

# MASTER PLAN STUDY ON COASTAL SHIPPING REHABILITATION AND DEVELOPMENT PROJECT IN VIETNAM

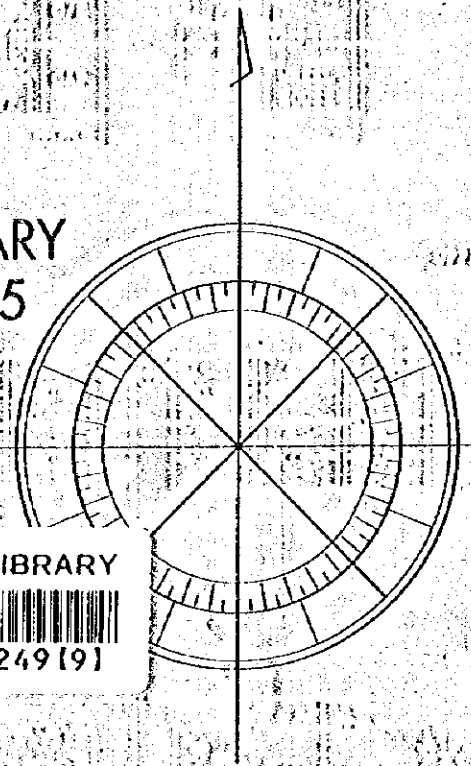
Final Report  
**SUPPLEMENTARY  
REPORTS Vol.5**

Coastal  
Shipping  
Traffic  
Demand

JICA LIBRARY



J 1135249(9)



March 1997

The Maritime International Cooperation Center of Japan (MICC)  
Overseas Shipbuilding Cooperation Centre (OSCC)  
AIMEC Corporation

SSF

JR

97-027(7/7)

The exchange rate used in the report is  
J. Yen 110 = US\$ 1 = Vietnam Dong 11,000  
J. Yen 1 = Vietnam Dong 100  
(average during FY 1995-1996)

**JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)  
MINISTRY OF TRANSPORT (MOT), VIETNAM**

**MASTER PLAN STUDY ON  
COASTAL SHIPPING REHABILITATION AND DEVELOPMENT PROJECT  
IN VIETNAM**

**FINAL REPORT  
SUPPLEMENTARY REPORTS Vol. 5  
Coastal Shipping Traffic Demand**

**March 1997**

**THE MARITIME INTERNATIONAL COOPERATION CENTER OF JAPAN (MICC)  
OVERSEAS SHIPBUILDING COOPERATION CENTER (OSCC)  
ALMEC CORPORATION**



1135249(9)

# SUPPLEMENTARY REPORTS VOLUME 5

## TABLE OF CONTENTS

<b>Chapter 1</b>	<b>PRESENT COASTAL SHIPPING TRAFFIC</b>	<b>1-1</b>
1.1	Zoning System and Commodity Classification	1-1
1.2	Port Traffic Survey	1-12
1.3	Traffic Flows	1-15
<b>Chapter 2</b>	<b>FUTURE COASTAL SHIPPING TRAFFIC</b>	<b>1-31</b>
2.1	National Traffic Demand Forecast	1-31
2.2	Forecast of Future Demand	1-31
2.3	Commodity Flows	1-33
<b>APPENDICES</b>		
1	Port Profile	1-70
2	Shipcall Records	1-116
3	Pictures & Port Location	1-158

## SUPPLEMENTARY REPORTS VOLUME 5

### LIST OF TABLES

1.1.	Zoning System for Traffic Demand Forecast	1-1
1.2.	Profile of Domestic Zones (1/7-7/7)	1-2
1.3	Commodity Classification and Vessel Type	1-11
1.4	Port Traffic Survey in 1995	1-14
1.5	1995 Cargo O-D Table (All Cargoes)	1-16
1.6	1995 Cargo O-D Table (Agricultural Products)	1-17
1.7	1995 Cargo O-D Table (Construction Material & Mining Products)	1-18
1.8	1995 Cargo O-D Table (Wet Cargo)	1-19
1.9	1995 Cargo O-D Table (Bulky Cargoes)	1-20
1.10	1995 Cargo O-D Table (Cement)	1-21
1.11	1995 Cargo O-D Table (Other Cargoes)	1-22
1.12	Summary of Domestic Seaborne Traffic in 1995	1-27
1.13	Summary of Overseas Traffic through Vietnamese Ports in 1995	1-28
1.14	Results of Passenger Shipping Survey	1-29
2.1	Traffic Demand Forecast 2000-2010	1-31
2.2	Comparison of Traffic Patterns with/ without the Dung Quat Project	1-32
2.3	Revised Traffic Demand Forecast 2000-2010	1-33
2.4	Future Coastal Shipping Traffic Demand by Commodity Group	1-34
2.5	Projection of Foreign Trade through Vietnamese Ports	1-35
2.6	Estimation of Foreign Trade of Laos through Vietnamese Seaports	1-37
2.7	Summary of Transit Cargo by Port	1-38
2.8	Target of Vietnam Tourism Development	1-40
2.9	Passenger Traffic Demand Forecast (2000-2010)	1-41
2.10	Basis for Commodity Flow Estimation	1-43
2.11	2000 Cargo O-D Table (All Cargoes)	1-45
2.12	2000 Cargo O-D Table (Agricultural Products)	1-46
2.13	2000 Cargo O-D Table (Construction Material & Mining Products)	1-47
2.14	2000 Cargo O-D Table (Wet Cargo)	1-48
2.15	2000 Cargo O-D Table (Bulky Cargoes)	1-49
2.16	2000 Cargo O-D Table (Cement)	1-50
2.17	2000 Cargo O-D Table (Other Cargoes)	1-51
2.18	2010 Cargo O-D Table (All Cargoes)	1-56
2.19	2010 Cargo O-D Table (Agricultural Products)	1-57
2.20	2010 Cargo O-D Table (Construction Material & Mining Products)	1-58
2.21	2010 Cargo O-D Table (Wet Cargo)	1-59
2.22	2010 Cargo O-D Table (Bulky Cargoes)	1-60
2.23	2010 Cargo O-D Table (Cement)	1-61
2.24	2010 Cargo O-D Table (Other Cargoes)	1-62
2.25	Forecast Traffic Movement by Cargo Type	1-68

## SUPPLEMENTARY REPORTS VOLUME 5

### LIST OF FIGURES

1.1	Preparation of Cargo O-D Tables	1-1
1.2	Zoning System	1-2
1.3	Coastal Shipping Traffic Flow by Commodity in 1995	1-23
1.4	Traffic Volume of Passenger Shipping by Zone	1-30
2.1	Subregional Countries	1-39
2.2	Traffic Volume of Passenger Shipping by Zone	1-42
2.3	Coastal Shipping Traffic Flow by Commodity in 2000	1-52
2.4	Coastal Shipping Traffic Flow by Commodity in 2010	1-63
2.5	Results of Traffic Assignment Works (Except Oil Haulage)	1-69





## GLOSSARY OF TERMS

ADB	Asian Development Bank
ARPA	Automated Rader Plotting Aid
ATN	Aids To Navigation
BOT	Building, Operation and Transfer
CCID	Cement Consulting, Investment & Development Corporation
CRS	Coastal Radio Station
DGPS	Differential Global Positioning System
DWT	Dead Weight Tonnage
EIA	Environmental Impact Assessment
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GMDSS	Global Maritime Distress and Safety System
GPC	Government Pricing Committee
GRT	Gross Registered Tonnage
GSO	General Statistics Office
HP	Horse Power
IEE	Initial Environmental Examination
IMO	International Maritime Organization
IWB	Inland Waterways Bureau
JICA	Japan International Cooperation Agency
JV	Joint Venture
LASH	Lighter Aboard Ship
MARPOL	International Convention for the Prevention of Pollution from Ships
MOSTE	Ministry of Science, Technology and Environment
MOT	Ministry of Transport
MPI	Ministry of Planning and Investment
MTTS	Maritime Technical and Training School
NTSR	National Transport Sector Review
OD	Origin - Destination
ODA	Official Development Assistance
OECF	Overseas Economic Cooperation Fund of Japan
OPRC	International Convention on Oil Pollution Preparedness, Response and Cooperation
OSRAP	Oil Spill Response Action Plan ASEAN
RCC	Rescue Coordination Center

