examination of Present Shipping Activities and Modification of the Study Links

3. Currently, nationwide Ro/Ro ferry operations are at various stages of development and have different levels of services. In some cases, Ro/Ro services are available, but are not functioning well due to a lack of required facilities. According to the IATCTP Inception Report, there were nine service links where Ro/Ro vessels were operating as of October 1989. These existing Ro/Ro routes are shown on the top of the Table 3-1.

4. However, field reconnaissances on the study ports by JICA study team, details of which will be discussed in the following Chapter, have revealed that the level of current shipping services is lower than that in 1989. For example, no sailing services currently exist on Dumaguete-Dipolog link because a timber pier and the causeway of the Dipolog Port were destroyed by a typhoon in 1989. It is also observed that no ferry services have been offered on Batangas-Mamburao link since Ro/Ro vessels were put into operation between Batangas and Abra de Ilog in 1990. Present shipping services of each of the proposed study links are summarized in Table 3-2.

5. Although JICA study team highly regards the 42 links shown in Table 3-1, slight modification is needed in light of the changed shipping services. Modification of six(6) links as shown in Table 3-3 is recommended; the necessity for the modifications is discussed in the following section. The modified study links in the Nationwide Long-Term Ro/Ro Transport Development Plan are shown in Figure 3-1.

Table 3-1 Long-List for the Nationwide Ro/Ro Study Links Proposed by IATCTP

No.	LINK		LOCATION	
	EXISTINGS RO/RO ROUTES			
1	Matnog	Allen	Sorsogon	Northern Samar
2	Matnog	San Isidro	Sorsogon	Northern Samar
3	Batangas City	Calapan	Batangas	Or. Mindoro
4	Liloan	Lipata	S. Leyte	Surigao
5	Argao	Loon	Cebu	Bohol
6	Escalante	Tuburan	Negros Occ.	Cebu
7	Carmen	Isabel	Cebu	Leyte
8	Tandayag	Bato	Cebu	Negros Or.
9	Tubod	Tangub		
	POSSIBLE RO/RO ROUTES			
10	Iloilo City	Bacolod	Iloilo	Negros Occ.
11	Iloilo City	Pulupandan	Iloilo	Negros Occ.
12	Iloilo City	Jordan	Iloilo	Guimaras
13	Toledo	San Carlos	Cebu	Negros Occ.
14	Cebu City	Tubigon	Cebu	Bohol
15	Dumaguete	Santander	Negros Or.	Cebu
16	Dumaguete	Dipolog	Negros Or.	Zamboanga del Norte
17	Jagna	Cagayan de Oro	Bohol	Misamis Or.
18	Zamboanga City	Basilan	Zamboanga del Sur	Basilan
19	Zamboanga City	Jolo	Zamboanga del Sur	Sulu
20	San Jose	Puerto Princesa	Occ. Mindoro	Palawan
21	Cavite City	Mariveles	Cavite	Bataan
22	Batangas City	Mamburao	Batangas	Occ. Mindoro
23	Lucena City	Balanacan	Quezon	Marinduque
24	Tabaco	Virac	Albay	Catanduanes
25	Bulan	Masbate	Sorsogon	Masbate
26	Milagros	Estancia	Masbate	Iloilo
27	San Jose	Kalibo	Occ. Mindoro	Aklan
28	Cebu City	Ormoc	Cebu	Leyte
29	Ubay	Ormoc	Bohol	Leyte
30	Davao City	Babak	Davao	Samal Island
31	Roxas	Odiongan	Or. Mindoro	Romblon
32	Roxas	Kalibo	Or. Mindoro	Aklan
33	Matnog	Masbate	Sorsogon	Masbate
34	Cebu Talibon	Maasin	Cebu Bohol	Leyte
35	Jagna	Mambajao	Bohol	Camiguin
36	Benoni	Balingoan	Camiguin	Masamis Or.
37	San Jose	El Nido	Occ. Mindoro	Palawan
38	Cebu City	Tagbilaran	Cebu	Bohol
39	Lucena City	Sta. Cruz	Quezon	Marinduque
40	Dalaguete	Larena	Cebu	Siquijor Island
41	Guihulngan	Dumnjug	Negros Or.	Cebu
42	Ajuy	Manapla	Iloilo	Negros Occ.

Source: IATCTP

Table 3-2 Status of Shipping Service by Link
(Based on a Two-Day O/D Survey)

No.	Origin	Destination	Distance (n.m.)	No.	Vessel Name	Type	RT Freq. (/day)
1	Matnog	Allen	13.5	1	MV NorthernSamar	RoRo	1.00
2	Matnog	San Isidro	22.0	1	MV Maharlika I	RoRo	2.00
3	Batangas City	Calapan	22.0	1	MV Sto. Domingo	RoRo	2.00
				3	MV Sto. Nino	RoRo	1.00
				4	MV Ruby	RoRo	1.00
				5	MV Sta. Maria	RoRo	1.00
				6	St. Kristopher	RoRo	1.00
4	Liloan	Lipata	38.0	1	MV Maharlika II	Roro	1.0
5	Argao	Loon	12.0	No Traffic			
6	Escalante	Tuburan	18.0	1	MV Palawan Trader	RoRo	1.0
7	Carmen	Isabel	65.0	No Traffic			
8	Tandayag	Bato	4.5	1	MB James Arnold	Ferry	3.0
				2	ML Maribeth	Ferry	4.0
				3	ML ABC	Ferry	4.0
				4	LCM Conqueror	RoRo	1.0
9	Tubod	Tangub	3.0	1	Antonio Jr.	Roro	4.0
				2	Lorenz	RoRo	3.0
				3	Erwin	Banca	1.0
				4	Four Queens	Banca	0.5
				5	Fredel	Banca	0.5
10	Iloilo City	Bacolod City	24.0	1	MV Don Vicente	P	2.0
				2	MV Princess of Negros	P	1.5
11	Iloilo City	Pulupandan	25.0	No Traffic			
12	Iloilo City	Jordan	4.5	1	Belinda	C	0.5/wk
				2	Bross	P	0.5
				3	Cancer	P	0.5
				4	Irishman	P	0.5
				5	Goodwin	Banca	1.0
				6	John Edward	Banca	0.5
				7	Beach Craft	Banca	4.0
				8	Bee	Banca	0.5
				9	Don John	Banca	0.5
				10	Don John 1	Banca	0.5

(Cont. Status...)

No.	Origin	Destination	Distance (n.m.)	No.	Vessel Name	Type	RT Freq. (/day)
				11	Don John 2	Banca	0.5
				12	Don John 3	Banca	0.5
				13	Don John 4	Banca	0.5
				14	MB Ferry Queen	Ferry	4.0
				15	MB Genevieve	Banca	0.5
				16	MB Inday Mar	Banca	0.5
				17	Island Hopper	Ferry	5.0
				18	Meckmeck	Banca	0.5
				19	Neneng Annie	Banca	0.5
				20	Neneng	Banca	0.5
				21	Omega	Banca	0.5
				22	Rosary 2	Banca	0.5
				23	RG	Banca	0.5
				24	Pisces	Banca	0.5
				25	Ricky	Banca	0.5
				26	Sancha	Banca	0.5
				27	Sancha 2	Banca	0.5
				28	Sea Hunter	Banca	0.5
				29	St. Therese	Banca	0.5
				30	Superstar	Ferry	5.0
				31	T/L Virra	Banca	0.5
				32	Toto Borgie	Banca	0.5
				33	Vim Vim	Banca	1.0
				34	Zaldy	Banca	0.5
				35	Juracel	Banca	0.5
				36	Beach Craft 2	Ferry	4.0
				37	Baby Queen	Banca	0.5
				38	Guard	Banca	0.5
				39	Omega II	Banca	0.5
13	San Carlos City	Toledo City	12.0	1	MV Danilo I	Ferry	1.0
14	Cebu City	Tubigon	22.0	1	MV Tubigon Ferry	P/C	1.0
				2	MV Queen Leonora	P/C	1.0
				3	MV Ma. Charisse	P/C	0.5
15	Santander	Dumaguete City	4.5	1	No Traffic		
16	Dumaguete City	Dipolog	43.0	1	No Traffic		
		Dapitan		1	Pulauan Ferry	Ferry	0.5
				2	Doña Rosario	Ferry	0.5
17	Jagna	Cagayan de Oro	72.0	1	O.L. Guadalupe	P/C	0.5
18	Zamboanga City	Basilan (Isabela)	16.0	1	MV Leonora	P/C	2.0
				2	MV E. del Mar	P/C	2.0

(Cont. Status...)

No.	Origin	Destination	Distance (n.m.)	No.	Vessel Name	Type	RT Freq. (/day)
19	Zamboanga City	Jolo	83.0	1	MV Magnolia	P/C	1.0/wk
				2	MV Sampaguita	P/C	1.0/wk
				3	MV S. Grandeur	P/C	1.0/wk
				4	MV Lady Ruth	P/C	1.0/wk
20	San Jose	Puerto Princesa	233.0	No Traffic			
21	Cavite City	Mariveles	26.0	No Traffic			
22	Batangas City	Mamburao	80.0	No Traffic			
		Abra de Ilog		1	MV Penafrancia	RoRo	1.0
				2	MB Don Vicente	Ferry	1.0
23	Lucena City (Dalahican)	Balanacan (Mogpo)	28.0	1	MV Immaculate Concepcion	RoRo	0.5
24	Tabaco	Virac	34.0	1	ML Virac	P/C	5.0
				2	ML Matea II	P/C	1.0
25	Bulan	Masbate	43.0	1	MB Bulan	P/C	0.5
				2	MB Kulafu	P/C	0.5
				3	MB Jojun III	P/C	0.5
26	Milagros	Estancia	53.0	1	MB Circle M	P/C	1.0/wk
				2	MB Inday Phine	P/C	1.0/wk
				3	MB Janice	P/C	1.0/wk
				4	MB Baby Cheeney	P/C	1.0/wk
27	San Jose	Kalibo	90.0	No Traffic			
		New Washing-ton		No Traffic			
28	Cebu City	Ormoc City	59.0	1	MV El Cano	P/C	0.5
29	Ubay	Ormoc City	57.0	No Traffic			
		Maasin		1	MB Marina V	Banca	0.5
				2	MB San Isidro	Banca	0.5
30	Davao City	Babak	6.0	1	Aida	Banca	1.0
				2	Casilac	Banca	0.5
				3	Cephren	Banca	0.5
				4	Corazon	Banca	1.0
				5	Del Cavar	Banca	2.0
				6	Delsa 3	Banca	0.5
				7	Dolor	Banca	1.0
				8	Domians	Banca	1.0
				9	Laurencia	Banca	1.5

(Cont. Status...)

No.	Origin	Destination	Distance (n.m.)	No.	Vessel Name	Type	RT Freq. (/day)
				10	Ludel	Banca	1.5
				11	Mariflor	Banca	0.5
				12	Pal-Am	Banca	1.0
				13	Rhael	Banca	1.0
				14	Rosie	Banca	1.0
				15	Viva	Banca	1.0
				16	Zerich	Banca	1.0
31	Roxas	Odiongan	27.0	1	MB Robert	Banca	2.0/wk
32	Roxas	Kalibo	68.0	No Traffic			
		New Washing-ton		No Traffic			
33	Matnog	Masbate	35.0	No Traffic			
34	Cebu City	Talibon	30.0	1	MV T. Cruiser	Ferry	0.5
				2	MV Andy	Ferry	0.5
	Talibon	Maasin	30.0	No Traffic			
35	Jagna	Mambajao	30.0	No Traffic			
36	Benoni	Balingoan	8.0	1	ML Charles Brown	Ferry	2.0
37	San Jose	El Nido	135.0	No Traffic			
38	Cebu City	Tagbilaran City	22.0	1	MV Asia Taiwan	Roro	0.5/wk
				2	MV Sweet Heart	P/C	0.5
39	Lucena City	Santa Cruz	36.0	1	Antipolo III	P	0.5
40	Larena	Dalaguete		No Traffic			
		Dumaguete	18.0	1	MV Don Martin 7	Ferry	0.5
				2	MB Don Lourdes	Banca	0.5
				3	MB Prima	Banca	0.5
				4	MB Jr.Señorita	Banca	0.5
41	Guihulngan	Dumanjug	9.0	1	ML Tana	P/C	0.5
				2	ML Sta. Maria	Ferry	0.5
42	Ajuy	Manapla	13.0	1	MB Mary Grace	Banca	0.5

Sources: PPA (Shipping Traffic Statistics of Feb. 1991);
1991 Supplemental Transport Survey

Legend: RT - Round Trip MB - Motor Boat MV - Motor Vessel
Freq.- Frequency P/C - Passenger/Cargo ML - Motor Launch
n.m. - Nautical Miles LCM - Landing Craft Mechanized

Table 3-3 Modification of the Study Links

Link Number	IATCTP Proposal	JICA Modification
16	Dumaguete - Dipolog	Dumaguete - Dapitan
22	Batangas - Mamburao	Batangas - Abra de Ilog
27	San Jose - Kalibo	San Jose - New Washington
29	Ubay - Ormoc	Ubay - Maasin
32	Roxas - Kalibo	Roxas - New Washington
40	Dalaguete - Larena	Dumaguete - Larena

Source: JICA Study Team

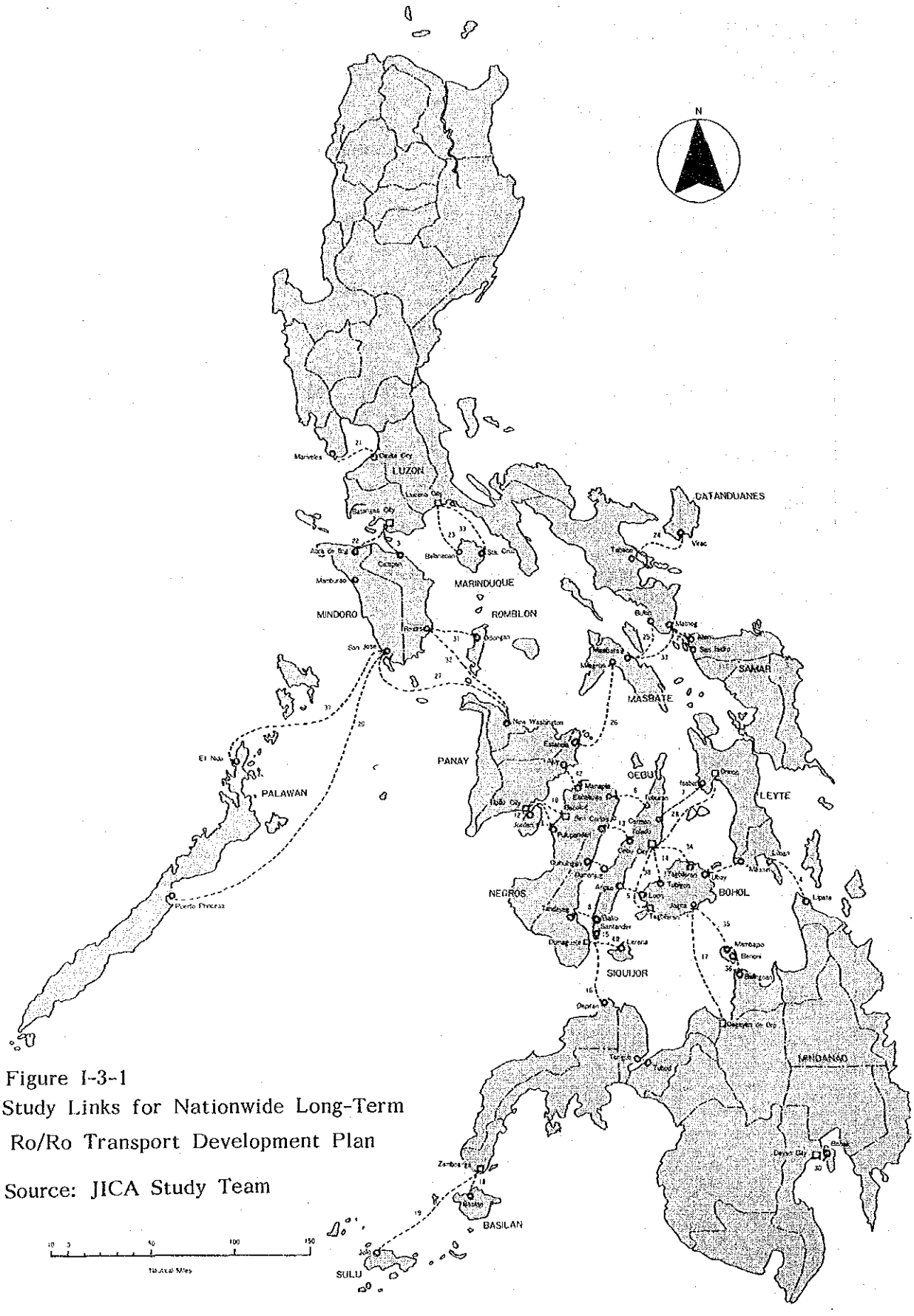

Figure I-3-1
Study Links for Nationwide Long-Term Ro/Ro Transport Development Plan

Source: JICA Study Team

C. Link Profiles

6. Matnog-Allen (Link Nr.1)

This is the pioneer Ro/Ro link which started operations in 1979. The link is the sea-connection of the Pan Philippine Highway, providing ferry crossing between mainland Luzon and eastern Visayas. "Through" buses from Manila destined for various points in Samar and Leyte regularly cross the link. Two Ro/Ro vessels operated by a single operator (E. Tabinas Enterprise) service the link with four(4) scheduled round trips per day.