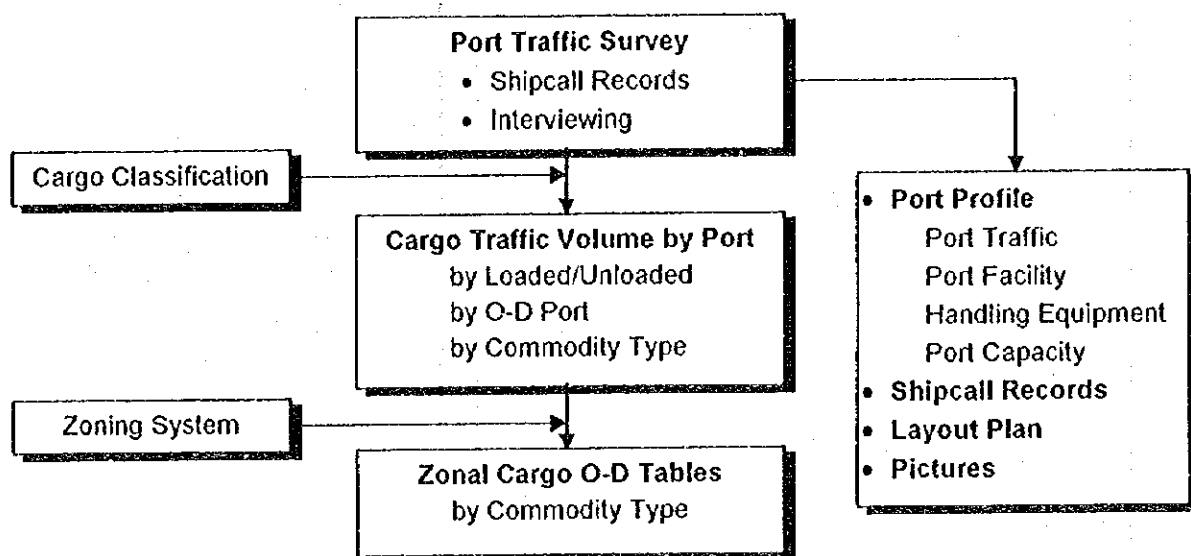
<b>RO-RO</b>	<b>Roll-On Roll-Off ship</b>
<b>SAR</b>	<b>Search And Rescue</b>
<b>SOLAS</b>	<b>Safety Of Life At Sea</b>
<b>STCW</b>	<b>Standards for Training, Certification &amp; Watchkeeping</b>
<b>TEDI</b>	<b>Transport Engineering Design Incorporation</b>
<b>TESI</b>	<b>Transport Economic Scientific Institute</b>
<b>UNDP</b>	<b>United Nations Development Program</b>
<b>VIMARU</b>	<b>Vietnam Maritime University</b>
<b>VINALINES</b>	<b>Vietnam National Shipping Lines</b>
<b>VINAMARINE</b>	<b>Vietnam National Maritime Bureau</b>
<b>VINASHIN</b>	<b>Vietnam Shipping Industry Corporation</b>
<b>VIRES</b>	<b>Vietnam Register of Shipping</b>
<b>VISAL</b>	<b>Vietnam Salvage Corporation</b>
<b>VMS</b>	<b>Vietnam Maritime Safety Agency</b>
<b>VNR</b>	<b>Vietnam National Railways</b>
<b>VRA</b>	<b>Vietnam Road Administration Bureau</b>
<b>VISHIPEL</b>	<b>Vietnam Ship Communications and Electronic Company</b>
<b>VTS</b>	<b>Vessel Traffic Service</b>

## Chapter 1 PRESENT COASTAL SHIPPING TRAFFIC

This chapter aims to explain the work procedure for the preparation of present cargo Origin-Destination (O-D) tables by commodity type and to show the present condition regarding the Vietnamese ports related to the coastal shipping, such as port traffic by commodity type, port facilities, cargo handling equipment and port capacity.

The preparation of cargo O-D tables by commodity type is shown in Figure 1.1.

Figure 1.1  
PREPARATION OF CARGO O-D TABLES



### 1.1 Zoning System and Commodity Classification

#### (1) Zoning System

To determine the zoning system of the study, the following aspects were duly considered:

- A province or combined provinces within the same Socio-economic Development Region (SDR) that divides the country into seven,
- Port hierarchy such as a major port and supportive minor ports within a zone; and
- Each adjoining country, amalgamations of other countries in East and South-East Asia, and other countries along international routes.

As a result, the zoning system consisting of 20 domestic zones and 10 foreign ones has been prepared, as shown in Table 1.1 and Figure 1.2.

The characteristics of domestic zones such as population, GDP, Area and port system were outlined in Table 1.1.2

Table 1.1  
ZONING SYSTEM FOR TRAFFIC DEMAND FORECAST

Zone	Province	Existing Port	Planned
1	Ha Giang Tuyen Quang Lao Cai Yen Bai Vinh Phu	Viet Tri	
2	Cao Ban Lang Son  Bac Thai  Ha Bac	Ha Bac (Dap Cau, A Lu)	
3	Lai Chau Son La Hoa Binh	Hoa Binh	
4	Quang Ninh	Hong Gai Hong Gai Transshipment Cai Lan Cua Ong (Cam Pha) Dien Cong B12	
5	Hanoi	Hanoi	
6	Haiphong   Ha Tai Hai Hung	Haiphong Cua Cam Hoang Thach Pha Lai	Chinh Fong
7	Thai Binh Nam Ha Ninh Binh	Nam Dinh Ninh Binh	
8	Thanh Hoa	Thanh Hoa (Le Mon)	Nghi Son
9	Nghe An	Cua Lo Ben Thuy	
10	Ha Tinh Quang Binh	Nuan Hai Nhat Le	Vung Ang (Moi Ron)
11	Quang Tri T.T.-Hue	Thuan An	Cua Viet (Dong Ha) Chan May
12	Q.N.-Danang	Danang	Lien Chieu
13	Quang Ngai Binh Dinh  Gia Lai Ken Tum	Sa Ki Qui Nhon Thi Nai	Dung Quat
14	Phu Yen Khanh Hoa  Ninh Thuan Binh Thuan Dac Lac Lam Dong	Nha Trang Da Ngon Hen Khai	Van Phong

Zone	Province	Existing Port	Planned Port
15	HCMC   Song Be Tay Ninh	Saigon Ben Nghe Tan Cang (New Port) Nha Be Oil	
16	Dong Nai  B.R.-Vung Tau	Dong Nai Thu Duc Vung Tau (Cat Lo Dist.)	Vung Tau (Ben Dinh, Sao Mai) Thi Vai (Phu My, Cai Mep.)
17	Long An  Tie Giang Ben Tre	My Tho	
18	Dong Thap Vinh Long Tra Vinh	Dong Thap (Cao Lanh) Vinh Long	
19	An Giang Kien Giang	My Tho (Long Xuyen) Kien Luong Hong Chong	
20	Can Tho Soc Trang Minh Hai	Can Tho - Nam Can Ca Mau	

Zone	Foreign Countries
21	China
22	Laos
23	Cambodia
24	Thailand
25	Myanmar
26	Singapore Malaysia Indonesia
27	Hong Kong Taiwan Philippines
28	Japan North South Korea Russia
29	North South America Australia
30	India Africa Europe

Figure 1.2  
ZONING SYSTEM

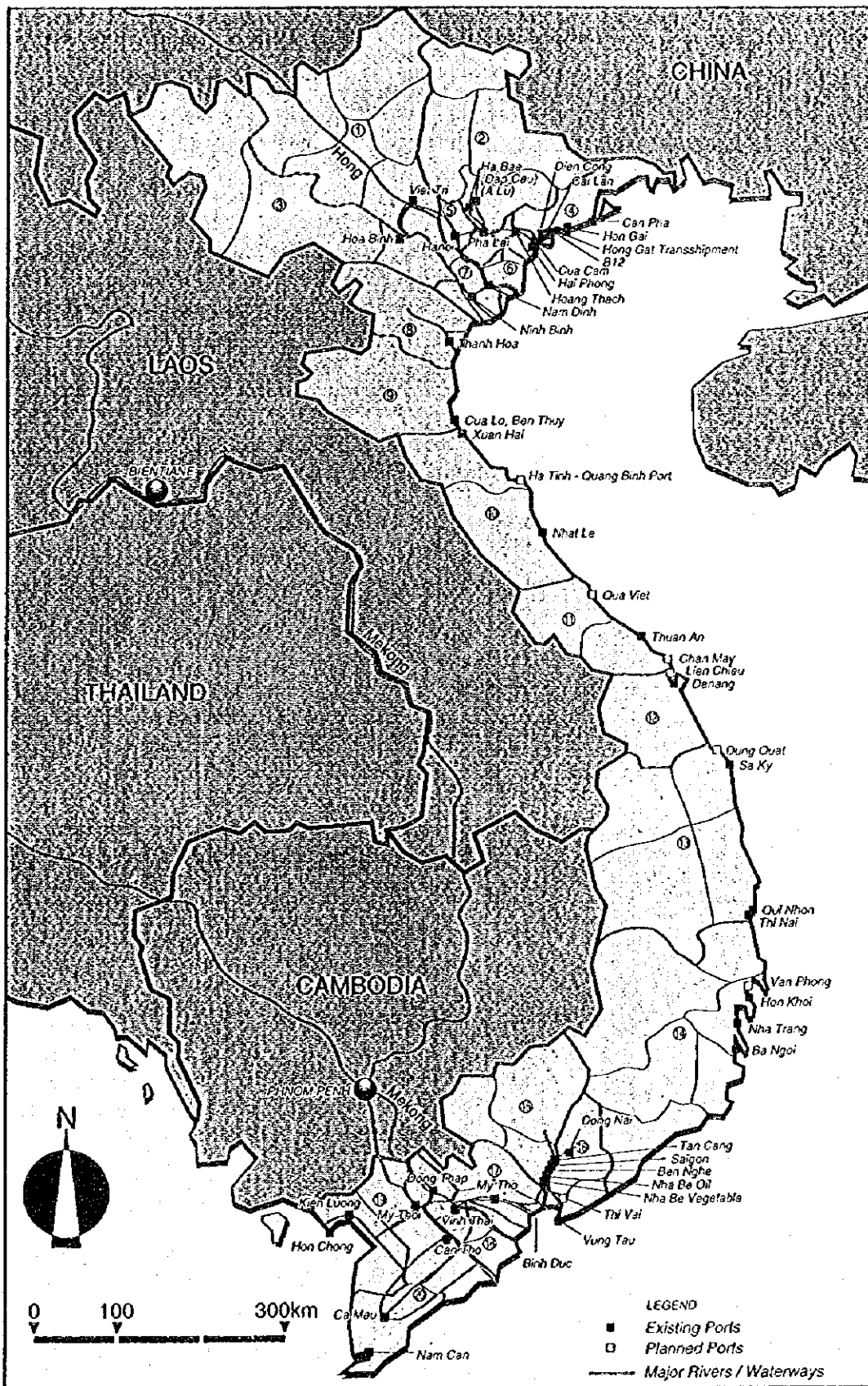


Table 1.2  
**PROFILE OF DOMESTIC ZONES (1/7)**

	ZONE			PORT SYSTEM			ZONAL CHARACTERISTICS
	Population in 1995 (thousand)	GDP in 1994 (mil.USD)	Zone Area (sq km)	Representative Port	Other Port	Planned Port	
1 VIET TRI	4,732	889.1	33,317	Viet Tri	(none)	(none)	<ul style="list-style-type: none"> <li>• Located in the North Mountain and Midland and bordered west and north by Yunnan Province of PR China.</li> <li>• Low density (142 persons/sq km) and depressed local economy (GDP per capita 188 USD).</li> <li>• Viet Tri is the confluence of two rivers, Thao River and Lo River. National Route No.2 and the Lao Cai Railway Line also pass through.</li> <li>• Rich in apatite and other mining resources.</li> <li>• A factory called "Super Lam Thao" will provide farmers in the Red River Delta with phosphate fertilizer.</li> </ul>
2 HA BAC	4,848	853.0	27,751	Ha Bac (Dap Cau, A Lu)	(none)	(none)	<ul style="list-style-type: none"> <li>• Located in the North Mountain and Midland and bordered north by Nam Min Province of PR China</li> <li>• Relatively low density (175 persons /sq km) and depressed local economy (GDP per capita 176 USD)</li> <li>• Ha Bac has two river ports at different rivers (Thuong River and Cau River).</li> <li>• National Route No. 1 and No. 3, and the Lang Son Railway Line are accessible to Hanoi.</li> <li>• One cement plant will be newly constructed while on steel mill expanded.</li> </ul>
3 HOA BINH	2,088	408.8	35,955	Hoa Binh	(none)	(none)	<ul style="list-style-type: none"> <li>• Located in the North Mountain and Midland and bordered by Yunnan Province of PR China and Laos</li> <li>• Scarcely inhabited area (581.1 persons/sq km) and low local economy (GDP per capita 230 USD).</li> <li>• Da River and Nation Route No.6 can access to Hoa Binh. Hoa Binh Dam controls the water quantity of Da River.</li> <li>• One cement plant will be constructed in Luong Son.</li> </ul>

Table 1.2  
**PROFILE OF DOMESTIC ZONES (2/7)**

	ZONE			PORT SYSTEM			ZONAL CHARACTERISTICS
	Population in 1995 (thousand)	GDP in 1994 (mil.USD)	Zone Area (sq km)	Representative Port	Other Port	Planned Port	
4 QUANG NINH	905	465.1	5,938	Cai Lan	Cua Ong (Cam Pha), B12, Dien Cong	Cai Lan (expansion), Cau Trang	<ul style="list-style-type: none"> <li>• Located in the North Mountain and Midland, and facing the Gulf of Tonkin.</li> <li>• Low Population density (152 persons/sq km) but high GDP per capita (515 USD)</li> <li>• National Route No.18 and the Cai Lan Railway Line can connect Quang Ninh with inland area.</li> <li>• Hong Gai Port and Cua Ong Port are located at Ha Long Bay while Cai Lan Port and B12 Port at Bai Chay Bay.</li> <li>• Famous Quang Ninh Coalfield and active industrialization (2 cement plants, 1 steel mill and 1 fertilizer factory)</li> <li>• Remarkable marine tourism assets</li> </ul>
5 HA NOI	2,228	1,407	921	Hanoi	(none)	(none)	<ul style="list-style-type: none"> <li>• Located in the Red River Delta</li> <li>• High population density (2,419 persons/sq km) and high GDP per capita (632 USD) since the zone encompasses only Hanoi City.</li> <li>• Hanoi is the focal point of the North in terms of transport network.</li> <li>• Waterways are graded at the 1st level and therefore vessels of 1,000 dwt are used to be navigable.</li> <li>• Various industries are accumulated and many industrial estates and individual factories are being developed.</li> </ul>
6 HAI PHONG	6,696	1,696	1,503	Haiphong	Cua Nam Hoang, Thach Pha Lai	Chinh Phong	<ul style="list-style-type: none"> <li>• Located in the Red River Delta and facing the Gulf of Tonkin</li> <li>• High population density (1,080 persons/sq km) and moderate GDP per capita (253 USD)</li> <li>• National Route No.5 and the Hanoi - Haiphong Railway Line are regarded as an important axis between the capital city (Hanoi) and the international port city (Haiphong).</li> <li>• Haiphong Port will constantly accommodate 10,000 dwt vessels while currently 5,000 - 7,000 dwt at the maximum.</li> <li>• Several industrial estates are under construction which are suitable for heavy industry and port proximity industry.</li> </ul>

Table 1.2  
**PROFILE OF DOMESTIC ZONES (3/7)**

	ZONE			PORT SYSTEM			ZONAL CHARACTERISTICS
	Population in 1995 (thousand)	GDP in 1994 (mil.USD)	Zone Area (sq km)	Representative Port	Other Port	Planned Port	
7 NINH BINH	5,360	1,077	10,086	Ninh Binh	Nam Dinh	Diem Dien Ha Tinh	<ul style="list-style-type: none"> <li>• Located in the Red River Delta and the facing the Gulf of Tonkin.</li> <li>• High population density (995 persons/sq. km) and low GDP per capita (201 USD)</li> <li>• The zone is endowed with rich mining products and construction materials.</li> <li>• Ninh Binh is the old industrial town where roads and inland waterways have been well developed.</li> <li>• One steel mill is operational and two cement plants (capacity of 4.2 million tons in total) will be constructed.</li> </ul>
8 THANH HOA	3,439	685	11,168	Thanh Hoa (Le Mon)	(Nghi Son Cement Port)	(none)	<ul style="list-style-type: none"> <li>• Located in the North Central Coast and bordered west by Laos</li> <li>• 308 persons/sq km and low GDP per capita (199 USD). 93% of the population belongs to agriculture sector. This is the 2nd largely populated province.</li> <li>• National Route No.1A and the North - South Railway Line run through Thanh Hoa while two sea ports (Le Mon and Nghi Son) are available. In particular, Nghi Son is a new port and capable of accommodating vessels ranging 10,000 to 35,000 DWT.</li> <li>• The existing cement plant (Bim Son) will be expanded and another one (Nghi Son) will be newly constructed. Other industry facilities are on rolling mill and one paper factory.</li> <li>• Agricultural products are rice, maize, sugarcane, etc.</li> </ul>
9 VINH	2,780	558	16,371	Cua Lo	Ben Thuy	(none)	<ul style="list-style-type: none"> <li>• Located in the North Central Coast and bordered west by Laos</li> <li>• Low population density (170 persons/sq. km) and low GDP per capita (201 USD). This is the 3rd largely populated province.</li> <li>• National Road No.1A and the North-South Railway pass through Nghe An Province. National Road No.7 connects Nghe An with Laos. Cua Lo Port can presently accommodate 3,000DWT ships.</li> <li>• Agricultural products are rice, rubber, tea, pork and fish products.</li> <li>• Mineral resources are marble, coal, limestone, etc.</li> <li>• Remarkable development projects are Hoang Mai Cement Plant, Cua Lo Industrial Estate and Cua Lo Beach Resort.</li> </ul>