The Ro/Ro vessel Northern Samar can accommodate approximately eight(8) large buses and is the regular vessel plying the link while Eugenia is an alternate vessel servicing the link only upon need and can carry nine(9) large buses per trip. Travel time is two(2) hours and passenger fare is at P30.00.

7. Matnog-San Isidro (Link Nr.2)

This link was opened in 1984 and is operated by St. Bernard Shipping Company. The link came about with the construction of the ferry terminals resembling those at Matnog, Liloan and Lipata which were constructed by DPWH in 1983 and turned over to DOTC. Likewise, this link is sea-connection of the Pan Philippine Highway (otherwise known as Maharlika Highway) connecting mainland Luzon with eastern Visayas with traffic dominated by "through" buses basically diverted from the Matnog-Allen link.

The only vessel plying the link is M/V Maharlika I shown in Photo 3-1, which was acquired as

Photo 3-1 Maharlika I at Port of San Isidro

part of the terminal project of DOTC. It has two(2) scheduled round trips per day with a capacity of approximately 13 large buses per trip. Travel time is two(2) hours and passenger fare is at P35.00 for ordinary class and P42.00 for first class.

8. Batangas City-Calapan (Link Nr.3)

The Batangas City-Calapan link is characterized by high trip frequency of Ro/Ro vessels (approximately eight(8) round trips/day) being operated by three(3) companies. Viva Shipping Lines operates three(3) vessels, MISC three(3) vessels and Sto. Domingo Lines only one(1) vessel. "Through" bus service is not available. The Ro/Ro vehicular traffic is dominated by freight trucks and private vehicles.

All vessels ply this link on fixed schedules. Travel time is two(2) hours and passenger fare is set at P30.00 for ordinary class and P45.00 for first class.

9. Liloan-Lipata (Link Nr.4)

The link began serving the Leyte-Mindanao (Surigao) sea traffic in 1986 and is a replica of the Matnog-San Isidro link. It is also the sea-connection of the Pan Philippine Highway connecting the Visayas area with the Mindanao area. "Through" buses from Pasay, on the Luzon-Visayas-Mindanao run (otherwise known as LUZVIMINDA), use this link to reach Davao and Cagayan de Oro.

M/V Maharlika II is the only Ro/Ro vessel plying the link with only one(1) round trip. The vessel can carry approximately nine(9) large buses.

Travel time is three(3) to four (4) hours and passenger fare is at P50.00 for ordinary class and P57.00 for first class.

10. Argao-Loon (Link Nr. 5)

This link opened late 1986 but ceased operations in 1990 since the only vessel (M/V Kanlaon Ferry) servicing this link sunk. Prior to this mishap, the link offers the only Ro/Ro service between Cebu and Bohol. It had two(2) scheduled round trips per day, and travel time was at two(2) hours.

11. Escalante-Tuburan (Link Nr.6)

This Ro/Ro link started operation in 1983 connecting the islands of Negros and Cebu at the northern end. It makes possible the bus travel (using Ceres Liner) from Bacolod City to Cebu City with a total overland trip of 4.5 hours and a sea crossing of two(2) hours.

Photo 3-2 Palawan Trader at Port of Escalante

The only Ro/Ro vessel servicing the link is M/V Palawan Trader shown in Photo 3-2, operated by Palawan Shipping Corporation. This vessel makes one(1) round trip daily with approximately seven(7) large buses accommodated on-board. Travel time is two(2) hours and passenger fare is P25.00.

12. Carmen-Isabel (Link Nr.7)

The link opened in January 1989 as part of the bus service of two(2) bus companies with link franchise from Cebu City up until Tacloban in Leyte. St. Bernard Inc. operated on this link for almost two(2) years on irregular basis. Due to low profitability, the operator pulled out its vessel.

Hence, no Ro/Ro or ferry operation exists on this link todate.

13. Tandayag-Bato (Link Nr.8)

This link connects the southern parts of Negros and Cebu. There exists a Ro/Ro ramp at Tandayag (or Tampi) but none at Bato. Although one(1) Ro/Ro vessel is plying as shown in Photo 3-3, the link is mainly serviced by ferry boats on regular scheduled trips making an average of ten(10) round trips per day. Travel time is 45 minutes and passenger fare is at P30.00 for first class and P20.00 for ordinary class.

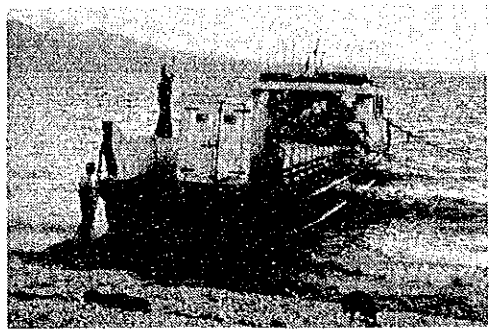

Photo 3-3 LCM Conqueror departing from Port of Bato

14. Tubod-Tangub (Link Nr.9)

This link connects Lanao del Norte and Misamis Occidental and is actually a shortcut link across Panguil Bay competing with the overland travel. Barges and landing crafts are used like Ro/Ro vessels to service trucks and other vehicles across while bancas are used to service passengers. Photo 3-4 shows a vessel on this link.

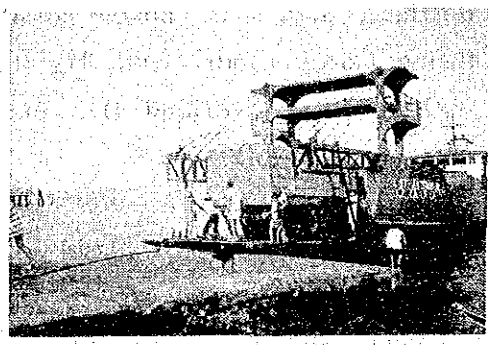

Photo 3-4 LST Antonio Jr. at Port of Tubod

Trips are not scheduled but frequency is quite high with approximately four(4) to seven(7) round trips per day. Travel time is approximately 20 minutes by this link as against five(5) hours overland travel via deteriorated roads. Passenger fare is P6.00.

15. Iloilo City-Bacolod City (Link Nr.10)

This link connects the Panay Island with the Negros Island. Services are provided by Negros Navigation utilizing two(2) to three(3) ferry ves-

sels. At present, only cars are carried to and from these points because of inadequate facilities at Banago port (Bacolod).

Trips are scheduled with about three(3) round-trips daily. Travel time is at two(2) hours and passenger fare is P50.00 for ordinary class and P80.00 for first class.

16. Iloilo City-Pulupandan (Link Nr.11)

This link also connects both islands of Panay and Negros but is not operational at present. A private company tried opening a Ro/Ro service sometime mid 1991 but ceased operation due to low water depth at Pulupandan port.

17. Iloilo City-Jordan (Link Nr.12)

The link serves as one of the vital link between the island of Panay and the province of Guimaras. At least 47 motorized bancas and wooden motor launches ply this link with high round-trip frequency but unscheduled trips. Travel time is 30 minutes and passenger fare is P5.00. Photo 3-5 shows bancas mooring at Port of Jordan.

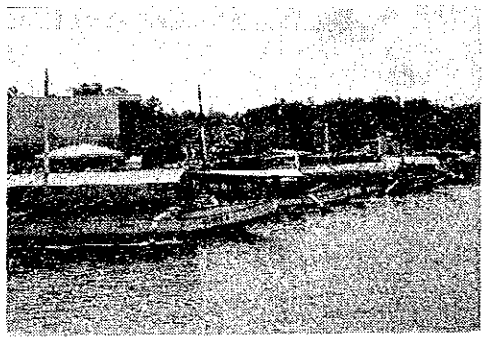

Photo 3-5 Bancas at Port of Jordan

18. San Carlos City-Toledo City (Link Nr.13)

This link is one among those links serving the Negros - Cebu traffic. The link has two(2) Ro/Ro vessels crossing over twice a day. However, the Ro/Ro vessels have not been used for vehicular crossing since Ro/Ro facilities were not installed at both ports. The vessels are owned and operated by Danilo Shipping Lines. Trips are scheduled with travel time of 1.5 hours and passenger fare is P35.00 for ordinary class and P40.00 for first class.

19. Cebu City-Tubigon (Link Nr.14)

This link is one of those serving the Cebu-Bohol traffic. Four(4) ferry vessels were autorized as of 1991 to ply the link at four(4) round-trips per day. Travel time is at two(2) hours and passenger fare is at P25.00. Photo 3-6 shows MV Queen Leonora berthed at Port of Cebu.

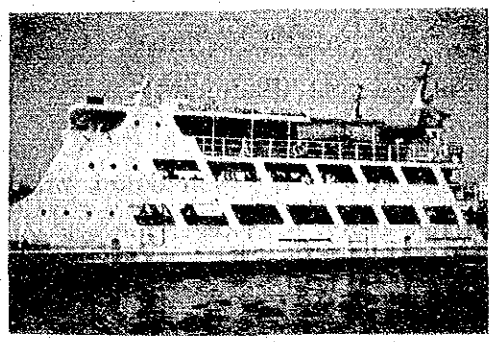

Photo 3-6 A Ferry plying on Cebu - Tubigon

20. Santander-Dumaguete City (Link Nr.15)

The link is found at the southern tip of both the Negros and Cebu islands. However, the link has virtually no traffic noted since it faces competition with other links having better facilities and catering to the same passenger market (i.e., Tandayag-Bato and San Carlos-Toledo City).

21. Dumaguete City-Dapitan (Link Nr.16)

The original link is known as Dumaguete City - Dipolog but actual traffic is between Dumaguete City and Pulauan, Dapitan as port facilities of the Port of Dipolog were heavily destroyed by a typhoon. Three(3) vessels ply the link with one(1) trip per day for each vessel. Travel time is four(4) hours and passenger fare is at P82.00.

22. Jagna-Cagayan de Oro (Link Nr.17)

This link provides a direct shipping service between the provinces of Bohol and Cagayan de Oro. One vessel belonging to Sulpicio Lines plys only every Saturday. Another vessel belonging to Go-thong Lines plys only every Sunday. Trans-Asia was also authorized to operate MV Asia-Thailand with a frequency of two(2) round trips per week. Travel

time is five(5) hours and passenger fare P84.00 for ordinary class and P170 for first class.

23. Zamboanga City-Basilan (Isabela) (Link Nr.18)

The link serves as a link between the provinces of Zamboanga and Basilan. It is characterized by its heavy passenger traffic volume. According to Zamboanga Maritime Regional Office there are two(2) ferry vessels plying the link making two(2) round-trips each per day. Travel time is one(1) hour and passenger fare is P25.00 for ordinary class and P30.00 for first class. Photo 3-7 shows a ferry plying on this link, named MV Lenora.

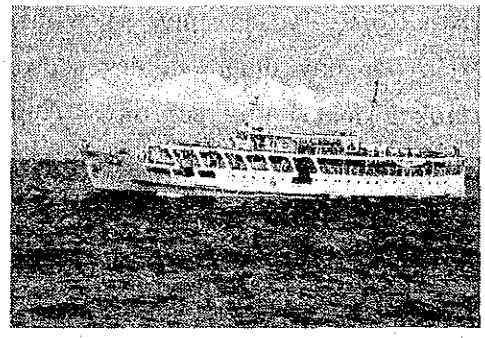

Photo 3-7 A Ferry approaching the Port of Zamboanga

24. Zamboanga City-Jolo (Link Nr.19)

This is quite a long link connecting the provinces of Zamboanga and Jolo far down south. It is serviced by four(4) ferry vessels with a low trip frequency of one(1) round trip per week. Travel time is nine(9) hours and passenger fare is at P100.00.

25. San Jose-Puerto Princesa (Link Nr.20)

This link actually does not exist as a regular passenger or cargo link. It is only cargo that crosses from San Jose to Puerto Princesa carried by tramping vessels.

26. Cavite City-Mariveles (Link Nr.21)

This link has not been in operation for about 10 years. It used to cater to tourists (mostly) but stopped due to low profitability. Moreover, Cavite port is now under the Philippine Navy and is considered a restricted area.

27. Batangas City-Abra de Ilog (Link Nr.22)

This link caters to the passenger market of Batangas City - Mam-burao which currently has no traffic. To avoid rough seas and for shorter travel time, traffic was diverted to Abra de Ilog. A Ro/Ro vessel plys the link making one(1) round-trip per day during a dry season while a ferry vessel makes one(1) trip per day. Approximately 30 jeepneys can be accommodated in the Ro/Ro vessel. Travel time is three(3) hours and passenger fare is at P52.00.

28. Lucena City (Dalahican)-Balanacan (Link Nr.23)

This link connects mainland Luzon with the province Marinduque. The link traffic of Lucena City is through the port of Dalahican instead of the port of Cotta. The link shifted away from the latter port since service is affected due to heavy siltation. As such, Dalahican (a fishing port) is used by the operators. A Ro/Ro vessel owned by Viva Shipping Lines (M/V Immaculate Concepcion) makes one(1) round-trip daily. Approximately 30 jeepneys can be accommodated on-board the vessel. Travel time is two(2) hours and passenger fare is P65.00 for ordinary class and P84.00 for first class.

29. Tabaco-Virac (Link Nr.24)

This link is a major link between the provinces of Albay and Catanduanes. Two(2) ferry vessels, one of which is shown in Photo 3-8, serve the link making one(1) trip a day on alternate schedule. Travel time is four(4) hours and passenger fare is P50.00.

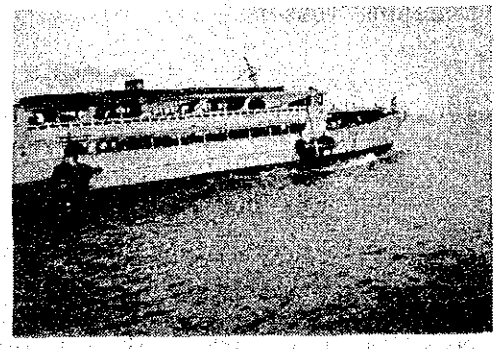

Photo 3-8 M/B Virac going to Tabaco

30. Bulan-Masbate (Link Nr.25)

This link connects the provinces of Sorsogon and Masbate. The link is served by small vessels or bancas (locally built pumpboats). A trip frequency of one(1) trip per vessel is made daily by about three(3) bancas. However, one of the bancas sunk recently (August 1991). Travel time is four(4) hours and passenger fare is P40.00.

31. Milagros-Estancia (Link Nr.26)

The link connects the provinces of Masbate and Iloilo. It is served by four(4) to five(5) bancas only with a low trip frequency of one(1) trip per week (usually on Tuesdays which the market day of Estancia). Travel time is four(4) hours and passenger fare is at P50.00 to P60.00 depending on the vessel.

32. San Jose-New Washington (Dumaguit) (Link Nr.27)

The original link name is San Jose-Kalibo. However, it is found that there is not a port in Kalibo, but there are two(2) ports in New Washington. Port of New Washington is a river port with a shallow water depth while Port of Dumaguit is a deep, sea port. There exists no regular traffic between San Jose and New Washington presently.

33. Cebu City-Ormoc City (Link Nr.28)

The link serves the Cebu and eastern Visayas passenger and cargo movement. Only one(1) Ro/Ro vessel (MV El Cano) owned and operated by Aboitiz Shipping Lines plys the link making one(1) trip per

day. Travel time is five(5) hours and passenger fare is P76.00 for ordinary class and P126.00 for first class.

34. Ubay-Maasin (Link Nr.29)

Ubay - Ormoc link was originally proposed on the long-list. This link is a link between the provinces of Bohol and Leyte but no traffic is noted here. Instead, traffic exists between Ubay and Maasin, which also serves the same provinces. Two(2) small boats or bancas ply the latter link with travel time of three(3) hours and passenger fare of P45.00.

35. Davao City-Babak (Link Nr.30)

This link serves the provinces of Davao and Samal. The traffic between these two areas is heavy with several links (all originating from Davao City) servicing said traffic. However, for the Davao City-Babak link, five(5) bancas ply the link making at least three(3) round-trips each per day. Travel time is only 15 minutes and passenger fare is P2.50. Photo 3-9 shows a banca leaving Sasa Port (Davao) for Babak Port.

Photo 3-9 Banca traffic on Davao - Babak

36. Roxas-Odiongan (Link Nr.31)

This link links the provinces of Mindoro and Romblon. To date, only one(1) banca (MB Robert Liner) ply the link making one(1) trip per day. Travel time is four(4) hours and passenger fare is P75.00.

37. Roxas-New Washington (Dumaguit)
(Link Nr.32)

Originally, the link is listed as Roxas-Kalibo but Port of Dumaguit is situated in the municipality of New Washington. Nevertheless, no regular traffic is noted on this link.