Table 1.2  
**PROFILE OF DOMESTIC ZONES (4/7)**

ZONE	PORT SYSTEM			ZONAL CHARACTERISTICS			
	Population in 1995 (thousand)	GDP in 1994 (mil.USD)	Zone Area (sq km)		Representative Port	Other Port	Planned Port
10 VUNG ANG	2,080	322	14,038	Xuan Hai	Nhat Le	Vung Ang (Mui Ron) Hon La	<ul style="list-style-type: none"> <li>• Located in the North Central Coast and bordering Laos</li> <li>• Low population density (148 persons /sq km) and depressed local economy (GDP per capita 155 USD)</li> <li>• National Route No.1A and the North - South Railway Line run through the zone along the coastal line. Route 8A and Route 29 connect Laos, especially the former directly with Vientiane.</li> <li>• Existing ports are small sea ports. But Vung Ang Bay is expected to have natural depth and favorable position to construct a deep seaport.</li> <li>• Agricultural products of tea, mulberry, pomelos and fishery and forestry products.</li> <li>• A great reserve of Thach Khe Iron Ore Mine and new construction of Ha Tinh Steel Mill.</li> </ul>
11 DONG HA	1,544	334	9,597	Huan An	(none)	Cua Viet Chan May Gianh	<ul style="list-style-type: none"> <li>• Located in the North Central Coast and bordering Laos</li> <li>• Low population density (161 persons /sq.km) and low GDP per capita (217 USD)</li> <li>• National Route No.1A and the North - South Railway Line are two spines while No.9 connects Dong Ha with Laos.</li> <li>• Cua Viet Port is under construction but it is not a deep seaport. Chan May, possibly a deep seaport, is under study.</li> <li>• Rubber, coffee and woods are good for export.</li> <li>• Two cement plants will be constructed in the zone.</li> <li>• Tourism supports the local economy in and around Hue.</li> </ul>
12 DANANG	1,948	488	11,985	Danang	(none)	Lien Chieu	<ul style="list-style-type: none"> <li>• Located in the South Central Coast and bordering Laos</li> <li>• Low population density (166 persons /sq.km) and low GDP per capita (246 USD)</li> <li>• Beside the national network of rail and road, airport and seaport are international nodes. Danang Port with its deep water of 11 meters is accessible for ships of 20,000 dwt.</li> <li>• Forestry is a big local industry and Tra My cinnamon is famous in domestic and foreign market.</li> <li>• There are 3 industrial estates and the An Dong EPZ is a forerunner of the Central Development Region.</li> </ul>

**Table 1.2**  
**PROFILE OF DOMESTIC ZONES (5/7)**

	ZONE			PORT SYSTEM			ZONAL CHARACTERISTICS
	Population in 1995 (thousand)	GDP in 1994 (mil.USD)	Zone Area (sq.km)	Representative Port	Other Port	Planned Port	
13 QUY NHON	3,679	660	37,399	Quy Nhon	Sa Ki Thi Nai	Dung Quat	<ul style="list-style-type: none"> <li>• Located in the South Central Coast and bordering Laos and Cambodia</li> <li>• Scarce population density (98 persons/sq km) and low GDP per capita (180 USD)</li> <li>• In addition to National Route No. 1A and the North - South Railway Line, No.24 links Quang Ngai Province with Laos and No.19 connects Quy Nhon Port with Cambodia.</li> <li>• The Dung Quat Project will develop an oil refinery center and a deep seaport. It will provide local people with some 60,000 job opportunities by the year 2010.</li> <li>• Quy Nhon Port is deep and its access channel is wide to accommodate vessels of 10,000 dwt.</li> <li>• Ly Son Island has 17,000 inhabitants.</li> </ul>
14 NHA TRANG	5,167	1,113	51,891	Nha Trang	Ba Ngoi Hon Khoi	Van Phong	<ul style="list-style-type: none"> <li>• Located in the South Central Coast and bordering Cambodia</li> <li>• Scarce population density (100 persons/sq km) and low GDP per capita (215 USD)</li> <li>• Khanh Hoa Province is endowed with good seaports but other coastal provinces (Phu Yen, Ninh Thuan and Binh Thuan) have no seaport and suffer from depressed economy.</li> <li>• Marineculture and afforestation is active and agricultural products are rice, sugar, coconut, tobacco, etc.</li> <li>• Industrial development also concentrates on Khanh Hoa Province.</li> <li>• Phu Quy Island (population 11,200) seriously needs daily shipping service.</li> </ul>
15 SAIGON	6,751	4,055	15,638	Saigon	Tan Cang Ben Nghe Nha Be (oil) Nha Be (Vegetable)	(none)	<ul style="list-style-type: none"> <li>• Located in the Eastern Nam Bo and faced with Cambodia</li> <li>• High population density (432 persons/sq km) and the robust local economy due to existence of HCM City.</li> <li>• Concentrated investment in industry sector has been done at HCMC and Bien Hoa. Most of newly located factories are machine manufacturing and light industry.</li> <li>• Since transport network is well formulated, 5 industrial estates rely on roads and railways but 3 industrial estates can directly access to seaports.</li> <li>• To support further economic development, 2 cement plants (production capacity - 3.7 million tons/year) and 2 steel mills (0.8 million tons) will be constructed.</li> </ul>

Table 1.2  
**PROFILE OF DOMESTIC ZONES (6/7)**

	ZONE			PORT SYSTEM			ZONAL CHARACTERISTICS
	Population in 1995 (thousand)	GDP in 1994 (mil.USD)	Zone Area (sq.km)	Representative Port	Other Port	Planned Port	
16 VUNG TAU-THI VAI	2,574	2,363	7,829	Dong Nai	Thi Vai (Go Dau) VIETSO-VPETRO PTS Vung Aug (Cat Lo)	Thi Vai (Phu My, Cai Mep) Vung Ang (Ben Dinh, Sao Mai)	<ul style="list-style-type: none"> <li>• Located in the Eastern Nam Bo</li> <li>• Relatively high population density (329 persons/sq km) and extremely strong local economy (GDP per capita 918 USD)</li> <li>• The zone is an emerging industrial area consisting of 6 industrial estates. The largest industry is oil related since Vung Tau is the access point to submarine oil fields such as Bach Ho, Rong and Dai Hung.</li> <li>• Large vessels are navigable through Thi Vai River.</li> <li>• Con Son Island has a population of 3,500 who need daily transportation with Vung Tau.</li> </ul>
17 MY THO	4,286	908	8,924	My Tho	(none)	(none)	<ul style="list-style-type: none"> <li>• Located in the Mekong River Delta and faced with Cambodia</li> <li>• High population density (480 persons/sq. km) but low GDP per capita (212 USD)</li> <li>• The road and waterway network is good and convenient for both industrial and daily activities.</li> <li>• My Tho Port can accommodate vessels of 3,000 dwt.</li> <li>• My Tho will become an industrial town to support HCMC partially.</li> <li>• The zone has many products for export such as rice, coconut oil, frozen shrimp</li> </ul>
18 DONG THAP	3,536	784	7,132	Dong Thap (Cao Lanh)	Vinh Long	(none)	<ul style="list-style-type: none"> <li>• Located in the Mekong River Delta, midst of two big Tien and Hau rivers' basin. Dong Thap Port and Vinh Long Port are located along Tien River.</li> <li>• High population density (496 persons /sq km) but low GDP per capita (222 USD).</li> <li>• The zone is endowed with flat and fertile land and fresh water available through the year.</li> <li>• Strategic products for export are rice, coconut oil, frozen shrimp, frozen meal and garment.</li> </ul>

Table 1.2  
**PROFILE OF DOMESTIC ZONES (7/7)**

	ZONE			PORT SYSTEM			ZONAL CHARACTERISTICS
	Population in 1995 (thousand)	GDP in 1994 (mil.USD)	Zone Area (sq km)	Representative Port	Other Port	Planned Port	
19 LONG XUYEN	3,383	703	9,667	My Thoi (Long Xuyen)	Kien Luong Hong Chong		<ul style="list-style-type: none"> <li>• Located in the Mekong River Delta and faced with the Bay of Stam and Hau River.</li> <li>• Relatively high population density (350 persons/sq km) and low GDP per capita (208 USD).</li> <li>• Long Xuyen has two ports, My Thoi and Long Xuyen. My Thoi Port can accommodate vessels of 3,000 dwt and main cargoes are rice, cement and fertilizer. Long Xuyen functions an intermediate port with Cambodia.</li> <li>• The zone is rich in stone and limestone. One cement plant is operational and will be expanded at a capacity of 1 mil. tons. Kien Luong Port serves exclusively for the plant.</li> <li>• Rice, frozen shrimp and coffee are main commodities for export.</li> <li>• Phu Quoc Island (population 26,000) needs a daily transportation means to/from Kien Giang Province</li> </ul>
20 CAN THO	4,857	1,176	13,845	Can Tho	Nam Can Cau Mau		<ul style="list-style-type: none"> <li>• Located in the Mekong Delta and faced with the Bay of Stam and South-east China Sea</li> <li>• Relatively high population density (651 persons/sq.km) and lightly lower GDP per capita (242 USD) than the national average (242 USD).</li> <li>• Can Tho Port is a center of Cuu Long River Plain. Its basin is large and deep enough for accommodating vessels of 5,000GRT.</li> <li>• Nam Can Port is open to the South east China Sea while Cau Mau Port is situated at Hao River. Both port facilities are obsolete and the latter ships out only frozen aquatic products.</li> </ul>

## (2) Commodity Classification

In general, commodities loaded on seaborne transportation have a variety of physical characteristics which require different vessel types and forms of handling. In Vietnam, major commodities in coastal shipping are rice, coal, cement, fertilizer and oil. Taking the characteristics of commodities: such as size, weight, bulkiness, vulnerability and physical state, commodities can be classified into six categories.

In order to cope with the growth in passenger traffic, vessels that can accommodate passengers are required. They could include passenger ships, passenger cargo ships and Ro-Ro (roll-on, roll-off) ships.

Table 1.3 defines commodities and possible vessel types by classification.

Table 1.3.  
COMMODITY CLASSIFICATION AND VESSEL TYPE

Classification	Commodity	Package Size	Seasonality	Consignment Size	Ship Type
Agricultural Products	Rice, wheat, bran, manioc, sugar molasses, rubber, etc.	Bag, case, drum, carton	Varies greatly	Various, not so large	General Cargo/Bulk Ship
Construction Materials and Mining Products	Clinker, sand, stone, coal, ore, apatite, sulfur, lead, zinc, glass, titanium, tin, magnesium, etc.	Break-bulk	Fairly constant meeting industrial needs, but less constant meeting building needs	Depends on consumer's facility	Bulk Ship General Cargo/Bulk Ship
Oil	Crude oil, petroleum oil	Liquid	Constant	Depends on consumer's facility	Tanker
Bulk Cargo	Steel, wood, iron, cable, etc. fertilizer, asphalt, plaster, urea, etc.	Bag, break-bulk	Fairly constant	No so large	General Cargo/Bulk Ship
Cement	Cement	Mainly in case, carton, drum or loose	Fairly constant	Depends on port facility (silo, exclusive berth, etc.)	General Cargo/Bulk Ship Specialized ship
Other cargo	Machinery, equipment, chemical, electric appliances food, car Other industrial products	(construction equipment, vehicles)	Fairly constant, although composition may change	Various	General Cargo/Bulk Ship Container Ship Ro-Ro Ship
Passenger					Passenger Ship Passenger-Cargo Ship Ro-Ro Ship

## 1.2 Port Traffic Survey

### (a) Survey Background

In the past, coastal shipping traffic has not clearly defined. The existing cargo O-D traffic data was that worked out in the UNDP Survey, "National Transport Sector Review (NTSR)" in 1992. In the NTSR, however, only the traffic between the main ports is taken into account, keeping however in mind that a marginal traffic is developing along the coast between the main and secondary ports.

Further, several seaports under the jurisdiction of VINAMARINE announced statistical port traffic data but they are insufficient to grasp a overall coastal shipping cargo movement required for the study.

The Study Team, therefore, established close contact with relevant agencies such as VINAMARINE, Inland Waterways Bureau, TEDI and TESI. However available data were not sufficient, and discrepancies were somewhat confusing.

### (2) Conduct of Port Traffic Survey

Under such a situation, the study team conducted a port traffic survey covering 44 ports which comprise seaports and some river ports closely related to coastal shipping in order to check the existing statistics and to establish an original database.

In the survey, all surveyed ports were visited by the study team member and/or staff. Following information and data were obtained through an interviewing with the personnel of the survey ports:

- Port Traffic Data (by loaded/unloaded, by O-D port and commodity type)
- Shipcall Record and/or Ship Manifests
- Port Organization
- Port facility (berth, yard, warehouse and etc.)
- Cargo Handling Equipment (crane, forklift, truck, barge, tug boat)
- Cargo Handling Capacity (per year/day)
- Port Development/Improvement Plan

Also pictures of facilities and equipment were taken at surveyed ports and layout plan was collected from some ports.

As a result, the Study collected port traffic data from ports as shown in Table 1.4. The results are summarized below.

- International Cargo : 10,492,135 tons (export)  
12,664,468 tons (import)
- Domestic Cargo : 7,809,976 tons (loaded)  
5,237,199 tons (unloaded)

### (3) Problems Encountered

It is noted that port managers do not understand the concept of coastal shipping and some managers refused to disclose data. The port traffic can be divided only into international and domestic, and since numerous small river ports have not been studied, there is a large discrepancy between loaded and unloaded cargo in domestic shipping.

In Vietnam, port traffic statistics are not only confusing, they are also insufficient for the following reasons:

- In ports open to sea-going vessels, international traffic is not the sole activity; domestic coastal shipping traffic and inland waterway traffic also play important roles. It is noted that sea-going vessels can carry domestic cargo in Vietnam and it is thus difficult to account for all domestic cargo.
- It is a common practice in Vietnam ports for loading and unloading to be separately counted and, a load which is transhipped is counted twice. Therefore, cargo traffic might be double-counted.
- Unfortunately, official statistics are not available in minor ports, while at others, are not under the control of VINAMARINE. VINAMARINE H.Q. receives monthly reports although not in a uniform format. There is no effort made to prepare statistics. It is mainly attributed to government's disregard of coastal shipping.

### (4) Port Profile

Port Profiles containing the port traffic, port facilities, cargo handling equipment and port capacity etc. were prepared as shown in Appendix 1. Those information was based on the collected records from the survey ports and interviewing with the staff of ports and port authorities.

### (5) Shipcall Record

Shipcall records were obtained from some ports. They were the only one information to understand the cargo traffic movement between ports by commodity. They are attached in Appendix 2.

### (6) Picture and Port Layout Plan

The pictures of port facilities, cargo handling equipment and warehouse etc. were taken through the survey, and port layout plan was obtained from some ports. They are attached in Appendix 3.