38. Matnog-Masbate (Link Nr.33)

Just like Bulan-Masbate link, this link is supposed to link the provinces of Sorsogon and Masbate. However, no regular traffic has been noted here.

39. Cebu City-Talibon (Link Nr.34)

This link is one of those that connects the islands of Cebu and Bohol. Two(2) ferry vessels service the link with scheduled trips of one(1) trip per day. Travel time is four(4) hours and passenger fare is at P45.00. Talibon-Maasin link is supposed to connect the provinces of Bohol and Leyte but no traffic has been noted here.

40. Jagna-Mambajao (Link Nr.35)

The link connects Bohol with Camiguin Island. However, since the port of Mambajao was destroyed during the volcano eruption (30 years ago), this link ceased operation.

41. Benoni-Balingoan (Link Nr.36)

This link services the provinces of Misamis and Camiguin. Two(2) ferry vessels ply the link making one(1) scheduled round trip each per day.

However, the trips does not strictly follow the link. It alternately changes port at Camiquin side; servicing both ports of Benoni and Guinsiliban (some 5 km. from the former). The vessels are owned by R. Tamula Lines. Travel time is one(1) hour and passenger fare P15.75 for ordinary class and P18.00 for first class. Photo 3-10 shows a ferry boat berthing a Port of Benoni.

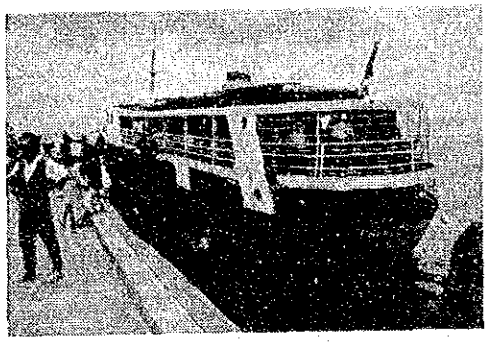

Photo 3-10 Benoni - Balingoan Ferry

42. San Jose-El Nido (Link Nr.37)

The link is between Mindoro and Palawan. Except for cargo vessels on tramping basis, no regular traffic is noted on this link.

43. Cebu City-Tagbilaran (Link Nr.38)

This link connects the capital cities of the islands of Cebu and Bohol. One(1) Ro/Ro vessel belonging to Trans-Asia Lines and three(3) ferry vessels of Sweet Lines service the link with scheduled trips. The Ro/Ro makes three(3) trips per week, a ferry vessel once every day and the rest at least twice a week. Travel time is four(4) hours and passenger fare is P45.00 for ordinary class and P75.00 for first class.

44. Lucena City-Santa Cruz (Link Nr.39)

Similar to the Lucena City-Balanacan link, the Lucena City-Santa Cruz link connects mainland Luzon to Marinduque. However, unlike the former link, traffic here is small with only one(1) ferry vessel (Viva Antipolo) making a scheduled trip everyday. There are also other small wooden boats or bancas plying the link but carrying mostly cargo and livestock. Travel time is four(4) hours and passenger fare is P50.00.

45. Dumaguete-Larena (Link Nr.40)

This is an alternative link which connects the provinces of Negros and Siquijor. Traffic is small with about four(4) bancas making regular but unscheduled trips. There are two(2) to three(3) trips a day with travel time of one(1) hour and 45 minutes and passenger fare is P30.00.

46. Guihulngan-Dumanjug (Link Nr.41)

This link is one among others which connect the island of Negros and Cebu. Two(2) motorized launches ply this link on regular basis with scheduled one(1) round-trip each. Travel time is 45 minutes and passenger fare is P35.00. Photo 3-11 shows a ferry at Port of Duanmjug.

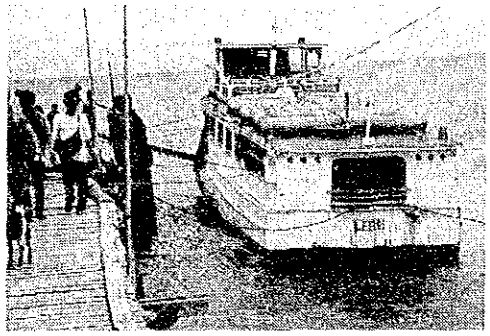

Photo 3-11 A Ferry at Port of Dumanjug

47. Ajuy-Manapla (Link Nr.42)

This link serves the islands of Panay and Negros. Traffic is negligible with small bancas plying the link on irregular and unscheduled basis for purposes of transporting cargo. Passengers on-board these boats are incidental and payment of passage is dependent on the owner or boatsman. However, traffic has been noted between Ajuy (Culasi and Malayuan) and Victorias which cater to the passenger market of the subject link. It is here that traffic is substantial with about four(4) motorized launches serving the link with four(4) scheduled trips per day. Travel time is 1.5 hours and passenger fare is P30.00.

[References]

1. Philippine Transport Sector Review, WB 1988

2. Inception Report, Nationwide Roll-on Roll-off Transport System Development Study, IATCTP 1989

3. The Philippine Coastal Fleet Renewal Project, SHIPDECO 1989

4. Sub-sector Study on, Inter-island Shipping/Ship Repair, DBP 1990

Chapter 4 Features of the Study Ports

A. Classification of the Study Ports

1. On the long list, 42 shipping links are listed as Ro/Ro study links. Each link has two (2) terminal ports at both ends of the link. However, some of them serve as a terminal not only for one (1) link, but for several links. On the long-list above, a total of 67 ports are counted.

2. The name of the region, island and province for each of the 67 study ports are listed in Table 4-1. This table reveals that 19 study ports come from Region VII, Central Visayas, 12 study ports come from Region IV, Southern Tagalog, 10 study ports come from Region VI, Western Visayas, and 6 study ports come from Region VIII, Eastern Visayas. Thus, the number of study ports in Visayas accounts for more than half of the total number of study ports. The Visayas region is the island-group wedged between Luzon and Mindanao, and consists of about 6,000 islands including Panay, Negros, Cebu, Masbate, Samar and Leyte.

3. The 67 study ports can be classified into four (4) categories with regard to port management organization (please refer to Chapter 1, Volume I for a detailed discussion). The number of study ports from each category is shown in Figure 4-1. About 40% of PPA base ports and terminal ports are included in the study ports. However, in terms of the number of study ports, the majority belongs to municipal port group. There are 34 study ports which fall under the category of municipal port. There are three (3) private ports also included in the study.

Table 4-1 Classification of the Study Ports by Region

REGION	ISLAND	PROVINCE	Ferry Port	ROUTE NO.
III	Luzon	Bataan	1. Mariveles	21.
IV	Luzon	Cavite	2. Cavite City	21.
		Laguna	3. Lucena City	23.39.
		Batangas	4. Batangas City	3.22.
	Mindoro	Mindoro Oriental	5. Calapan	3.
		Mindoro Oriental	6. Roxas	31.32
		Mindoro Occidental	7. Abra de Ilog	22.
		Mindoro Occidental	8. San Jose	20.27.37.
	Marinduque	Marinduque	9. Balanacan	23.
		Marinduque	10. Sta. Cruz	39.
	Romblon	Romblon	11. Odiongan	31.
	Palawan	Palawan	12. El Nido	37.
		Palawan	13. Puerto Princesa	20.
V	Luzon	Albay	14. Tabaco	24.
		Sorsogon	15. Matnog	1.2.33.
		Sorsogon	16. Bulan	25.
	Catanduanes	Catanduanes	17. Virac	24.
	Masbate	Masbate	18. Masbate	25.33.
		Masbate	19. Milagros	26.
VI	Panay	Iloilo	20. Iloilo City	10.11.12.
		Iloilo	21. Estancia	26.
		Iloilo	22. Ajuy	42.
		Aklan	23. New Washington	27.32.
		Guimaras Sobu-Prov	24. Jordan	12.
	Negros	Negros Occidental	25. Bacolod	10.
		Negros Occidental	26. Pulupandan	11.
		Negros Occidental	27. San Carlos	13.
		Negros Occidental	28. Escalante	6.
		Negros Occidental	29. Manapla	42.
VII	Negros	Negros Oriental	30. Dumaguete	15.16.
		Negros Oriental	31. Tandayag	8.
		Negros Oriental	32. Guihulngan	41.
	Cebu	Cebu	33. Cebu City	14.28.34.38.
		Cebu	34. Carmen	7.
		Cebu	35. Tuburan	6.
		Cebu	36. Toledo	13.
		Cebu	37. Dumanjug	41.
		Cebu	38. Bato (Samboan)	8.
		Cebu	39. Santander	15.
		Cebu	40. Dalaguete	40.
		Cebu	41. Argao	5.
	Bohol	Bohol	42. Talibon	34.
		Bohol	43. Tubigon	14.
		Bohol	44. Loon	5.
		Bohol	45. Tagbilaran	38.
		Bohol	46. Jagna	17.35.
		Bohol	47. Ubay	29.
	Siquijor	Siquijor	48. Larena	40.
VIII	Samar	Northern Samar	49. Allen	1.
		Northern Samar	50. San Isidro	2.
	Leyte	Leyte	51. Ormoc	28.
		Leyte	52. Isabel	7.
		Southern Leyte	53. Maasin	29.
		Southern Leyte	54. Liloan	4.
IX	Mindanao	Zamboanga Del Norte	55. Dapitan	16.
		Zamboanga Del Sur	56. Zamboanga	18.19.
	Sulu	Sulu (Tap. Group)	57. Basilan	18.
		Sulu (Joro Group)	58. Jolo	19.
X	Mindanao	Misamis Oriental	59. Cagayan de Oro	17.
		Misamis Oriental	60. Balingoan	36.
		Misamis Occ.	61. Tangub	9.
		Surigao Del Sur	62. Lipata	4.
		Camiguin	63. Mambajao	35.
		Camiguin	64. Benoni	36.
		Lanao Del Norte	65. Tubod	9.
XI	Mindanao	Davao City	66. Davao City	30.
		Samal I.	67. Babak	30.

Source: JICA Study Team

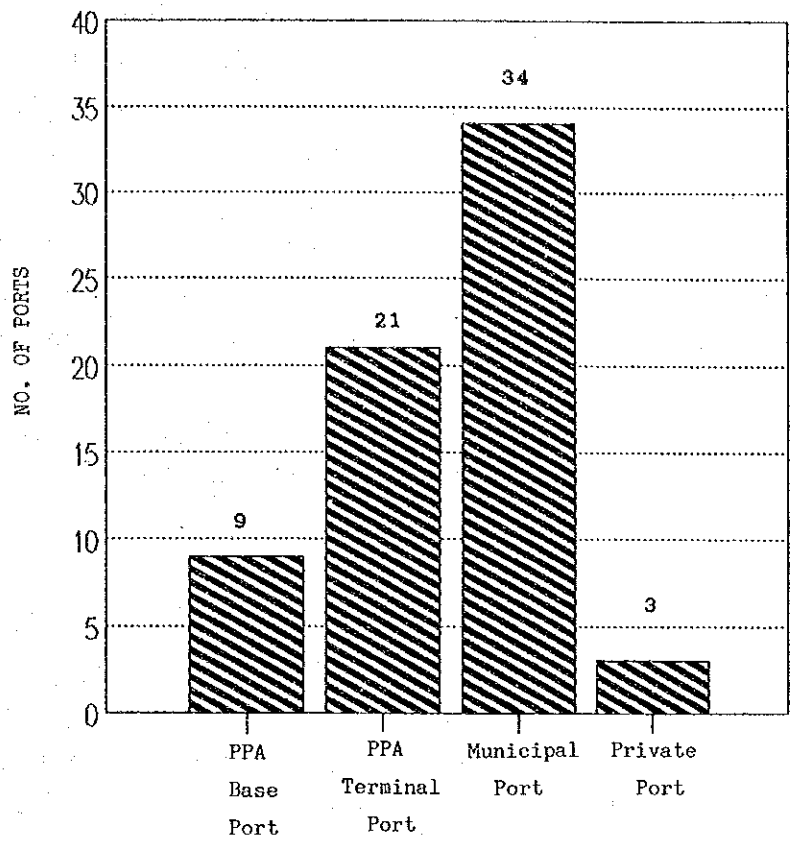

Figure 4-1 Classification of the Study Ports by Management Organization

Source: JICA Study Team

B. Related Port Studies and Projects

4. In the formation of a master plan for the Ro/Ro transportation network, maximum utilization of existing resources is desired. It is necessary to know what kind of port facilities already exist at each of the study ports. Unfortunately, this kind of information has not been systematized by a single authority although PPA shall be responsible for the planning, detailed engineering, construction, expansion and capital dredging of all ports under its ports system.

5. Recognizing the importance of acquiring this type of information, PPA initiated the Port Inventory Project (PIP) in June 1990 with the assistance of a JICA advisor, under the Japanese Technical Cooperation Program.

6. In light of the vast number of ports in the Philippines, a phase programme was adopted. Phase 1, which covers all of the base ports and terminal ports, is already completed. PPA Port Inventory serves as a reliable information source for 31 of the 67 study ports.

7. The Government of the Philippines places a high priority on the rehabilitation and improvement of feeder ports as an essential part of the Government's strategy to promote economic development and alleviate poverty in rural areas. Feeder ports are generally located in isolated areas where inhabitants depend on water-borne transport as the only link to the rest of the country. Feeder ports also provide vital ferry terminal facilities and serve as fishing ports.

8. The feeder ports projects have been jointly undertaken by the Government of the Philippines and other foreign and multinational organizations such as the Japanese Overseas Economic Cooperation Fund (OECF), Asian Development Bank (ADB), the United States Agency for International Development (USAID), and Kreditanstalt fuer Wiederanflau (KfW) of the Federal Republic of Germany.

9. In the feeder ports study, port inventory has been filed on each feeder port in three (3) sheets. Items of information of Feeder Port Inventory are rather similar to those of PPA Inventory, but socioeconomic circumstances of the hinterland area are also presented. Because ten (10) out of 67 Ro/Ro ports are also candidates for the feeder ports project, inventory of these feeder ports can be utilized as an information source.

10. The Fourth IBRD Ports Project is under way. Unlike the Third IBRD Ports Project, in which a development project at major ports such as Port of Cebu, Iloilo were favored, the emphasis this time is on the rehabilitation of a small group of additional ports. Information and data gathered during the course of additional port selection study for the fourth IBRD Ports Project can be also utilized for the Ro/Ro transportation study.

11. Table 4-2 summarizes the reference source for the information on the layout plan and port profile of each Ro/Ro study port, and indicates that PPA is the major source for the Ro/Ro port inventory.

Table 4-2 Reference Source for the Study Ports

	PORT		PPA Port Inventory	ADB Feeder Ports	Fourth IBRD	OECF Feeder Ports	KFW and others
1	MARIVELES	BATAAN					○
2	CAVITE	CAVITE					
3	LUCENA	QUEZON			○		
4	BATANGAS	BATANGAS	○		○		
5	CALAPAN	MINDORO ORIENTAL	○				
6	ROXAS	MINDORO ORIENTAL					
7	ABRA DE ILOG	MINDORO OCC.					○
8	SAN JOSE	MINDORo OCC.	○		○		
9	BALANACAN	MARINDUQUE	○		○		
10	STA. CRUZ	MARINDUQUE	○		○		
11	ODIONGAN	ROMBLON					
12	EL NIDO	PALAWAN				○	
13	PUERTO PRINCESA	PALAWAN	○				
14	TABACO	ALBAY	○		○		
15	MATNOG	SORSOGON	○				
16	BULAN	SORSOGON	○				
17	VIRAC	CATANDUANES	○		○		
18	MASBATE	MASBATE	○		○		
19	MILAGROS	MASBATE					
20	ILOILO CITY	ILOILO	○				
21	ESTANCIA	ILOILO				○	
22	AJUY	ILOILO					○
23	NEW WASHINGTON	AKLAN					○
24	JORDAN	GUIMARAS					○
25	BACOLOD	NEGROS OCC.					○
26	PULUPANDAN	NEGROS OCC.	○		○		
27	SAN CARLOS	NEGROS OCC.	○				
28	ESCALANTE	NEGROS OCC.	○			○	
29	MANAPLA	NEGROS OCC.					○
30	DUMAGUETE	NEGROS ORIENTAL	○		○		
31	TANDAYAG	NEGROS ORIENTAL		○			
32	GUIHULNGAN	NEGROS ORIENTAL					○
33	CEBU CITY	CEBU	○				
34	CARMEN	CEBU					○
35	TUBURAN	CEBU					○
36	TOLEDO	CEBU	○		○		
37	DUMANJUG	CEBU		○			
38	BATO(SAMBOAN)	CEBU		○			
39	SANTANDER	CEBU					
40	DALAGUETE	CEBU					○
41	ARGAO	CEBU		○			
42	TALIBON	BOHOL	○				
43	TUBIGON	BOHOL	○				
44	LOON	BOHOL					○
45	TAGBILARAN	BOHOL	○		○		
46	JAGNA	BOHOL	○		○		
47	UBAY	BOHOL				○	
48	LARENA	SIQUIJOR	○				○
49	ALLEN	NORTHERN SAMAR					
50	SAN ISIDORO	NORTHERN SAMAR					○
51	ORMOC	LEYTE	○		○		
52	ISABEL	LEYTE	○				
53	MAASIN	SOUTHERN LEYTE	○				
54	LILOAN	SOUTHERN LEYTE					○
55	DAPITAN	ZAMBOANGA DEL NOR	○				
56	ZAMBOANGA	ZAMBOANGA DEL SUR	○				
57	BASILAN	SULU(TAP.GROUP)	○				
58	JOLO	SULU(JOLO GROUP)	○				
59	CAGAYAN DE ORO	MASAMIS ORIENTAL	○				
60	BALINGOAN	MASAMIS ORIENTAL					○
61	TANGUB	MASAMIS OCC.					○
62	LIPATA	SURIGAO DEL SUR					
63	MAMBAJAO	CAMIGUIN					
64	BENONI	CAMIGUIN	○				○
65	TUBOD	LANAO DEL NORTE		○			
66	DAVAO CITY	DAVAO CITY	○				
67	BABAK	SAMAL ISLAND					○

Source: JICA Study Team

C. Traffic of the Study Ports

12. According to DPWH, on the basis of field surveys, cargo throughput at individual feeder ports ranges between 500 and 5,000 tons and as high as 60,000 tons per year. The number of passengers embarked and disembarked at feeder ports varies from a few to several hundred per day.

13. Figure 4-2 and Figure 4-3 show the histogram of the number of ports categorized by volume of cargo and passenger traffic on the basis of the 1990 PPA Annual Statistics Report. For cargo throughput, the majority of the study ports fall in categories with columns less than 200 thousand tons annually while some of the study ports handle more than one (1) million tons. For passenger traffic, ports which handle between one hundred thousand tons and two hundred thousand tons annually dominate. However, some of the ports register more than four (4) million passengers.

14. The long list on the Ro/Ro study ports contains several types of ports with varying degrees of port traffic. Some of them are as small as feeder ports and others function like international ports. This fact reveals that the study ports are divided into several sub-groups and are characterized by a diversity of size and function.

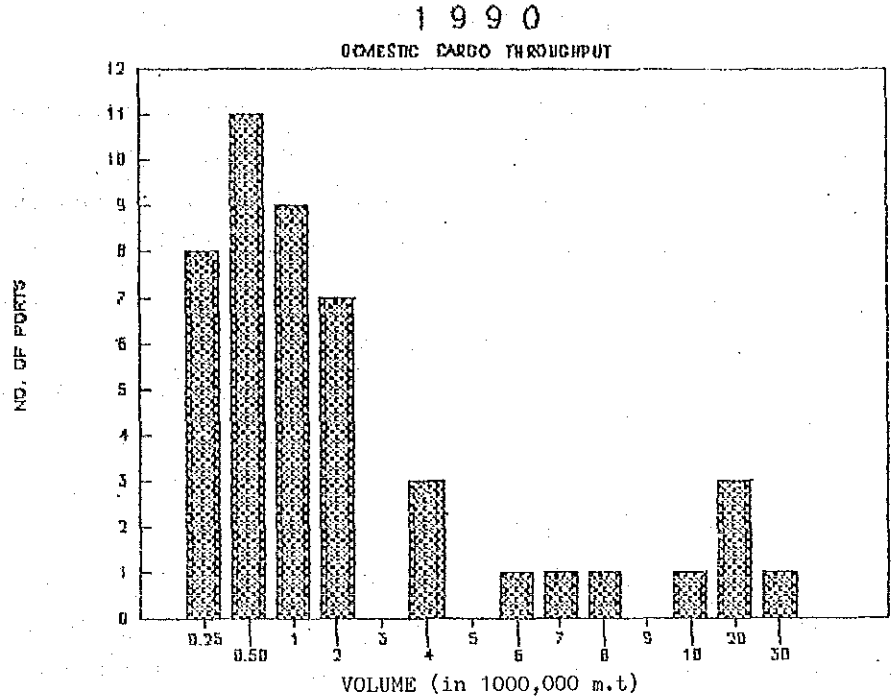

Figure 4-2 Distribution of Port Size by Cargo Throughput
Source: 1990 PPA Statistics and others

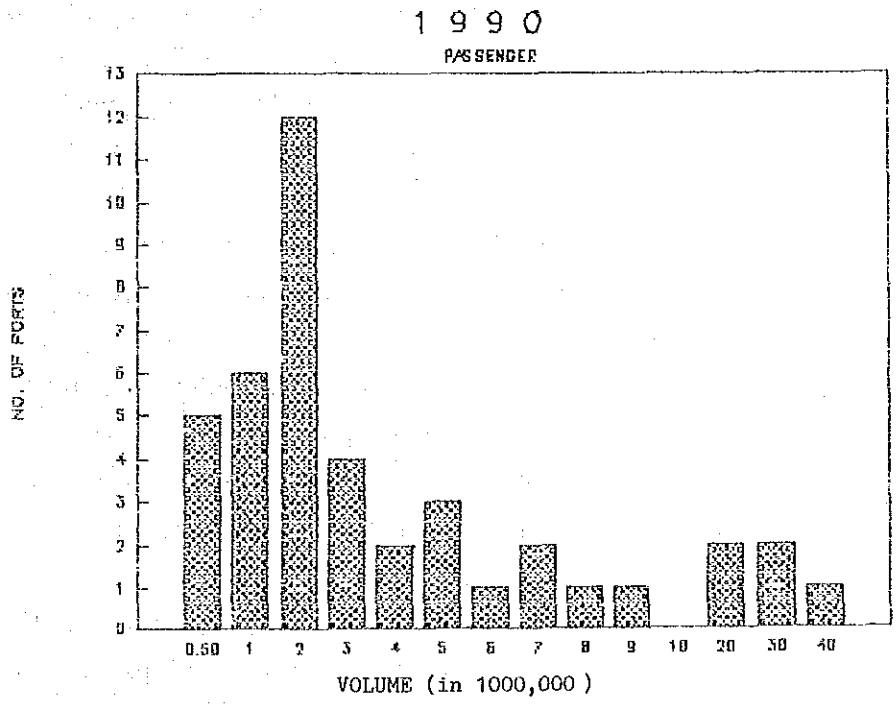

Figure 4-3 Distribution of Port Size by Number of passengers
Source: 1990 PPA Statistics and others

D. Field Reconnaissances and Port Inventory

15. Study reports and port inventories mentioned in the previous section have greatly assisted the JICA study team in obtaining general views about some of the study ports. However some of the information from the previous works may need to be updated and additional information is also needed to carry out the Ro/Ro port study because each study has its own specific purposes. Further, no studies have been carried out so far for some of the study ports. Consequently, no information is available for them from previous sources.

16. Taking into consideration these circumstances, the JICA study team, which consists of twelve experts, has visited about fifty study ports. A local consultant which has been working together with JICA study team also conducted field reconnaissance survey on all the study ports with the exception of a few ports such as Milagros because conditions were not safe and orderly.

17. An aerial survey gives an overall view of the study port. One of the important aspects in formulating the Ro/Ro ferry network system is to promote regional economic development through the establishment of an efficient transportation system. An understanding of the locational relationship between the center of town and the ports, and the land use pattern around the port is achieved only through a bird's eye view.

18. An important step to get the latest and most accurate information about study ports was taken by JICA study team. Aerial surveys by a small aircraft were carried out and the study ports were aerially photographed. These aerial photographs play a crucial role in understanding the present situation of the study ports and their regions, and in formulating the nationwide master plan of Ro/Ro transport system development. Dates of the field reconnaissance survey and aerial survey are summarized in Table 4-3.

19. The outcome of the field reconnaissance is incorporated in the form of "Port Inventory For Ro/Ro Study". This inventory covers all of the Ro/Ro study ports, and contains information on socioeconomic conditions, port traffic, berthing facility, and Ro/Ro facility as well as aerial photograph and port layout plan. The port inventory was published by JICA study team and submitted to the IATCTP in March 1992.

Table 4-3 Dates of Field Reconnaissance Survey (1991)

	Study Ports	Field Reconnaissance		Aerial Survey
1	Mariveles	5/26,	8/25	11/27
2	Cavite	5/19		11/27
3-1	Dalahican	10/20,	8/2	11/27
3-2	Cotta	10/20		11/27
4	Batangas	8/26,	8/6	5/30
5	Calapan	8/26,	8/6	5/30
6	Roxas (Dangay)		8/4	5/30
7-1	Mamburao	11/13		5/30
7-2	Abra de Ilog	11/13,	8/13	
8	San Jose	11/14,	7/31	5/30
9	Balanacan		8/2	11/27
10	Sta. Cruz		8/3	11/27
11	Odiongan (Poctoy)		8/16	5/30
12	El Nido	11/15		
13	Puerto Princesa	11/13		11/14
14	Tabaco		8/15	11/27
15	Matnog	7/26,	8/1	11/27
16	Bulan		8/7	11/27
17	Virac		8/17	11/27
18	Masbate		8/7	11/27
19	Milagros			11/27
20	Iloilo	5/15,	8/13	5/30
21	Estancia		8/12	5/30
22	Ajuy (Culasi)		8/12	5/30
23	New Washington (Dumaguit)	10/27,	8/26	5/30
24	Jordan	5/17,	8/1	5/30
25	Bacolod (Banago)	5/16,	8/1	5/30
26	Pulupandan	5/16,	8/13	5/30
27	San Carlos		8/8	5/30
28	Escalante (Danao)		11/19	5/30
29	Manapla		8/6	5/30
30	Dumaguete	8/20,	8/7	10/29
31	Tandayag	8/19,	8/1	10/29
32	Guihulngan		11/20	5/30
33	Cebu	7/24,	8/15	10/29
34	Carmen	7/28,	8/13	10/29
35	Tuburan	7/28,	8/10	10/29
36	Toledo	7/28,	8/10	10/29
37	Dumanjug	8/19,	11/20	10/29
38	Bato	8/19,	11/21	10/29
39	Santander	8/19,	11/21	10/29
40	Dalaguete	8/19,	8/15	10/29
41	Argao	8/19,	8/14	10/29
42	Talibon	7/26,	8/8	7/25
43	Tubigon	7/26,	8/6	
44	Loon	7/26,	8/9	7/25
45	Tagbilaran	7/27,	8/9	7/25
46	Jagna	7/26,	8/11	7/25
47	Ubay	7/26,	9/4	7/25
48	Larena	8/20,	8/6	8/16
49	Allen		7/31	11/27
50	San Isidro		8/1	11/27
51	Ormoc		8/28	7/25
52	Isabel		8/29	7/25
53	Maasin		9/2	7/25
54	Liloan		9/5	7/25
55-1	Dipolog	7/23		7/23
55-2	Dapitan (Pulauan)	7/24,	8/6	8/16
56	Zamboanga	7/21,	8/1	7/22
57	Basilan (Isabela)	7/23,	8/5	7/22
58	Jolo		8/12	7/22
59	Cagayan de Oro	8/16,	8/5	8/16
60	Balingoan	8/17,	8/5	8/16
61	Tangub		8/11	8/16
62	Lipata		9/10	7/25
63	Mambajao (Balbagon)	8/17,	8/6	8/16
64	Benoni	8/17,	8/6	8/16
65	Tubod		8/11	8/16
66-1	Davao (Sasa Km 11)	8/18,	8/21	
66-2	Davao (Sta. Ana)	8/18,	8/21	
67	Babak	8/18,	8/20	

Source: JICA Study Team

E. Road Links to the Study Ports

20. Introduction

To provide a functional development plan for the Roll-on Roll-off Transport Study, the study should consider the different road links to determine those which offer the most benefits.

The vital role of the major road links is to contribute to the most accessible, convenient, and economical transportation leading to the Ro/Ro ports, particularly to the commercial and business districts in the region. The Ro/Ro road links are listed in Table 4-4 and shown in Figure 4-4.

21. Road to Mariveles Port, Bataan

The Mariveles Port will serve for the provinces of Bataan, Pampanga, Bulacan, Zambales in Metro Manila. It has three major roads connecting the above provinces; the Dinalupihan-Mariveles Port Road, San Fernando-Olongapo Road and Bataan-Pampanga-Bulacan-Manila Coastal road, respectively.

The Dinalupihan-Balanga(Expressway)-Mariveles Port road has a total aggregate length of 67.453 km, wherein, the 10.911 km is concrete cement pavement and the remaining 56.0402 km is asphalt concrete pavement in fair condition. The terrain is flat to rolling. The road is connected to San Fernando-Olongapo Road serving the three provinces: Bataan, Pampanga and Zambales respectively where the commercial and business establishments are located. Moreover, some part of road was affected by lahar which is included under the on-going Feasibility Study financed by the IBRD.

The proposed Bataan-Pampanga-Bulacan-Manila Road has three alternative routes recommended in the feasibility study undertaken by JICA study team. The road section is under the on-going review of feasibility study and the detailed engineering design, included under the implementation and financed by the International Bridge Development Program (IBRD).

22. Road to Cavite Port, Cavite

Cavite Port is geographically located at the northern section of Cavite province. One of the roads leading to the port is the Cavite-Manila Coastal Road which has an estimated length of 34 km, classified as well paved cement concrete pavement and asphalt concrete pavement. It is the major route going to Metro Manila. Likewise, the Noveleta-Naic-Mendez-Tagaytay Road connects the three cities of Cavite, Trece Martires and Tagaytay. It has an approximate length of 52.230 km of rigid and flexible pavement. These road sections pass the Export Processing Zone Authority (EPZA) as well as the commercial and industrial zone.

23. Road to Batangas Port, Batangas

The Manila-Batangas Road is the main road serving the Batangas Port and has the capability of faster transactions going to Metro Manila. The road has an aggregate length of about 111.00 km south of Manila wherein the Sto Tomas-Lipa section is under going improvement and widening by IBRD-HMP I. Meanwhile, there are two inter-provincial roads connecting the three provinces, the province of Cavite, Batangas and Quezon. The first road is the Rosario-Candelaria (Bataan-Quezon) Road which has a total length of 51.340 km, composed of 24.780 km concrete cement pavement and 26.560 km asphalt concrete pavement. The second inter-provincial road is the Tagaytay-Palico-Lemery-Batangas Road (Batangas-Cavite Road) which has a total approximate length of 57.80 km of rigid and flexible pavement. In addition to road links, the Batangas proper-Batangas Port road is a major road leading to Port area which is a 2.691 km stretch of paved concrete cement and asphalt in good to fair condition. In spite of the existing road leading to the port, which is congested during the arrival of the different local and foreign vessels, the CEO-Batangas were implementing a new diversion road connecting the port which is to be completed for the year 1993.

24. Road to Lucena Port, Quezon

Lucena Port is 136 km south of Metro Manila by the Daang Maharlika Highway (PAN PHILIPPINE HIGHWAY). The entire road is predominantly concrete cement pavement and in good to fair condition.

Daang Maharlika Jct.-Lucena Port Road has an estimated length of 4.201 km in fair to bad condition and the road surface has 3.733 km, of concrete cement pavement and 468 km of gravel surface. The terrain is flat to rolling.

25. Road to Virac Port, Catanduanes

The only road connecting the Virac Port is the Catanduanes Circumferential Road (CCR) with a total length of 204.75 kilometers. The road component is classified into three categories such as 20.89 km of concrete cement pavement, 17.660 km of asphalt pavement and 116.91 km of gravel roads. The road is now under the on-going road Detailed Engineering Design Package B undertaken by the local consultants and it is also considered in the proposed construction for the year 1993 to be funded by IBRD-HMP II. Also, Jct. CCR-Virac Port has 0.534 km gravel surface in poor condition.

26. Road to Tabaco Port, Albay

Tabaco Port is located at the Eastern Section of Albay Province in front of the Pacific Ocean. The only road leading to this port is the Ligao-Tabaco Road. It has an aggregate length of 25.997 km composed of 15.00 km concrete pavement, 1.997 km asphalt pavement and 9.00 km gravel in good to fair condition. The road is connected to Daang Maharlika Highway. Daang Maharlika Highway is the National Highway connecting the commercial and industrial zones of the Region. The port is 52.797 km from Legaspi City, 62.997 km from Iriga City and 100.997 km from Naga City.

27. Road to Puerto Princesa Port and El Nido Port, Palawan

The Puerto Princesa North-El Nido is the main road between the two ports. The road starts at km. 4+360 traverses north and terminates at km. 299+909 with a total length of 283.109 km. Only 1.214 km is paved with rigid and flexible pavement, and 281.294 km is gravel surfacing.

The road segment of 90 km is included under the on-going Feasibility Studies and Detailed Engineering Design under Package B, while the 81 km of Puerto Princesa-Salvacion-Langogan section is under construction and part of the road is under the 5th ADB Detailed Engineering Design.

28. Road to Mamburao Port and San Jose Port, Occidental Mindoro

The Mamburao North-Puerto Galera Road starts at Km. 0+786 stretches north and terminates at Km. 36+841. It has a total aggregate length of 36.055 km in good to fair condition, wherein 5.511 km is paved concrete and asphalt, and 30.544 km is gravel surfacing. The road serves as the interprovincial road between the two provinces, Oriental Mindoro and Occidental Mindoro.