Table 1.4  
PORT TRAFFIC SURVEY IN 1995

Zone No.	Port No.	Port	Province	International Cargo		Domestic Cargo		Total Volume	
				Export	Import	Loaded	Unloaded	Int'l	Domestic
1	1	Viet Tri	Vinh Phu	0	0	30,000	130,000	0	160,000
2	2	Ha Bac (Dap Cau, A Lu)	Ha Bac	0	0	0	148,000	0	148,000
3	3	Hoa Binh	Hoa Binh	0	0	5,000	13,000	0	18,000
4	4	Hong Gai	Quang Ninh	1,404,500	769,900	301,100	350,000	2,174,400	651,100
	5	Cai Lan	Quang Ninh					0	0
	6	Cua Ong	Quang Ninh	1,976,900	1,300	118,400	0	1,978,200	118,400
	7	B12	Quang Ninh	0	814,412	27,545	72,678	814,412	100,223
	8	Hong Gai Transshipment	Quang Ninh	477,136	184,954	20,644	4,149	662,090	24,793
5	9	Dien Cong	Quang Ninh	0	0	350,000	0	0	350,000
5	10	Hanoi	Hanoi	0	0	0	723,415	0	723,415
6	11	Haiphong	Haiphong	493,588	2,361,658	514,490	1,145,686	2,855,246	1,660,176
	12	Cua Cam	Haiphong	0	114,586	6,560	19,000	114,586	25,618
	13	Hoan Thach	Haiphong	0	0	191,600	20,000	0	211,600
	14	Pha Lai	Haiphong	0	0	3,000	1,010,000	0	1,013,000
7	15	Nam Dinh	Nam Ha	0	0	0	130,000	0	130,000
	16	Ninh Binh	Ninh Binh	0	100,000	192,000	225,000	100,000	417,000
8	17	Thanh Hoa (Le Mon)	Thanh Hoa	12,000	0	36,000	72,000	12,000	108,000
9	18	Nghe Tinh (Cua Lo, Ban Thuy)	Nghe An	56,163	68,522	100,790	52,483	124,685	153,273
10	19	Xuan Hai	Ha Tinh	45,000	4,000	3,000	22,500	49,000	25,500
	20	Nhat Le	Quang Binh	5,800	0	200	10,000	5,800	10,200
11	21	Thuan An	T.T-Hue	9,500	7,000	0	66,000	16,500	66,000
12	22	Danang	Q.N-Danang	149,424	631,657	23,000	216,888	781,081	239,888
13	23	Sa Ky	Quang Ngai	0	0	5,000	5,000	0	10,000
	24	Qui Nhon	Binh Dinh	171,289	151,801	29,356	94,584	323,090	123,940
	25	Thi Nai	Binh Dinh	3,500	0	34,400	20,000	3,500	54,400
14	26	Nha Trang	Khanh Hoa	16,558	214,245	18,836	93,473	230,803	112,309
	27	Ba Ngoi	Khanh Hoa	213,546	500	57,964	4,295	214,046	62,259
	28	Hon Kohoi	Khanh Hoa	5,500	0	31,500	6,000	5,500	37,500
15	29	Saigon	HCMC	2,308,202	4,259,198	546,903	97,324	6,567,400	644,227
	30	Ben Nghe	HCMC	630,000	780,000	246,820	105,780	1,410,000	352,600
	31	Tan Cang	HCMC	1,500,000	1,500,000	0	0	3,000,000	0
	32	Nha Be Oil	HCMC	750,000	249,579	1,780,000	0	999,579	1,780,000
	33	Nha Be Vegetable	HCMC	46,929	255,000	0	5,856	301,929	5,856
16	34	Thu Duc	Dong Nai	0	0	900,000	100,000	0	1,000,000
	35	Vung Tau (Cat Lo dist.)	B.R-Vung Tau	19,000	47,000	7,000	3,000	66,000	10,000
17	36	My Tho	Tien Giang	16,446	4,558	117,489	65,242	21,004	182,731
18	37	Dong Thap (Cao Lanh)	Dong Thap	40,000	110,000	100,000	0	150,000	100,000
	38	Vinh Long	Vinh Long	18,000	7,000	65,000	4,000	25,000	69,000
19	39	My Thoi (Long Xuyen)	An Giang	48,000	0	112,000	0	48,000	112,000
	40	Kien Luong	Kien Giang	0	0	1,800,000	200,000	0	2,000,000
	41	Hong Chong	Kien Giang	0	4,000	0	0	4,000	0
20	42	Can Tho	Can Tho	66,154	23,598	31,379	1,788	89,752	36,167
	43	Nam Can	Minh Hai	5,000	0	0	0	5,000	0
	44	Ca Mau	Minh Hai	4,000	0	0	0	4,000	0
Total				10,492,135	12,664,468	7,809,976	5,237,199	23,156,603	13,047,175

Source: JICA Study Team



### 1.3 Traffic Flows

#### (1) 1995 O-D Tables

Based on the cargo traffic volume by port, by loaded/unloaded, by O-D ports and by commodity type obtained from port traffic survey, some inter-port cargo traffic volume was integrated into one inter-zonal cargo traffic volume in terms of the location of O-D ports.

As a result, seven inter-zonal cargo O-D tables (6 commodity groups and 1 total cargo) have been prepared as shown in Table 1.5 to 1.11. The desire lines of them are illustrated in Figure 1.3.

Salient characteristics are analyzed separately for domestic seaborne traffic, overseas traffic and passenger traffic below.

#### a) Domestic Seaborne Traffic

In Vietnam, domestic seaborne traffic can be physically defined as that using coastal seaways and sea-cum-riverways and functionally as domestic traffic that uses seaborne vessels. The traffic is further divided geographically into three: traffic movements within the Red River Delta and within the Mekong River Delta, and coastal movement (possibly inclusive of both the delta areas).

The 1995 OD tables reveal that present domestic seaborne traffic is estimated at 5,336 thousand tons, comprising coastal shipping (2,738 thousand or 51.2%), the Red River Delta (1,326 thousand or 24.8%) and the Mekong River Delta (1,277 thousand or 23.0%). Refer to Table 1.12.

According to the data released from the Inland Waterways Bureau, both the delta areas have about 6 millions of freight traffic each and the 1995 O-D tables, therefore, imply more or less 20% of the river traffic is functionally regarded as seaborne traffic.

The traffic features by commodity type are described as follows:

Agricultural products: These products predominantly come from the South to the North. In the year, there was a shortage of rice in the North and about 600,000 tons were shipped out from the Mekong Delta during the period of emergency. Other products included wheat, palm oil, etc.

Construction materials and mining products in bulk: Coal in bulk is shipped out from Quang Ninh (Zone 4) to many ports and from Viet Tri (Zone 1) to Cua Lo (Zone 16). The biggest unloading port is Ninh Binh (Zone 7) where many factories have been historically located. Long Xuyen (Zone 19) ships out clinker in bulk mainly to Ho Chi Minh City (Zone 15).

Table 1.5  
1995 CARGO O-D TABLE (All Cargoes)

O-D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	D-Pro	21	22	23	24	25	26	27	28	29	30	F-Pro							
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D-ARC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F-ARC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: ... within Delta Area

Table 1.6  
1995 CARGO O-D TABLE (Agricultural Products)

(Units: Tons)

O-D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	D-Pro	21	22	23	24	25	26	27	28	29	30	P-Pr					
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10	0	0	0	0	0	0	0	0	0	0	200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12	0	0	0	0	0	0	0	0	0	0	0	0	1,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D-ATC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F-ATC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: ... within Delta Area

Table 1.7  
1995 CARGO O-D TABLE (Construction Material & Mining Products)

(units: tons)

O-D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	D-Pro	21	22	23	24	25	26	27	28	29	30	P-Pro			
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D-Ats	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P-Ats	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: ... within Delta Area



Table 1.9  
1995 CARGO O-D TABLE (Bulky Cargoes)

O-D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	D-Pro	21	22	23	24	25	26	27	28	29	30	F.Pro						
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D-Adj	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
F-Adj	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Note: within Delta Area

Table 1.10  
1995 CARGO O-D TABLE (Cement)

Cargo OD Matrix (1995) - Cement		(Units/ton)																																	
O-D		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	DfPro	21	22	23	24	25	26	27	28	29	30			
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
4	0	0	0	0	0	0	0	0	0	0	0	0	0	1,456	0	0	0	0	0	0	0	0	1,805	0	0	0	0	0	0	0	0	0	0		
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
6	0	0	0	0	0	0	0	0	0	0	12,000	70,000	49,661	118,074	76,977	67,153	0	200	0	0	0	0	344,003	0	0	0	0	0	0	0	0	0	0		
7	0	0	0	0	0	0	0	0	0	0	0	0	6,000	0	0	0	0	0	0	0	0	6,000	0	0	0	0	0	0	0	0	0	0			
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15,000	0	0	0	0	15,000	30,000	0	0	0	0	0	0	0	0	0	0		
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D-AR	0	0	0	0	0	0	0	0	0	0	12,000	70,000	44,660	118,075	76,977	67,153	15,000	200	0	0	15,000	403,884	0	0	0	0	0	0	0	0	0	0	0	41,520	
21	0	0	0	0	0	0	0	0	0	0	0	0	150,932	0	79,422	198,000	3,000	1,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
28	0	0	0	0	0	0	0	0	0	0	0	0	100,000	5,000	190,000	34,000	6,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
F-AR	0	0	0	0	0	0	0	0	0	0	0	0	289,932	18,000	379,422	537,000	8,000	2,000	0	0	0	15,000	403,884	0	0	0	0	0	0	0	0	0	0	0	41,520