The Mamburao South-Bulalacao Road traverses the town of Sta. Cruz, Sablayan, Calintaan, Rizal and San Jose. From Mamburao up to Bulalacao boundary the estimated length is about 179.843 km and only 2.470 km is paved with concrete. The road section connects the Mamburao Port and San Jose Port. Moreover, the road is partly committed under the Rural Infrastructure Fund (RIF-USAID) for implementation.

29. Road to Balanacan Port, Marinduque

The road leading to the Balanacan Port is the Balanacan-Mogpog Road and it is connected to Marinduque Circumferential Road. The 9.782 km road consists of two types of road classification, 4.450 km of asphalt and 5.312 km of gravel both in fair condition.

The Marinduque Circumferential Road (MCR) has a total length of 99.489 km of which 2.20 km is concrete paved in good condition, while the remaining 46.800 km of asphalt and 50.189 km of gravel are both in fair condition.

30. Road to Matnog Port and Bulan Port, Sorsogon

Matnog Port is physically situated along Daang Maharlika Highway where the entire 105.00 km concrete pavement bisects the whole province of Sorsogon. The road has been considered as having a good surface condition. The port is an estimated 69 km from Sorsogon and 122 km from Legaspi City, commercial and business districts of the region.

Another port is the Bulan Port where it is 13.320 km from the junction of

Daang Maharlika Highway by passing through the towns of Gate and Bulan. The road is paved with concrete cement at an approximate length of about 13.070 km and the asphalt pavement is 0.250 km in length. The road condition ranges from good to fair.

31. Road to Milagros port and Masbate Port, Masbate

The Masbate Island has been consolidated by the Milagros-Masbate-Cataingan-Placer-Daraga Road. The road measures 70.482 km in total length and the condition ranges from good to fair. The road is classified into different pavement types according to their respective length; 3.887 km of concrete cement pavement, 21.375 km of asphalt pavement and 45.218 km of gravel surface. Furthermore, the 58.7 km Malinta-Milagros-Mobo-Dimasalang-Cataingan-Placer Road (excluding Malinta-Mobo Section) is included in the on-going construction and financed by the Asian Development Bank (ABD) for asphalt concrete pavement.

32. Road to Calapan and Roxas Port, Oriental Mindoro

In the northern section of the Calapan Port, the prevailing access road heading north is the Calapan-San Teodoro-Puerto Galera-Abra de Ilog Road. The road has an approximate length of 58.165 km. The entire road is subdivided into different types of road surface, concrete, asphalt and gravel. The concrete cement pavement has a total length of 0.375 km, 16.370 km of asphalt pavement, and 41.40 km of gravel. The above pavement has an overall fair condition except some isolated potholes especially on gravel surfacing.

In the southern section of the port, the profitable road is the Calapan South-Bulalacao-San Jose Road. The road has been extended up to 184.280 km composed of concrete, asphalt and gravel surfacing. The condition ranges from good to fair. In addition, the road leads the Roxas Port which is also included in this project.

Furthermore, the above aforementioned road sections are partly committed under the implementation and financed by the Rural Infrastructure Fund (RIF-USAID) program.

33. Road to Odiongan Port, Romblon

Odiongan Port is located at Tablas Island wherein the road components were classified as Odiongan-Looc-Alcantara Road and Odiongan-San Agustin-Alcantara Section. The road serves as the Circumferential Road of the Island.

The Odiongan-San Agustin-Alcantara section covers the northern and eastern part of the Island and has an approximate length of 88.156 km of which 0.076 km is concrete, 29.088 km is asphalt and 58.972 km is gravel in fair condition while the Odiongan-Looc-Alcantara section moves southward to close the circumferential road up to Alcantara proper and has a total distance of 39.408 km which is 0.177 km of concrete, 12.838 km of asphalt and 26.453 km of gravel in fair condition.

34. Road to Iloilo Port and New Washington Port, Panay Island

The Iloilo North Road runs in the north direction of the Island and passes the towns of Pavia, Sta. Barbara, Dumarao, Dao and terminates at the Junction of Capiz-Aklan Road. The road has the potential to shorten the distances between the three provinces of Iloilo, Capiz and Aklan. It has an approximate total length of 112.00 km while the surface condition is fair. The road has 36.00 km of concrete cement pavement and 76.00 km of asphalt pavement. The distance between Iloilo Port and New Washington Port using Iloilo North Road is approximately 177.000 km including Ivisan-Kalibo (Capiz-Aklan Road) Section which will be explained later.

35. Road to Ajuy, Estancia, Iloilo, and New Washington Ports, Panay Island

The access road connecting the four ports under study is the Iloilo-Barotac Viejo-Ajuy-Estancia-Ivisan-Kalibo Road. The road has a total estimated length of 225.135 km and is divided into three road sections. The first subsection is the Iloilo-Barotac Viejo-Ajuy-Estancia Road which has an equivalent length of 127.811 km, of which 38.800 km is concrete pavement, 38.011 km is asphalt pavement and 51.000 km is gravel while their respective surface condition varies from good for concrete and fair for both asphalt and gravel. The feasibility studies of the above section have been undertaken by the Fourth United Nation Development Program (UNDP)

since 1988. This road is the major route of Iloilo Port, Ajuy Port and Estancia Port going to commercial and business establishments.

The succeeding subsection is the Estancia-Roxas-Ivisan Road which has an aggregate length of 71.640 km and is paved with 19.444 km of concrete, 13.025 km of asphalt, and 39.171 km of gravel in good to fair condition. The terrain varies from flat to rolling and the last subsection Ivisan-Kalibo Road stretches north to an estimated length of 63.90 km passing the town of Altavas, Balete, Bangan and terminates in Kalibo. It is composed of 16.20 km of rigid pavement and 0.400 km of flexible pavement in good to fair condition and the 47.300 km of gravel is in fair to bad condition in some isolated areas. This section is included under the on-going construction and implemented by the RIF-USAID Grant.

In the southwest coast of Panay Island the road is the Iloilo-San Juaquin-San Jose Buenavista-Kalibo Road. It has an aggregate length of 277.50 km composed of 38.00 km of concrete cement pavement, 70.00 km of asphalt cement concrete and 169.50 km of gravel. The road follows a flat, rolling and mountainous terrain. The paved road has a carraigeway of 6.10 meters wide and the shoulder varies from 1.00 meter to 2.50 meters on both sides. Likewise, on the gravel surface, the width of the road ranges from 5.00 meters to 7.00 meters wide. Moreover, some of the road sections were included under the first priority of 18th YEN-OECF fund.

Furthermore, the major access road leading to Estancia Port is the Jct. Iloilo-Estancia East Coastal Road-Estancia Wharf which has a total length of 6.291 km composed of 3.860 km of concrete pavement in good condition and 2.431 km of gravel in fair condition while the Iloilo City Port has 2.200 km of good concrete cement pavement.

36. Road to Jordan Port, Guimaras Island

The Guimaras Circumferential Road (GCR) has an approximate length of 125.040 km connecting the four towns of Jordan, Buenavista, San Miguel, and Valencia. It has 5.00 km of concrete pavement, 22.225 km of asphalt pavement and 97.820 km of gravel surface and the condition varies from good to fair. The road traverses through flat to rolling terrain.

Apparently, a 34 km stretch of the road is under the on-going Detailed Engineering Design.

37. Road to Bacolod, Manapla, Escalante (Danao), and San Carlos Ports, Negros Occidental

The Bacolod North Road starts at Km. 0+000 in Bacolod City moving north and terminates at Km. 161+960 in the provincial boundary of Negros Occidental and Negros Oriental. The road passes thru the town of Talisay, Manapla and Escalante, cities of Bacolod, Silay, Cadiz and San Carlos, and an access roads towards Bacolod Port, Manapla Port, Escalante (Danao) Port and San Carlos Port.

The road has a total length of 161.960 km of which 32.378 km is concrete cement pavement and 129.582 km is asphalt pavement. The road is characterized by flat to rolling terrain and is in fair condition. The pavement width varies from 6.00 m to 7.10 m while the shoulder width ranges from 2.00 m to 2.50 m.

At km 95 + 000 in New Escalante town proper is the beginning of the access road leading to Danao Port going towards the east coast section. The road has an approximate length of 7.70 km, where 2.100 km was paved with asphalt pavement in good condition, 6.10 meters carriageway and the shoulder varies from 0.50 m to 1.00 m. while the remaining 5.600 km has a gravel surfacing in fair to bad condition and the width of pavement ranges from 6.00 m to 8.00 m wide. The road is included under the on-going construction for the CY 1992 implemented by the 5th IBRD loan.

Furthermore, there is an existing road which shortens the travel time between Bacolod and San Carlos City. The Sibucao-La Carlota City-La Castella-na-Canlaon City-Vallehermoso Road bisects the island of Negros. It has a total length of 59.858 km of which 0.670 km is concrete, 9.598 km asphalt and 9.590 km gravel. Fortunately road improvement is being implemented and financed by the IBRD -HMP I assisted program.

38. Road to Pulupundan Port, Negros Occidental

The Bacolod South Road accesses the two ports at the southern portion of Negros Occidental. It has a total length of 98.00 km following the route bypass routes. The road is divided into three type of pavement surfaces, 8.626 km of concrete and 89.368 km of asphalt. The pavement surface condition varies from good to fair. The pavement width ranges from 6.00 to 7.10 meters while the shoulder width varies from 2.00 to 2.50 meters. The road lies in flat to rolling terrain. It heads in a southernly direction from Bacolod City.

39. Road to Guihulngan, Bato and Dumaguete Ports, Negros Oriental

The Dumaguete North Road runs horizontally along the eastern coastal section of the Island. The road traverses the town of Sibulan, Amlan, Bais City, Manjuyod, Banday, Ayungan, Tayasan, Jimalalud, La Libertad, Guihulngan and Vallehermoso, respectively. It has an approximate length of 164.444 km. The existing 30.50 km of concrete cement pavement is in good condition, followed by 89.206 km of asphalt pavement and 44.738 km of gravel surface which are in both fair condition. The on-going construction improverment was funded by IBRD 4th RIP.

Another road section is the Bais-Kabankalan Road which bisects the southern portion of the Island. This road connects the Bacolod South Road and the Dumaguete North Road with an estimated length of 3.00 km of asphalt pavement and 40.670 km of gravel surface in fair condition. The road construction is presently implemented by IBRD 4th RIP.

The main access road towards Dumaguete Port Area is the Jct. Dumaguete North Road-Dumaguete Port Road which is paved with 0.630 km of asphalt and is in fair condition.

40. Road to Larena Port, Siquijor

The road within the island is the Siquijor Circumferential Road (SCR). The road has a total approximate length of 50.731 km of asphalt pavement and gravel surface. The 25.500 km of asphalt pavement is in fair condition

while 50.731 km of gravel surfacing is in bad condition. The road traverses thru the town of Larena, E. Villanueva, Maria, Lazi and Siquijor. The commercial center of the island is the Siquijor town. Likewise, the island is included in the Feasibility Study on Transport Study on Small Islands undertaken by the KfW project.

41. Road to Tandayag, Santander, Argao and Cebu Ports, Cebu Province

The Cebu South Road has a total approximate length of 143.00 km. The road starts at km. 2+000 and follows the south direction and ends at km. 145.000. The road has 40.00 kilometers of concrete cement pavement, 62.000 kilometers asphalt pavement and 41.000 kilometers of gravel surface. The road surface condition varies from good to fair. The pavement width ranges from 6.00 meters up to 7.10 meters while the shoulder width varies from 2.00 meters to 2.50 meters. From Cebu City to Argao Section, the road is under the supervision of Metro Cebu Development Program which is under the financial assistance of OECF (18th Yen), while the remaining on-going construction section is also implemented by ADB 4th RIP program.

The distance between Ports of Tandayag and Santander, and Argao and Cebu are 10, 61 and 69 km, respectively.

42. Road to Dumanjug, Toledo and Tuburan Port, Cebu Province

The road connecting the three ports is the West Coastal Road of the Island which is subdivided into three subsections; the first section is the Toledo-Tuburan-Tabuelan Road which has an estimated length of 61.460 kilometers. The road covers the town of Toledo City, Balamban, Asturias, Tuburan and Tabuelan which ranges from a flat to rolling terrain. It has 22 kilometers of concrete pavement which is in good condition and the remaining 39.46 kilometers of gravel surfacing has been rated from fair to bad condition. Within this subsection, Toledo-Asturias Road section has a 32 km stretch under on-going construction including the new four bridges implemented by ADB assisted program.

The second subsection is the Toledo-Mantalongon Road section which has an approximate length of 27.50 km and is composed of 18.850 kilometers

of asphalt cement pavement in fair condition and 16.650 kilometers gravel surface is fair to bad condition. The road is now under the on-going construction funded by ADB 4th RIP.

The last subsection is the Carcar-Mantalongon-Barili-Dumanjug Road which has an estimated length of 30.00 km in fair to bad surface condition. It has 12.00 km of asphalt pavement and 18.00 km of gravel surface. The road is included under the implementation and financed by the ADB-4th RIP program.

The Cebu(Tabunok)-Toledo Wharf Road interlinks the East and West Coast Road of the Island. The road starts at Talisay Public Market and follows a flat, rolling and mountainous terrain and terminates at Toledo Port. The road has a total approximate length of 40.700 km composed of 2.00 km concrete cement pavement, 21.700 km asphalt pavement and 17.000 km gravel surface. The road is considered under the Highway Management Project (HMP) II project for the year 1993.

The distance between the ports of Dumanjug and Toledo, Dumanjug and Cebu, Toledo and Cebu, and Toledo and Tuburan are approximately 51 km, 71 km, 50 km, and 47 km, respectively.

43. Road to Cebu and Carmen Ports, Cebu Province

The Cebu-Sogod-Jct. Lugo (Cebu North Road) Road stretches to an approximate length of 66.478 km and traverses a flat to rolling terrain, the 18.378 km of concrete is in fair condition and 48.10 km of asphalt is in fair to bad condition. The pavement width varies from 6.00 meters to 7.10 meters and the shoulder ranges from 2.00 meters to 2.50 meters wide. The road is included in the on-going construction implemented by IBRD-HMP I program.

To close the Loop of the Road between the North Eastern Coastal Road to North Western Coastal Road, the Jct. Lugo-Tabuelan Road is to be considered. This existing road is the main route for Ro/Ro transport between Escalante and Tuburan Ports. The road has an approximate length of 18.250 km composed of 4.300 km of asphalt in good condition while the re-

maining 13.850 km gravel surface is in fair to bad condition. The road is a provincial road and is also included on the on-going IBRD-HMP I program.

44. Road to Tagbilaran, Loon, Tubigon, Talibon, Ubay, Jagna Port, Bohol

The Bohol Circumferential Road (BCR) consolidates the shoreline town of Bohol province. The road was divided into two subsections; Tagbilaran North Road and Tagbilaran East Road.

The Tagbilaran North Road starts at km. 0+000 and terminates at km. 122.400. It is the main road assessing the Port of Talibon, Tubigon, Loon and Tagbilaran. The road has 15.00 km concrete cement pavement, 31.25 km asphalt pavement and 74.145 km gravel. It traverses a flat and rolling terrain.

The Tagbilaran East Road starts at Km. 0+000 and terminates at Km. 138.800. The road moves east of the island passing the port of Jagna and Tagbilaran. It has 7.000 km concrete cement pavement, 61.970 km asphalt and 69.838 km gravel. The pavement condition has been rated fair while the gravel surface has fair to bad conditions. In addition, Jagna Port is approximately 65.00 km from Tagbilaran City.

Moreover, the Detailed Engineering Design of Bohol Circumferential Road was completed under the 14 th ESPL, OECF fund and the proposed civil works were funded by 19 th OECF credit loan for the year 1993.

45. Road to Liloan, Isabel, Ormoc and Maasin Port, Leyte and Southern Leyte Province

The road network that consolidates the islands are the Daang Maharlika Highway (Leyte and Southern Leyte Section), Tacloban-Baybay South Road, Tacloban-Palo-Carigara-Ormoc-Albuera-Baybay Road, Libungao-Matag-ob-Palompon-Isabel-Merida-Ormoc Road. Apparrently, the Leyte Province road network is included in the Rural Roads Network Development Project under the JICA.

The Daang Maharlika Highway (Leyte-Southern Leyte Section) is the

interisland national road. The road section starts at San Juanico Bridge and ends at Liloan Port. The road has a total length of 108.897 km which is 106.897 km of concrete in good condition and the 2.00 km of asphalt concrete pavement is in fair surface condition. The whole pavement width is 6.10 meters and the shoulder width ranges from 2.00 to 2.50 meters. The Liloan Port is basically located at the southern tip of the road and is now in operation.