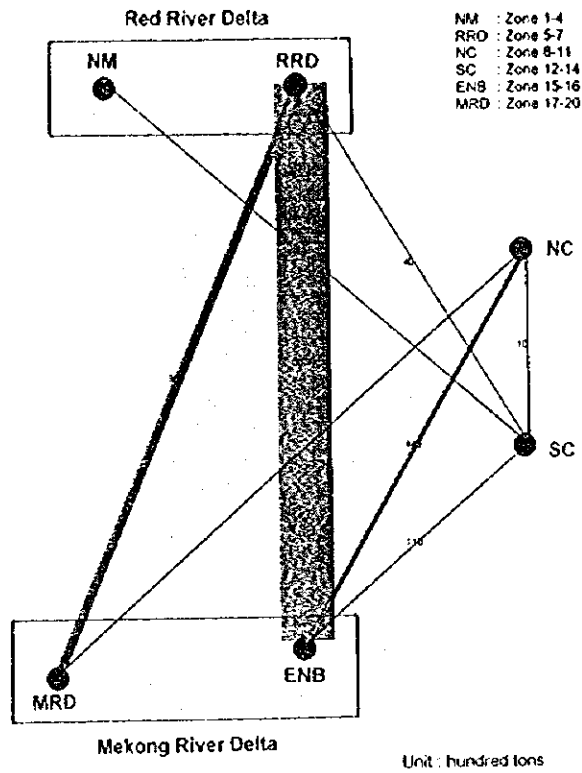
Note: within Delta Area



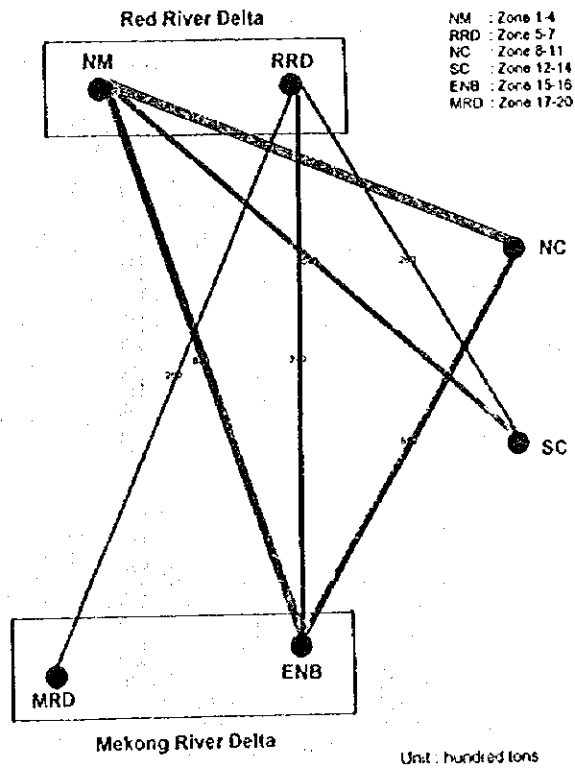


Figure 1.3  
**COASTAL SHIPPING TRAFFIC FLOW BY COMMODITY IN 1995**

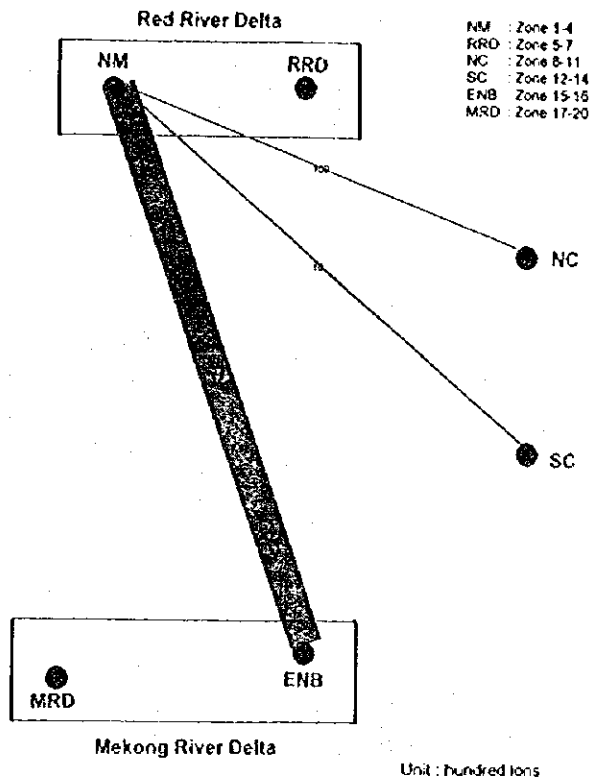
Group1: Agricultural Products



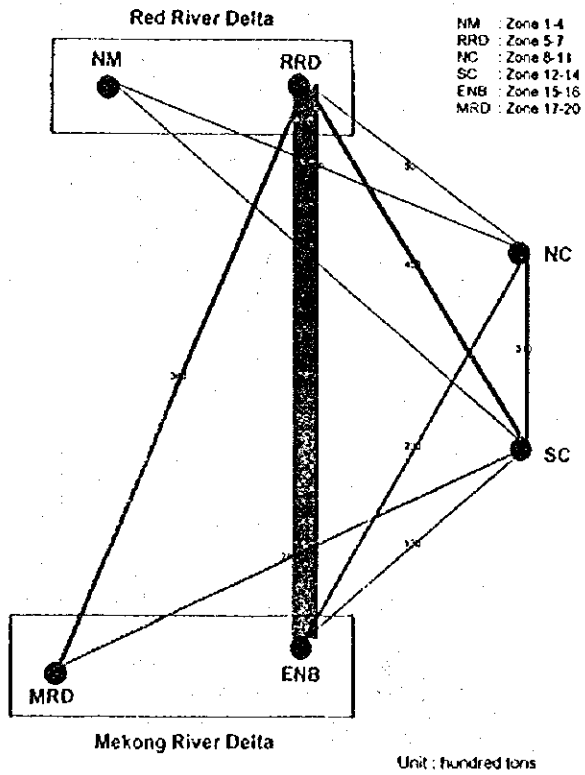
Group2: Construction Material and Mining Products