The Tacloban-Baybay South Road traverses in a southerly direction and passes the town of Baybay, Inopacan, Hilongos, Bato, Matalon, Maasin, Macrolon Padre Burgos, Malitbog, Tomas Uppos, Bontoc and Sogod. The road has a total length of 162.242 km of which 88.477 km is concrete pavement and 93.965 km is gravel surface in fair to bad condition. The road accesses the Maasin Port. The Maasin Port is 77 km from Daang Maharlika Highway, 184 km passing Baybay from Tacloban City and 124 km south of Ormoc City. The section Baybay-Bato is on-going construction under the 17th YEN OECF Package loan.

The third road is the Palo-Carugara-Ormoc-Albuera-Baybay Road which serves the north western section of the island. The road connects the two major commerical and business areas. It has a total length of 147.30 km of good concrete cement pavement. The pavement width is 6.10 meters and the shoulder width is 2.00 meters to 2.50 meters. The road served for hinterland areas of Maasin Port and Ormoc Port.

The fourth road is the Libungao-Palompon-Isabel-Merida-Ormoc Road. The road loop has an approximate length of 101.000 km of which 52.00 km is concrete pavement in good condition and 49.00 km is gravel is fair surface condition. The subsection Isabela-Merida-Ormoc Road has the best access in terms of distance to the commercial and business center. The Libungao-Palompon section is under the second priority of 19th YEN OECF Package Loan.

46. Road to Allen, San Isidro, Northern Samar

The two ports are located at the northwestern section of Samar Island and the approximate distance between the ports is about 30 km. Allen Port

and San Isidro Port are 48 km and 78 km from Catarman town located to the northeast of the port. The Calbayog City is located in the southern portion of port, which is 61 km from Allen and 43 km from San Isidro Port. The roads links securing the port are the Calbayog-San Isidro-Allen- Catarman-Laong Road and the Catarman-Calbayog Road.

The Calbayog-San Isidro-Allen-Catarman-Laong Road has a total length of 117.353 km of which 109.85 km is predominantly of concrete cement pavement in good condition and the remaining 2.50 km gravel surface in fair condition. The road traverses a flat to rolling terrain.

The Catarman-Calbayog Road has an estimated length of 34.756 km of which 33.256 km is gravel and 1.50 km is concrete pavement. The road traverses flat, rolling to mountainous terrain that bisects the provinces.

47. Road to Basilan Port, Basilan

The main road in the Basilan Province is the Maluso-Isabela-Lamitan Road. It has a total length of 62.55 km of which 3.40 km is concrete cement pavement in fair condition, 55.974 km is asphalt pavement also in fair condition and 3.176 km gravel in bad condition.

The road is presently included in the on going Detailed Engineering Design Package P and included under the proposed Highway management Project (HMP) II for 1993.

48. Road to Jolo Port, Sulu

Sulu Island is located at the Southwestern section of Mindanao. One of the roads leading to the Port is the Jolo-Indanan-Parang-Silangkan Road. It has an approximate length 30.540 km of which 10.15 km is concrete cement pavement, 2.550 km asphalt pavement and 17.54 km gravel. The pavement condition varies from fair to bad.

The other road is the Jolo Port-Bud Dako Romandier Road with an approximate length of 17.5 km, where the 1.75 km is concrete cement pavement and the 15.75 km is asphalt pavement. The road has good to fair

pavement condition. These two roads leading to the Port are presently included in the on-going Detailed Engineering Design Package P.

49. Road to Dipolog Port, Zamboanga Del Norte

The roads leading to the Dipolog Port are the Dipolog-Oroquieta Road and the Dipolog-Sindangan Road.

The Dipolog-Oroquieta Road has an approximate length of 71.53 km of which 0.750 km is concrete pavement, 32.621 km asphalt pavement and 37.159 km is gravel surfacing. The road is in good to fair condition. Presently, the road is under the on-going construction implemented by the ADB-4th RIP program.

The other road is the Dipolog-Sindangan Road with an approximate length of 92.427 km, 11.938 km concrete cement pavement, 6.575 km asphalt pavement of 73.914 km gravel. The on-going construction for AC level improvement was financed by ADB 4th RIP program.

50. Road to Pagadian Port and Zamboanga Port, Zamboanga Del Sur

The main access road leading to both Pagadian and Zamboanga Wharf road is the Zamboanga City-Pagadian Road. This road connects both cities with an approximate length of 276.405 km which consists of 33.984 km of concrete cement pavement, 83.321 km asphalt pavement and 159.11 km gravel. The road traverses a flat to mountainous terrain in fair to bad condition. The Buun-Kabansala section is being constructed under the implementation of IBRD-HMP I while the Ipil-Tungawan was proposed for construction under the IBRD-HMP II for 1993.

The road leading to the Pagadian Wharf road stretches about 0.619 km in concrete cement pavement in good condition. The road leading to the Zamboanga Wharf road is about 0.170 km in concrete cement pavement also in good condition.

The road accessing the port toward North-Eastern portion of the island is the Pagadian City-Aurora Road which has an approximate length of 39.098 km.

It is composed of 3.00 km of asphalt pavement in fair condition and 36.078 km gravel surfacing in fair to bad condition. This road section is included under the 5th UNDP feasibility study conducted in 1989. The sub-section Pagadian-Tubkuran on-going construction is under ADB loan.

51. Road to Mambajao and Benoni Port, Camiguin

The only access road leading to the Mambajao Port is the Camiguin Circumferential Road with an approximate length of 64.070 km. It is classified into 1.70 km of concrete cement pavement, 50.664 km asphalt pavement and 11.706 km gravel in fair to bad condition.

Furthermore, the Camiguin Circumferential Road was also included under the Transport Infrastructure Study on Small Island prepared with the assistance of the Federal Republic of Germany, Kredistanstalt fuer Wiederaufbau (KfW).

52. Road to Tangub Port, Misamis Occidental

The Tangub Port is geographically located at the southern section of Misamis Occidental at a distance of 17 km, south of Ozamis City and 60 km south of Oroquieta City. The road traversing the port is the Oroquieta-Tangub-Aurora Road and passes the cities of Oroquieta Ozamqiz and Tangub. The road has a total estimated length of 96.490 kilometers composed of 82.91 km of asphalt pavement and 13.580 kilometers of gravel surface. The pavement is in fair condition except some isolated bad areas along the gravel surface. In addition, the Oroquieta-Molave Section of the road is included under the ADB assisted program for implementation.

53. Road to Cagayan de Oro, Tubod and Balingoan Ports, Misamis Oriental

The major road connecting the Cagayan de Oro Port and the Balingoan Port is the Linamon-Cagayan de Oro-Ampayon Road (ICBR). This road starts from Linamon Iligan City and passes thru Cagayan de Oro City and Butuan City and ternminates at the junction of Daang Maharlika (Ampayon). It has an approximate length of 341.014 km in which 324.037 km is paved with concrete cement pavement and the remaining 16.965 km is asphalt concrete pavement. The entire section traverses a flat to rolling terrain and the surface

condition varies from good to fair.

The road that traverses the Central Mindanao Island is the Misamis Oriental-Bukidnon which is called the Sayre Highway starts at the Iligan-Cagayan de Oro-Butuan Road and ends at the Daang Maharlika Highway in North Cotabato province. The road has a total approximate length of 182.727 km and consist of 5.514 km of concrete, 114.896 km of asphalt concrete and the remaining 62.317 km of gravel surface, which is located along the Maramag-Kabacan- Kibawe Road section, and is being considered for construction under the on-going project of the HMP I for the year 1992.

The roads leading to Marawi City are the Iligan-Marawi and the Tubod-Madalin-Marawi City road. The Iligan-Marawi City Road has an aggregate length of 24.222 km paved with concrete cement pavement in fair condition, while the Tubod-Madalin-Marawi City Road has a total length of 63.500 km and consists of 21.976 km of concrete pavement in fair condition and 41.523 km of gravel surface in fair to bad condition.

The Cagayan de Oro Port Road has a total length of 2.487 km paved with concrete pavement in good condition and the Tubod Wharf Road is paved with concrete cement pavement also in fair condition and has a total length of 1.735 km.

54. Road to Lipata Port, Surigao del Norte and Davao Port, Davao City

Lipata Port is geographically located in the northeast section of Mindanao and Davao Port is also lacated at the eastern section of the Island. The ports are inter-related by the Daang Maharlika Highway which is divided into three subsections, namely, the Surigao-Agusan Road, Agusan-Davao Road and the Davao-Digos Road.

The Surgao-Agusan Road has an approximate length of 108.681 km of cement concrete pavement in good condition and traverses a flat to rolling terrain. The road passes the city of Surigao and the town of Tubod, Santiago and Cabadbaran. The Agusan-Davao Road follows a flat, rolling and mountainous terrain. It has and aggregate length of around 270.193 km composed of 265.781 km of paved concrete cement and 4.412 km paved with

asphalt cement concrete. The road has fair surface conditions.

Another Subsection is the Davao-Digos Road located to the south of Davao City. The road starts at Davao City and terminates in Digos with a total length of 51.930 km. The road is composed of 36.180 km of concrete pavement and 15.750 km of gravel surface both in fair condition. The road is included under the on-going Detailed Engineering Design Package M for Improvement financed by the IBRD-HMP I for 1992.

The main road going to the Central Mindanao is the Davao-Bukidnon Road. The road follows a flat, rolling to mountainous terrain. It has an aggregate length of 148.015 km consisting of 30.13 km of asphalt cement concrete pavement and 117.885 km of gravel surface. The width of the pavement varies from 6.00 meters up to 10.00 meters wide while the surface conditions range from fair to bad.

55. Road to Babak Port, Samal Island

The road of samal Island is generally under the implementation of the Department of Tourism. The island is one of the tourist zones in the Philippines.

The Babak Port-Samal-Anonay Road has an approximate length of about 17.300 km of gravel surface. The width of the pavement varies from 4.00 meters to 6.00 meter wide. The other road connecting with the main road is the Anonay-Kaputian which has an approximate length of 5.6 km of gravel surface in fair condition.

Table 4-4(1) Road Links to the Study Ports

NAME OF ROAD LINK	PCC	AC	GRAVEL	TOTAL LENGTH	REMARKS
1. DINALUPIHAN-BALANGA-MARIVELES PORT ROAD (EXPRESSWAY)	10.911	56.842		67.453	paved/good condition
2. BATAAN-PAMPANGA-BULACAN-MANILA COASTAL ROAD				A- I = 53.7 A- II = 58.3 A-III = 59.20	on-going review of Feasibility Study and Detailed Engineering Design for the implementation of IBRD LOAN PROGRAM
3. SAN FERNANDO-OLONGAPO ROAD	38.227	78.437	0.639	117.303	Paved/fair condition, some section are affect by lahar,on-going F.S. under IBRD
4. MANILA-BATANGAS ROAD	64.250	38.270		111.660	Sto. Tomas-Lipa Sect. on-going improvement and widening by IBRD-MMP
5. CAVITE CITY-MANILA (COASTAL ROAD)	34.000			34.000	paved/good condition
6. NOVELETA-NAIC-MENDEZ-TAGAYTAY	13.400	38.830		52.230	paved/good condition
7. TAGAYTAY-PALICO-LEMERY-BATANGAS CITY	1.820	55.780		57.880	paved/good condition
8. BATANGAS PROPER-BATANGAS PIER	1.691	1.000		2.691	CBD-Batangas,Phase by Phase construction
9. LUCENA-COTTA PORT ROAD		4.201		4.201	paved/good condition
10. BATANGAS-ROSARIO-CANDELARIA	24.780	26.560		51.340	paved/fair condition
11. DAANG MAHARLIKA (SAN PABLO CITY-DAET)	263.000			263.000	paved/good condition
12. PUERTO PRINCESA NORTH ROAD	0.214	1.300	281.294	283.189	1.under the on-going Feasibility Studies of roads in Luzon, Visayas and Mindanao;, Puerto Princesa-Taytay-El Nido, 98 kms. 2. on-going construction Puerto Princesa-Salvacion-Langogan Sect.,81 kms AC level 3. partly on-going Detailed Engineering undertaken by 5th ADB loan
13. CALAPAN SOUTH BULALACAO SAN JOSE ROAD	0.815	110.739	72.735	184.289	partly commited under RIF (USAID), about 21 kms Detailed Engineering Design (appropriation 1991-1992 budget)
14. MAMBURAO NORTH PUERTO GALERA ROAD	4.717	0.794	30.544	36.055	
15. MAMBURAO-SOUTH BULALACAO ROAD	2.470		177.373	179.843	partly bidded under RIF (USAID),28 kms
16. CALAPAN SAN TEODORO PRTO GALERA ABRA DE ILOG ROAD	0.375	16.390	41.400	58.165	for Detailed Engineering
17. BALANACAN-MOGPOG ROAD		4.450	5.312	9.782	under the Philippines Island Road Feasibility Study undertaken Asian Development Bank
18. BOAC-MOGPOG STA. CRUZ-TORRIJOS	2.200	24.600	33.200	60.000	Assistance Program, March 1988
19. TORRIJOS-BUENAVISTA-GASAN BOAC		22.200	16.989	39.489	same as No.17 and 18

Table 4-4(2) Road Links to the Study Ports

NAME OF ROAD LINK	PCC	AC	GRAVEL	TOTAL LENGTH	REMARKS
20. ODIONGAN-LOOC-ALCANTARA	0.177	12.838	26.453	39.468	1 st priority under 18th yen OECF loan
21. ODIONGAN-SAN AGUSTIN-ALCANTARA	0.076	29.888	58.972	88.156	3rd priority under OECF loan
22. MASBATE PORT	0.540	0.320		0.860	paved/good to fair condition
23. MASBATE-MILAGROS ROAD	1.147	0.911	18.825	20.885	on going construction AC improvement level
24. MASBATE-CATAINGAN PLACER-BARACA	2.746	20.464	26.393	49.597	Malinta-Milagros-Mobo-Dimasalang-Cataingan Placer,58.7 kms (Malinta-Mobo Section not included).
25. DAANG MAHARLIKA (ALBAY-SORSOGON)	164.260	0.300		164.560	paved/good condition
26. JCT. VIRAC-PIER			0.534	0.530	paved/fair condition
27. CATANDUANES CIRCUMFERENTIAL ROAD	28.890	17.660	116.191	204.750	on going D.E. and considered in HMP-2nd IBRD CY 1993
28. TABACO-LIGAO	15.600	1.997	9.600	25.997	fair condition
29.BULAN PORT-BULAN GATE	13.070	0.250		13.320	paved/good to fair condition
30. BACOLOD NORTH ROAD	32.378	129.597		161.960	paved /fair condition
31. BACOLOD SOUTH ROAD	8.626	89.368		98.000	
32. SIBUCAO-LA CARLOTA-LA CASTELLANA-VALLEHERMOSO	9.670	9.598	49.590	59.858	on-going Detailed Engineering Design HMP I
33. SAN CARLOS PORT ROAD	1.60			1.60	PAVED/GOOD CONDITION
34. JCT. PULUPUNDAN-PULUPUNDAN PIER	3.130	1.630		4.780	paved/good to fair condition
35. JCT. BACOLOD NORTH ROAD-ESCALANTE PORT		2.100	5.600	7.700	on-going construction under 5th IBRD loan
36. GUIMARAS CIRCUMFERENTIAL ROAD	5.600	22.225	97.820	125.640	on-going Detailed Engineering Package I (34 Kms.)
37. DUMAGUETE PORT ROAD		0.638		0.638	paved/fair condition
38. DUMAGUETE NORTH ROAD	30.500	89.206	44.738	164.444	on-going construction under ADB 4th RIP
39. KABANKALAN-BAIS CITY		3.000	40.670	43.670	on-going construction under ADB 4th RIP
40. DUMAGUETE-SIATON-BAYAWAN-CAUAYAN-KABANKALAN	38.60	52.60	186.65	276.65	on-going construction under ADB 4th RIP
41. BAYAWAN-KABANKALAN		3.00	63.10	66.10	on-going construction under ADB 4th RIP
42. ILOILO NORTH ROAD (ILOILO-PASSI-JCT CAPIZ-AKLAN RD)	36.000	76.000		112.000	paved/fair condition

Table 4-4(3) Road Links to the Study Ports

NAME OF ROAD LINK	PCC	AC	GRAVEL	TOTAL LENGTH	REMARKS
43. ILOILO-BAROTAC VIEJO-AJUY-ESTANCIA-IVISAN-KALIBO ROAD	74.44	51.44	137.47	263.35	Kalibo-Ivisan Section,on-going construction AC improvement levelunder RIP (USAID GRANT)
44. ILOILO EAST COAST JCT.-ESTANCIA WHARF	3.860		2.431	6.291	fair condition
45. ILOILO-SAN JOAQUIN-SAN JOSE-KALIBO ROAD	38.00	70.00	169.500	277.500	partly under the proposed 18th YEN OECF fund
46. J.M. BASA-GEN. HUGHES PORT-SAN PEDRO PORT ROAD	2.200			2.200	paved/fair condition
47 TAGBILARAN NORTH ROAD (BOHOL CIRCUMFERENTIAL RD)	15.000	31.255	74.145	122.400	proposed construction under 19th YEN for civil works and PCC level of
48. BILARAN EAST ROAD (BOHOL CIRCUMFERENTIAL RD)	7.000	61.970	69.830	138.800	improvement (260 kms.) CY 1993-1996
49. SIQUIJOR CIRCUMFERENTIAL ROAD		25.000	50.731	50.731	Feasibility Study undertaken by KfW
50. CEBU-SOGOD-JCT LUGO (CEBU NORTH ROAD) JCT. LUGO-TABUELAN	18.000	40.100 4.300	13.850	58.100 18.250	on-going construction implemented by HMP-I IBRD assistance program
51. TOLEDO-TABUELAN ROAD	22.000		39.460	61.460	on-going construction Toledo-Asturias sect. 32 kms. including four new bridges,ADB
52. CEBU-TOLEDO WHARF (TABUNOK)	2.000	21.700	17.000	40.700	considered under HMP-II project CY 1993
53. TOLEDO-MANTALONGON		18.850	16.650	27.500	Toledo-Asturia Section on-going construction funded by ADB
54. CEBU-SOUTH ROAD (CARCAR-BATO)	40.000	62.000	41.000	143.000	on-going construction funded by ADB-4th RIP
55. CARCAR-BARILI-DUMANJUG ROAD		12.00	18.00	30.00	on-going construction funded by ADB-4th RIP
56. MAHARLIKA HIGHWAY (LEYTE-SOUTHERN LEYTE)	106.897	2.000		108.897	paved/fair condition
57. TACLOBAN-BATBAY SOUTH ROAD	88.477		73.965	162.242	on-going construction Bay-bay-Bato under 17th OECF Package Loan
58. PALO-CARIGARA-ORMOC	20.000			20.000	paved/good condition
59. LIBUNGAO-MATAGOB-PALOMPON ROAD	2.200		32.000	43.200	2nd priority for 19th YEN Package CY 1993
60. ORMOC-MERIDA-ISABEL-PALOMPON ROAD	49.800		17.000	66.800	paved/good condition
61. PALO-ORMOC-ALBUERA-BATBAY	127.300		0.000	127.300	paved/good condition
62. BOUNDARY-MATALOM-MAASIN ROAD(BATBAY SOUTH ROAD)			20.000	20.000	on-going under OECF FUND
63. SAN ISIDRO-ALLEN-CATARMAN ROAD	50.740			50.740	paved/fair condition

Table 4-4(4) Road Links to the Study Ports

NAME OF ROAD LINK	PCC	AC	GRAVEL	TOTAL LENGTH	REMARKS
64. SAN ISIDRO-ALLEN-CALBAYOG ROAD	28.000			28.000	paved/fair condition
65. CATARMAN-LAONG	46.653			46.653	paved/fair condition
66. CATARMAN-CALBAYOG	1.500		33.256	34.756	on-going const. all bridges under PMO-SIRDP
67. MALUSO-ISABELA-LAMITAN-TUBURAN	3.400	55.974	3.176	62.550	ongoing Detailed Engineering Design Package P and under the proposed HMP II for CY 1993
68. JOLO-INDANAN-PARANG-SILANGKAN	16.150	2.550	17.540	30.540	fair condition
69. JOLO PORT BUD DAKO ROMANDIER ROAD	1.750	15.750		17.500	paved/good to fair condition
70. DIPOLOG-OROQUIETA ROAD	0.750	32.621	37.159	71.530	on-going construction funded by ADB-4th RIP
71. DIPOLOG-SIRDANGAN ROAD	11.938	6.575	73.914	92.427	on-going construction,AC level of imprvt. finance by 4th ADB program
72. PAGADIAN WHARF ROAD	0.619			0.619	paved/good condition
73. ZAMBOANGA-PAGADIAN	33.984	83.321	159.111	276.485	I.Bung-Labangalan on-going const (IBRD-HMP I) II. Ipil-Tungawan proposed for construction under IBRD-HMP II FOR CY 1993
74. ZAMBOANGA WHARF ROAD	0.170			0.170	paved/good condition
75. AURORA-PAGADIAN CITY		3.000	36.098	39.098	5th UNDP Feasibility Study completed CY 1989 Pagadian-Tukuran section on-going construction under ADB loan
76. CAMIGUIN CIRCUMFERENTIAL ROAD	1.700	50.664	11.706	64.070	included under Transport Infrastructure Study on Small Island undertaken by the Kfw CY 1988
77. OROQUIETA-TANGUB-AURORA ROAD		82.910	13.588	96.498	Oroquieta-Molave Sect. on-going construction under ADB assisted program
78. ILIGAN CITY-MARAWI	24.222			24.222	paved/fair condition
79. LINAMON-ZAMBOANGA ROAD(AURORA)	28.309	15.450	50.589	94.348	Iligan-Aurora section on-going construction by the ADB assisted Program
80. MISAMIS ORIENTAL-BUKIDNON (SAYRE HIGHWAY)	5.514	114.696	62.317	182.727	Maramag-Kabacan-Kibawe being considered under HMP I for construction CY 1992
81. DAVAO-BUKIDNON		30.130	117.885	148.015	line-up for constn. under the HMP II CY 1993
82. CAGAYAN DE ORO PORT	2.487			2.487	paved/good condition
83. LINAMON-CAGAYAN DE ORO- AMPAYON ROAD	324.057	14.487	2.470	341.014	paved/good condition

Table 4-4(5) Road Links to the Study Ports

NAME OF ROAD LINK	PCC	AC	GRAVEL	TOTAL LENGTH	REMARKS
84. DAANG MAHARLIKA (SURIGAO-AGUSAN ROAD)	168.681			168.681	paved/good condition
85. DAANG MAHARLIKA (AGUSAN-DAVAO ROAD)	265.781	4.412		270.193	paved/fair condition
86. DAVAO-DIGOS	36.180		15.750	51.930	on-going Detailed Engineering Package X for improvement IBRD HMP I CY 1992
87. TUBOD WHARF	1.735			1.735	paved/good condition
88. TUBOD-MADALIN-MARAWI CITY	21.976		41.523	63.500	fair condition
89. BARAS PORT-SAMAL-ANONAY			17.300	17.300	under implementation of the Department of Tourism
90. ANONAY-KAPUTIAN			5.600	5.600	

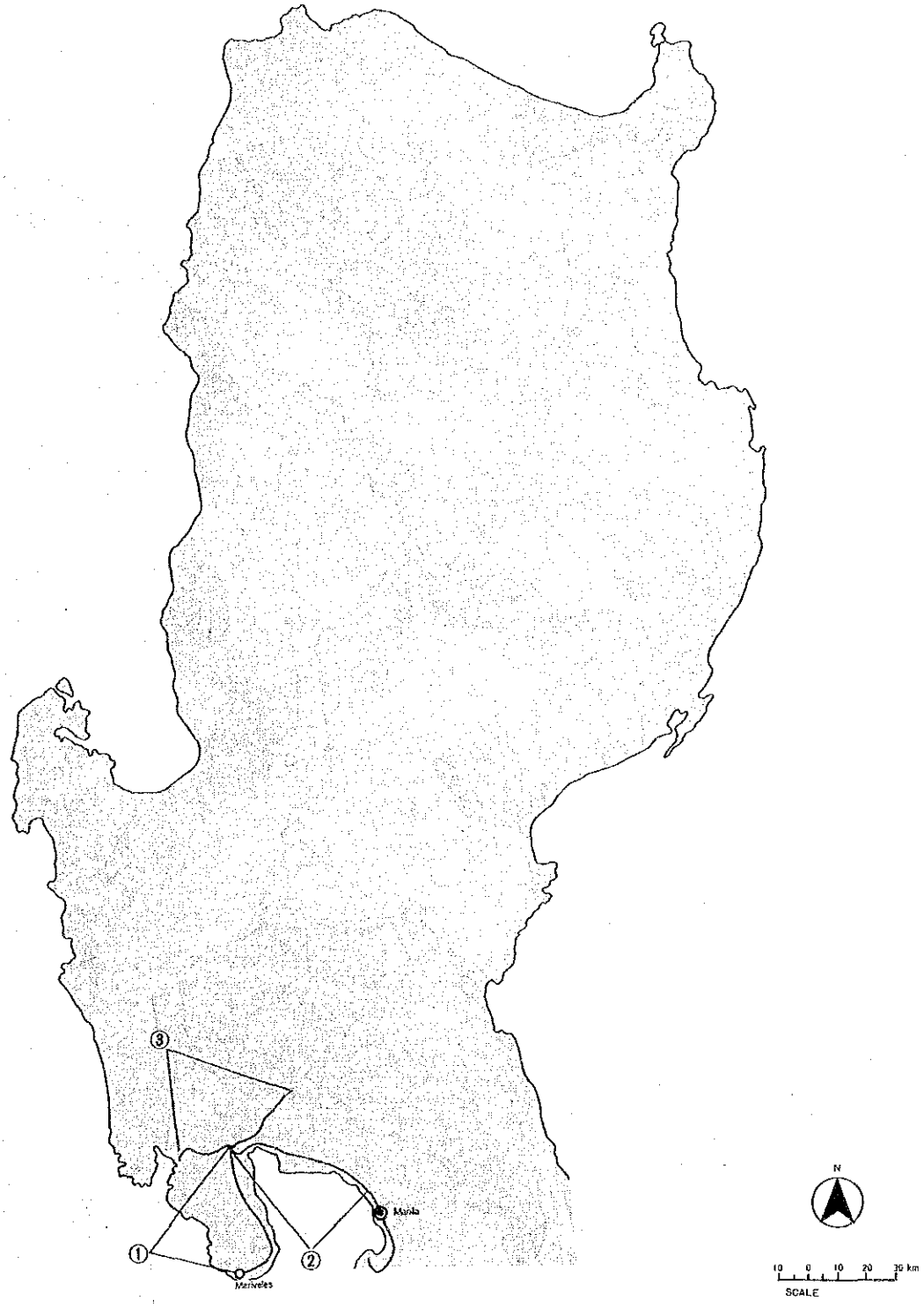

Figure 4-4(1) Road Links to the Study Ports

Source: DPWH

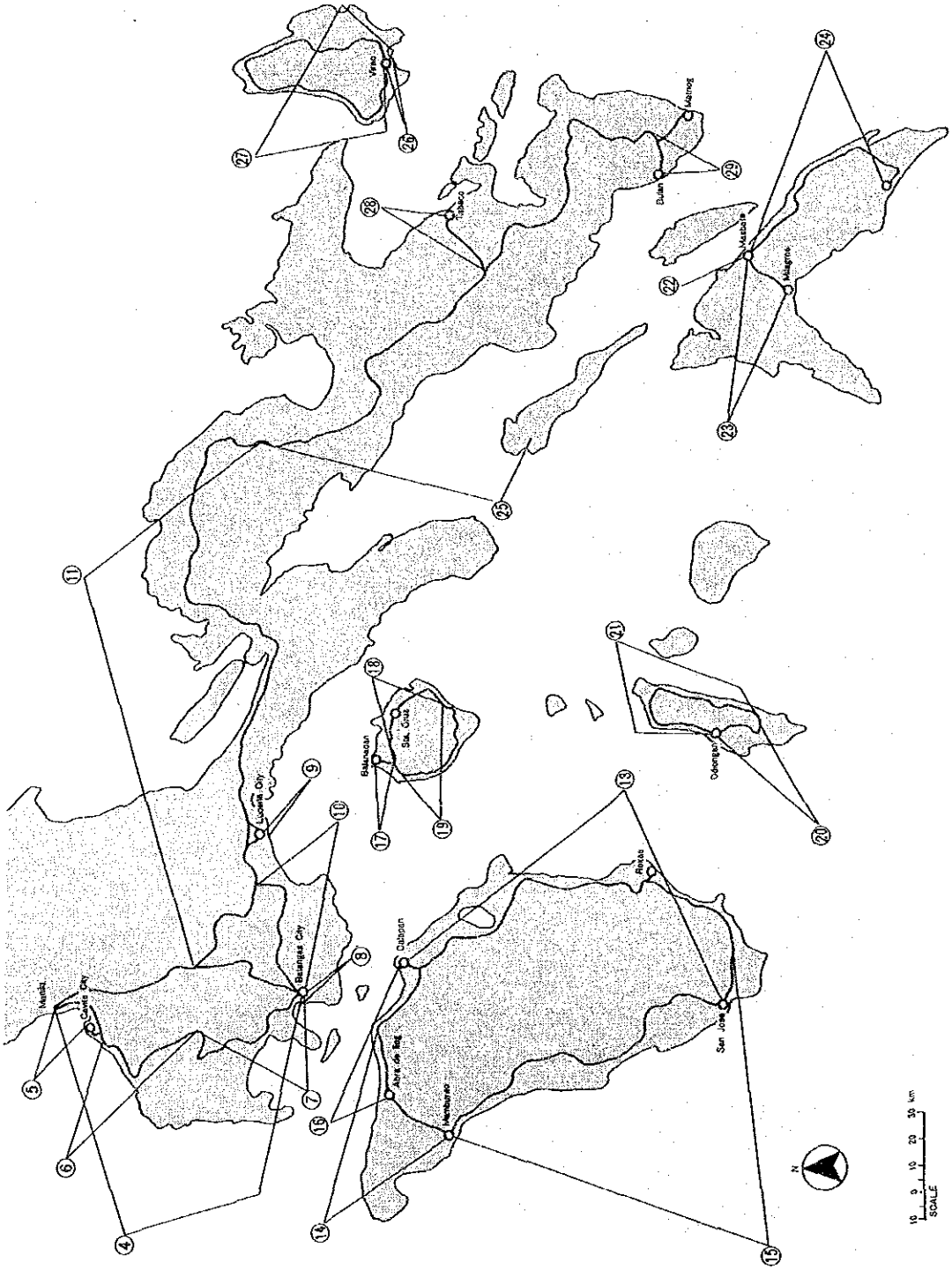

Figure 4-4(2) Road Links to the Study Ports

Source: DPWH

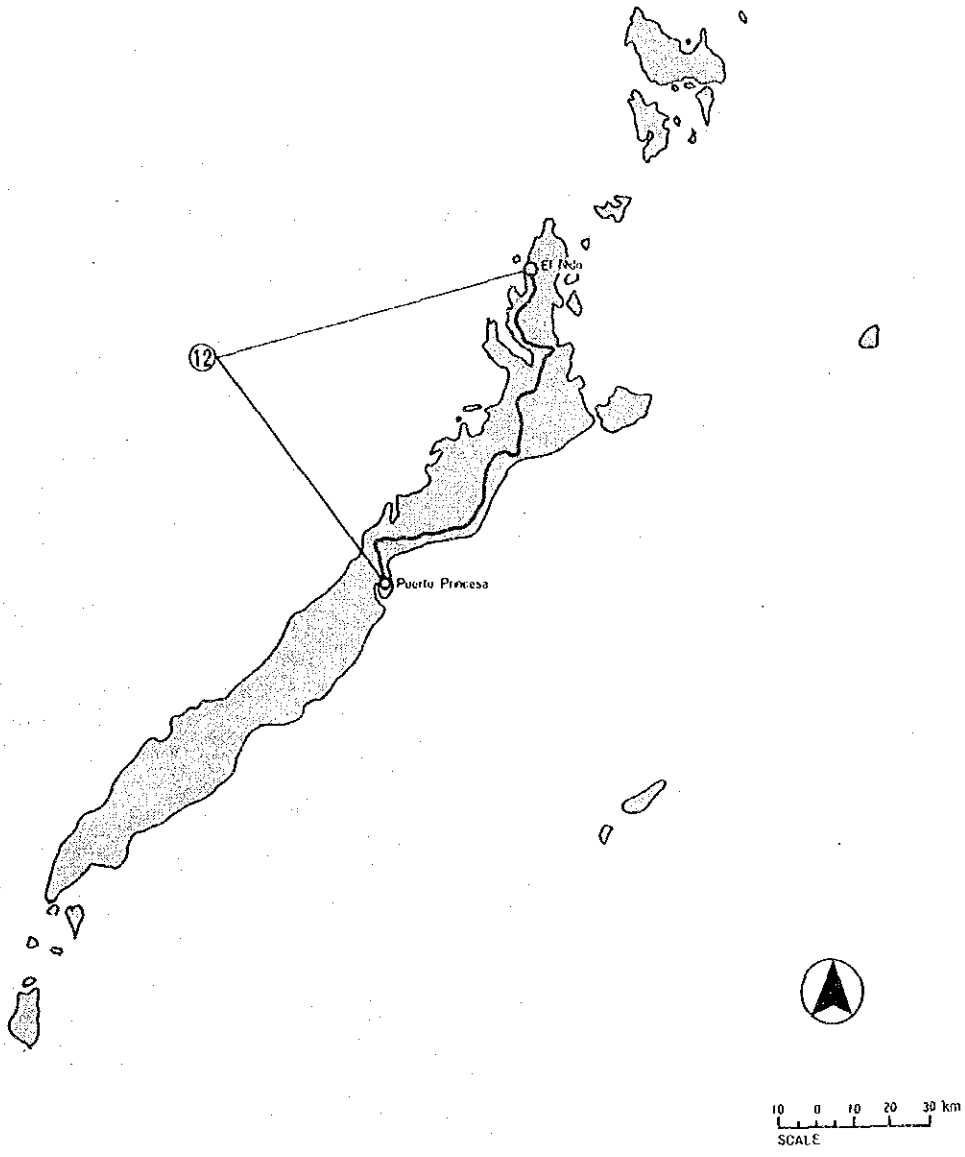

Figure 4-4(3) Road Links to the Study Ports
Source: DPWH

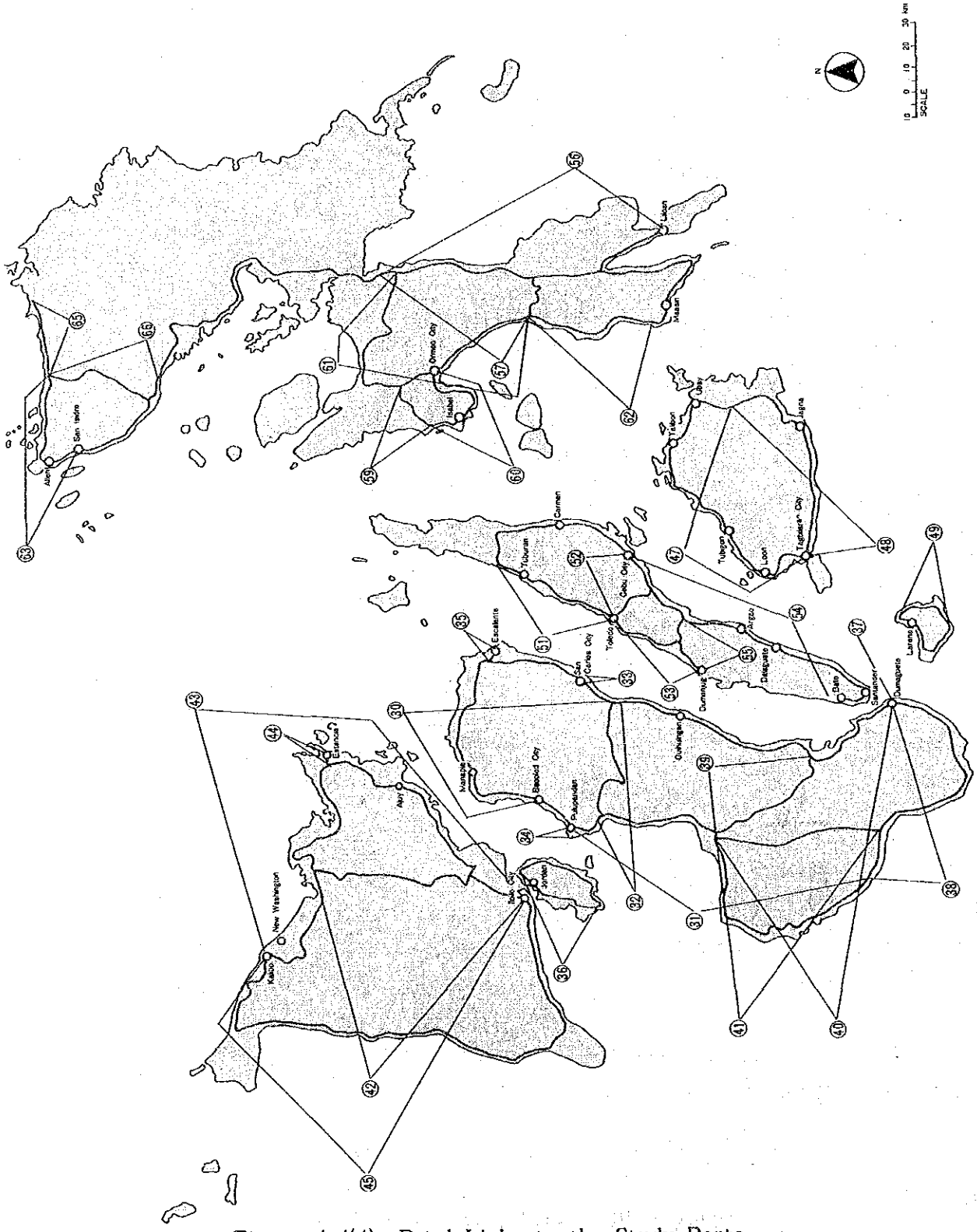

Figure 4-4(4) Road Links to the Study Ports
Source: DPWH

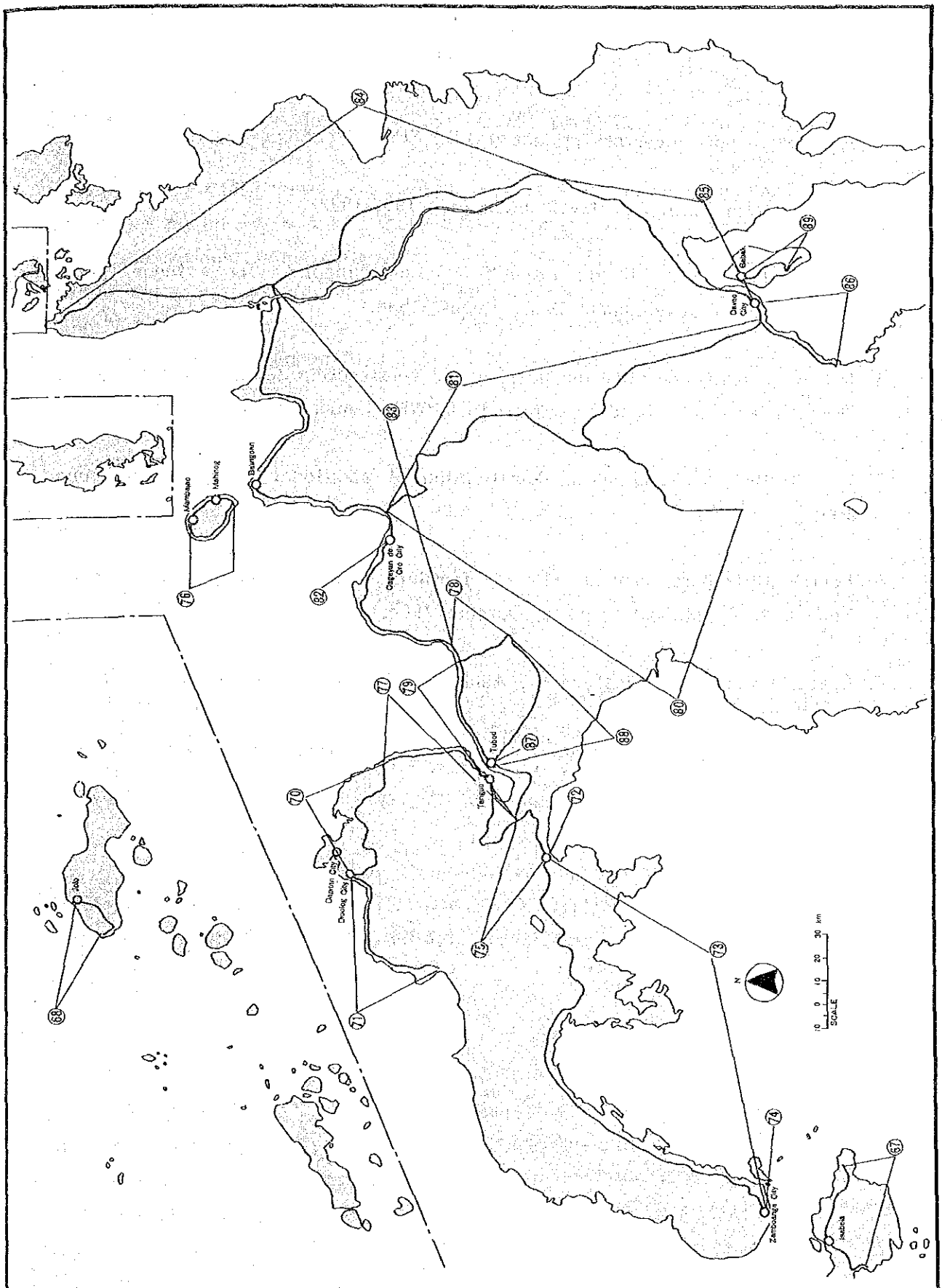

Figure 4-4(5) Road Links to the Study Ports
Source: DPWH

[References]

1. A guide to port inventory project (P.I.P.) PPA, December 1990.

2. Medium-term Philippine Development Plan 1987-1992.

3. Technical assistance to the Republic of the Philippines for a feeder ports project, Asian Development Bank, August 1988.

4. Master planning, detailed engineering and construction feeder ports program, Master plan report (Under package I), DPWH, January 1991.

5. Fourth IBRD ports project, Identification of additional ports, PPA, June 1988.

6. Fourth IBRD ports project, Phase I feasibility studies, Daft final report, Volume V, Rehabilitation ports, October 1984.

7. Feeder ports study, Final report, Asian Development Bank, October 1989.

8. Inception report, National roll-on/roll-off transport system development study, IATCTP, October 1989.

Chapter 5 Natural Condition

A. Data on Natural Conditions for Each of the Study Ports

1. Data and information on natural conditions for each study port gathered are summarized in Table 5-1. These were mostly collected from study reports, detailed design and construction, i.e. "Third and Fourth IBRD Ports Project", "Fishing Ports Project Packages I and II", "Siltation Study", "Road Feasibility Studies", "OECF Feeder Ports Project", "ADB Feeder Port" and "Reconnaissance Survey for Batangas-Calapan Route, Bicol, Eastern Visayas and Surigao".

B. Meteorological Data

Temperature

2. According to PAGASA report, the average annual temperature are as follows:

All over the Philippine:	annual average is	26.6°C
Luzon Area	:	26.0°C (including 25 stations)
Visaya Area	:	27.5°C (including 14 stations)
Mindanao Area	:	27.1°C (including 10 stations)

3. The distribution map of Dry-Bulb, normal maximum temperature and normal minimum temperature for the period 1951-1980 for all over the Philippines are shown in Figures A-1-5-1 through A-1-5-3 in Appendices.

Rainfall

4. The rainfall in Philippines is mainly caused by Monsoon (North-East and South-West) and tropical cyclone. The rainy months, June to December, coincide with the typhoon season, the Southwest monsoon and the first three months of the Northeast monsoon. Only the eastern coastal area have rainfall from the month of October to March when the Northeast monsoon is predominant. Tropical cyclone will lead the large amount of rainfall. The affection of thunder storm and weather front to the rainfall is much smaller than tropical cyclone.

Table 5-1 Existing and Available Data on Natural Conditions for Each Study Ports

No	PORT NAME	PROVINCE	Meteological Data (Wind)	Maritime Data			Drift Sand	Soil Data	Plan/ Topo	Sound-ing	Seismic Factor	Related Projects
				Wave	Tide	Current						
1	MARIVELES	BATAAN			O				O	O	O	
2	CAVITE	CAVITE			O				O	O	O	
3	LUCENA	QUEZON	O	O	O			O	O	O	O	Fishing Port Proj. (DPWH) 4th IBRD Ports Proj. (PPA) Development Plan (DPWH)
4	BATANGAS	BATANGAS	O	O	O	O	O	O	O	O	O	Detail Design(PPA) Road F/S, IBRD (DPWH) Siltation Study (PPA) Reconnaisance Survey (Inter agency)
5	CALAPAN	MINDRO ORIENTAL	O	O	O			O	O	O	O	4th IBRD Ports Proj. (PPA) Reconnaisance Survey (Inter agency)
6	ROXAS	MINDRO ORIENTAL							O	O	O	
7	ABLA de ILOG	MINDORO OCC.							O	O		
8	SAN JOSE	MINDORO OCC.	O	O	O			O	O	O	O	4th IBRD Ports Proj. (PPA)
9	BALANACAN	MARINDUQUE							O		O	
10	STA. CRUZ	MARINDUQUE			O			O	O	O	O	4th IBRD Ports Proj. (PPA)
11	DDIONGAN	ROMBLON							O	O	O	
12	EL NIDO	PALAWAN						O	O	O	O	DECF Feeder Port(DPWH)
13	PUERTO PRINCESA	PALAWAN			O				O		O	
14	TABACO	ALBAY			O			O	O	O	O	4th IBRD Ports Proj. (PPA)
15	MATNOG	SORSOGON			O				O			P - J Ferry Proj. (DPWH)
16	BULAN	SORSOGON							O	O	O	
17	VIRAC	CATANDUANES			O				O	O	O	
18	MASBATE	MASBATE	O	O	O			O	O	O	O	4th IBRD Ports Proj. (PPA)
19	MILAGROS	MASBATE							O		O	
20	ILOILO CITY	ILOILO	O	O	O	O	O	O	O	O	O	Road F/S, IBRD (DPWH) Fishing Port Proj. (DPWH) 3rd IBRD Ports Proj. (PPA) Siltation Study (PPA)
21	ESTANCIA	ILOILO			O			O	O	O	O	DECF Feeder Port(DPWH)
22	AJUY	ILOILO						O	O	O	O	DECF Feeder Port(DPWH)
23	DUMAGUIT	AKLAN							O			
24	JORDAN	GUIMARAS							O	O	O	
25	BACOLOD	NEGROS OCC.			O				O	O	O	Road F/S, IBRD (DPWH)
26	PULUPANDAN	NEGROS OCC.	O	O	O	O	O	O	O	O	O	4th IBRD Ports Proj. (PPA)
27	SAN CARLOS	NEGROS OCC.			O				O	O	O	
28	ESCALANTE	NEGROS OCC.							O	O	O	
29	MANAPLA	NEGROS OCC.							O	O	O	
30	DUMAGUETE	NEBROS ORIENTAL			O			O	O	O	O	Road F/S, IBRD (DPWH)
31	TANDAYAG	NEBROS ORIENTAL							O		O	
32	QUIBULNGAN	NEBROS ORIENTAL							O		O	
33	CEBU CITY	CEBU	O	O	O	O	O	O	O	O	O	Road F/S, IBRD (DPWH) Fishing Port Proj. (DPWH) 3rd IBRD Ports Proj. (PPA) Siltation Study (PPA)
34	CARMEN	CEBU			O				O		O	
35	TUBURAN	CEBU			O				O		O	
36	TOLEDO	CEBU			O				O	O	O	Road F/S, IBRD (DPWH)
37	DUMANJUG	CEBU			O				O		O	
38	BATO(SAMBOAN)	CEBU							O		O	
39	SANTADER	CEBU									O	
40	DALAGUETE	CEBU							O		O	ADB Feeder Port(DPWH)
41	ARGAO	CEBU							O		O	
42	TALIBON	BOHOL							O		O	Road F/S, IBRD (DPWH)
43	TUBIGON	BOHOL			O				O	O	O	Road F/S, IBRD (DPWH)
44	LOON	BOHOL							O	O	O	
45	TAGBILARAN	BOHOL	O	O	O			O	O	O	O	4th IBRD Ports Proj. (PPA) Road F/S, IBRD (DPWH)
46	JAGNA	BOHOL							O	O	O	
47	UBAY	BOHOL			O			O	O	O	O	DECF Feeder Port(DPWH) Road F/S, IBRD (DPWH)
48	LARENA	SIQUIJOR							O		O	
49	ALLEN	NORTHERN SAMAR									O	
50	SAN ISIDORO	NORTHERN SAMAR							O	O	O	P - J Ferry Proj. (PPA)
51	ORMOC	LEYTE			O			O	O	O	O	4th IBRD Ports Proj. (PPA)
52	ISABEL	LEYTE		O	O			O	O	O	O	Private Proj. (Philpos) Development Plan (DPWH)
53	MAASIN	SOUTHERN LEYTE			O				O		O	
54	LILOAN	SOUTHERN LEYTE			O				O	O	O	P - J Ferry Proj. (PPA)
55	PULAUAN	ZAMBOANGA DELNOR							O		O	4th IBRD Ports Proj. (PPA)
56	ZAMBOANGA	ZAMBOANGA DELSUR	O	O	O			O	O	O	O	3rd IBRD Ports Proj. (PPA)
57	BASILAN	SULU(TAP. GROUP)							O	O	O	
58	JOLO	SULU(JOLO GROUP)			O				O		O	
59	CAGAYAN DE ORO	MISAMIS ORIENTAL	O	O	O			O	O	O	O	3rd IBRD Ports Proj. (PPA) Fishing Port Proj. (DPWH)
60	BALINGOAN	MISAMIS ORIENTAL							O		O	
61	TANGUB	MASAMIS OCC.							O		O	
62	LIPATA	SURIGAO DELSUR							O	O	O	P - J Ferry Proj. (PPA)
63	MAMBAJAO	CAMIGUIN			O				O			
64	BENONI	CAMIGUIN							O		O	ADB Feeder Port(DPWH)
65	TUBOD	LANAO DENORTE							O		O	ADB Feeder Port(DPWH)
66	DAVAO CITY	DAVAO CITY	O	O	O	O	O	O	O	O	O	3rd IBRD Ports Proj. (PPA) Fishing Port Proj. (DPWH) Siltation Study (PPA)
67	BABAK	SAMAL ISLAND							O	O	O	

Source: JICA Study Team