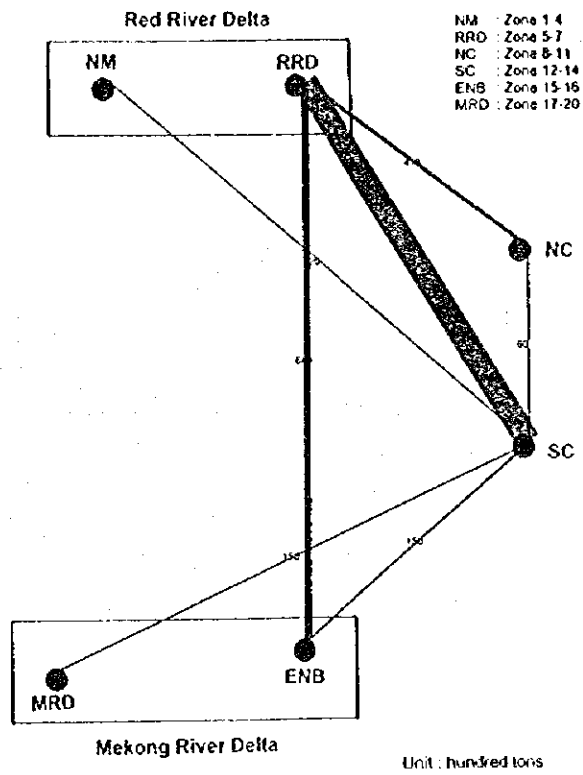
Group 3: Wet Cargoes



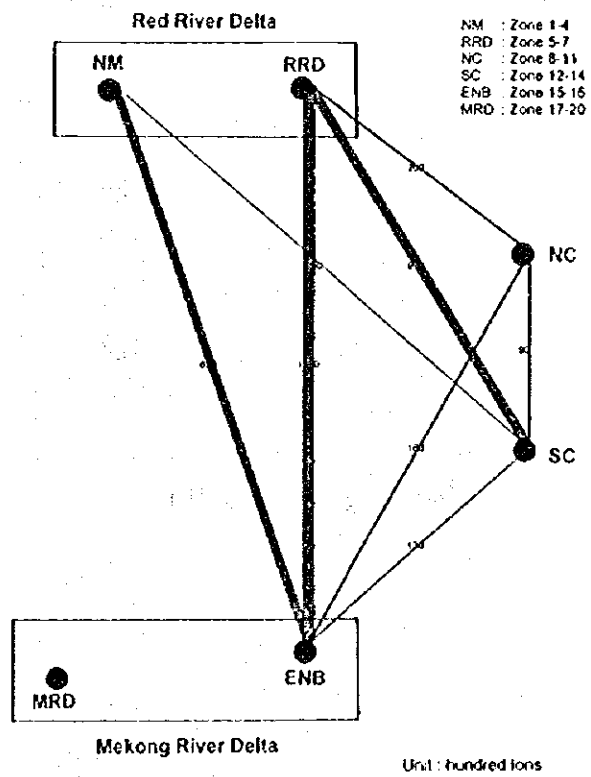
Group 4: Bulky Cargoes



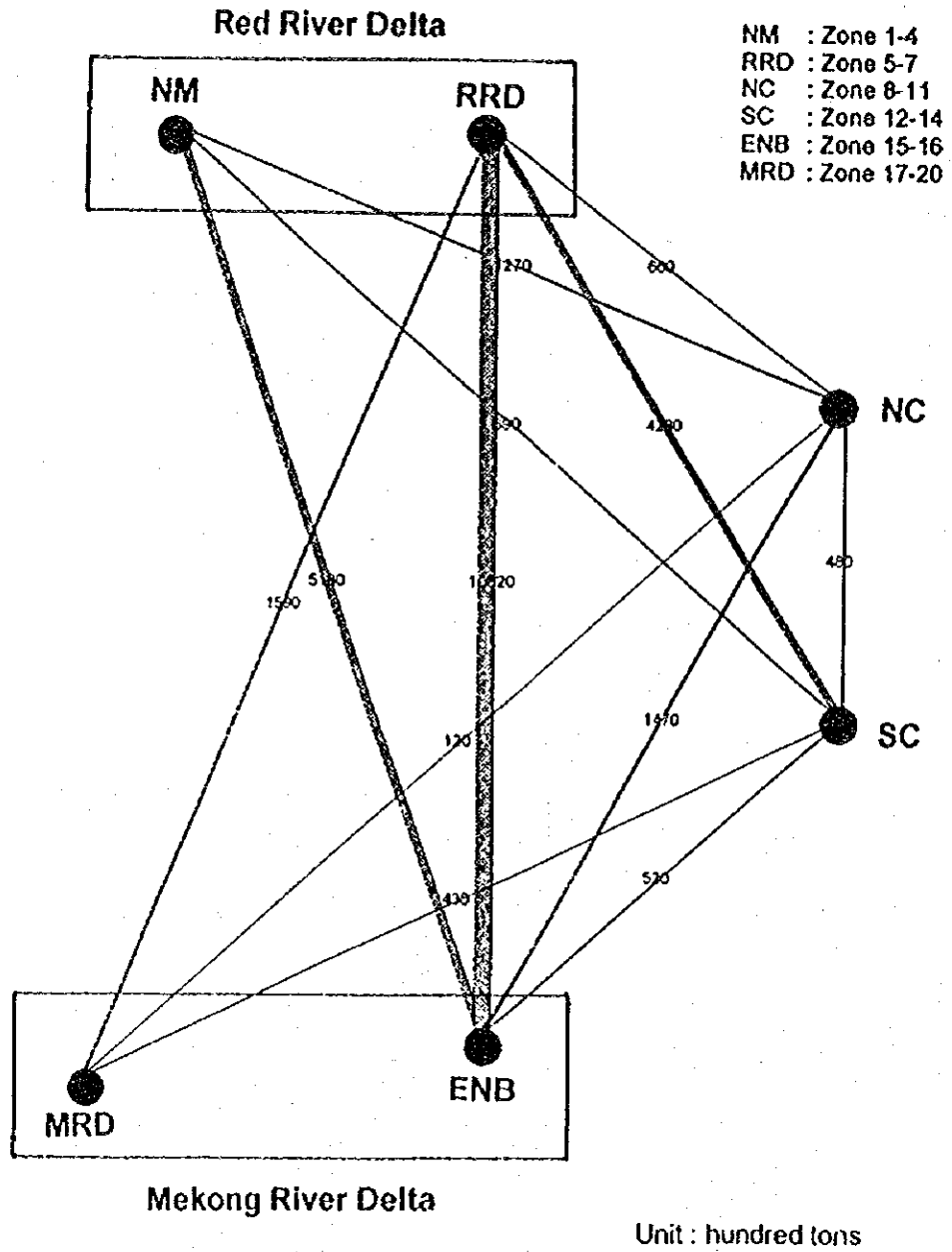
Group 5: Cement



Group 6: Other Cargoes



All Cargoes



Wet cargo: Compared with foreign trade, domestic wet cargo movement is small but tangible. Petroleum oil is transported from Nha Be (Zone 15) to B12 (Zone 4) to meet the demand in the North. A large cement plant in Kien Luong (Zone 19) needs petroleum oil for fuel use.

Bulky cargoes: Haiphong (Zone 6) ships out steel to various industrial areas such as Hanoi (Zone 5), Danang (Zone 12) and Ho Chi Minh City (Zone 15). Ninh Binh (Zone 7) has many factories engaged in production and distributes fertilizer to the central region and to the South.

Cement: Hoang Thach Port and Haiphong Port (both located in Zone 6) and Kien Luong Port (Zone 19) are the major shipment ports of cement nationwide.

Other cargoes: Haiphong Port (Zone 6) and Saigon Port (Zone 15) ship out various industrial products all over the country. On the other hand, salt is usually shipped out from Nha Trang port (Zone 14) while beverages are shipped from My Tho port (Zone 17).

Table 1.12  
SUMMARY OF DOMESTIC SEABORNE TRAFFIC IN 1995

	Commodity Group	Coastal Shipping		Red River Delta		Mekong River Delta		Domestic Total	
		Tons	%	Tons	%	Tons	%	Tons	%
1	Agricultural products	725,251	26.5%	0	0.0%	142,000	11.1%	867,251	16.6%
2	Construction materials & Mining products in bulk	398,159	14.6%	798,320	60.2%	676,168	52.9%	1,872,647	37.1%
3	Wet cargo	360,623	13.2%	18,000	1.4%	150,000	11.7%	528,623	11.3%
4	Bulk cargo	482,388	17.6%	162,500	12.3%	0	0.0%	644,888	12.1%
5	Cement	403,854	14.8%	187,200	14.1%	151,000	11.8%	742,054	10.2%
6	Other cargoes	363,454	13.3%	159,500	12.0%	158,053	12.4%	681,007	12.7%
	Total	2,733,729	100%	1,325,520	100%	1,277,221	100%	5,336,470	100%

Source: JICA Study Team

#### b) Overseas Traffic

Based on foreign trade statistics and the results of port traffic surveys, overseas traffic through Vietnamese ports in 1995 was estimated in Table 1.13. The total overseas traffic was 33,655 thousand tons consisting of export (18,016 thousand tons) and import (15,639 thousand tons).

Table 1.13  
**SUMMARY OF OVERSEAS TRAFFIC THROUGH VIETNAMESE PORTS IN 1995**  
 (Unit: tons)

	Commodity Group	Export		Import		Foreign Trade Total	
1	Agriculture products	2,067,102	11.5%	357,500	2.3%	2,424,602	10.5%
2	Construction materials & Mining products	4,241,531	27.5%	1,461,866	9.3%	5,703,397	17.0%
3	Wet cargo	8,260,000	45.9%	4,896,600	31.3%	13,156,000	39.1%
4	Bulky cargoes	189,553	1.1%	2,433,791	15.6%	2,623,344	7.8%
5	Cement	41,520	0.2%	1,006,414	6.4%	1,047,934	3.1%
6	Other cargoes	3,216,353	17.9%	5,483,571	35.1%	8,699,924	25.9%
	Total	18,016,059	100%	15,639,142	100%	33,655,201	100%

Source: JICA Study Team

The most significant trade flows to/ from other countries, by commodity group, are as follows:

Agriculture products: China, Indonesia, the Philippines and Malaysia as major rice importers.

Construction materials and mining products: Major coal importers are China and Japan while various kinds of sand and stone come from Russia and Japan.

Wet cargo: Crude oil is exported to Japan, Taiwan and Singapore while petroleum oil is mainly imported from Singapore.

Bulky cargoes: Vietnam exports some wood products, imports fertilizer from Indonesia, Malaysia, the Philippines, etc., and imports steel from Indonesia, Japan, Bangladesh, etc.

Other cargoes: A strong economic connection can be observed between Vietnam and other ASEAN countries in trading other cargoes.

c) Passenger Traffic

To offset the lack of data regarding passenger shipping service, the Study Team selected some passenger shipping routes and conducted onboard passenger interview surveys. (Refer to Table 1.14 and Figure 1.4)

The shipping routes in Haiphong and/or Quang Ninh Province belong to interprovincial and remote island services while the one between HCMC and Vung Tau is a typical tourism service.

In the Haiphong and Quang Ninh area, the responses can be generalized as follows:

- fare is reasonable and frequency of service is satisfactory, but
- there is much anxiety about risk of accident due to doubtful seaworthiness of the vessel;

According to TESI and the Inland Waterways Bureau, there are some other inter-provincial shipping services although the traffic volume is negligible. In addition, Vietnam has 31 inhabited islands with between 44 and 26,000 residents. These islands need shipping service to and from the mainland to maintain the communities.

The Study estimates that the current passenger shipping service serves more or less one million passengers at the national level.

Table 1.14  
RESULTS OF PASSENGER SHIPPING SURVEY

Route	Distance (in km)	Travel Time and Frequency	Fare	Capacity and Occupancy
Haiphong - Hong Gai	61	2h30m 2 round trips /day	16,000 VND - 14,000 VND	200 seats 40-65%
Haiphong - Bai Chay	50	3h 1 round trip/day	14,000 VND	100 seats 80%
Haiphong - Dan Tien	171	8h 1 round trip/day	30,000 VND - 27,000 VND	200 seats 40%
Haiphong - Cat Hai Island	25	1h30m 2 round trips/day	8,500 VND	100 seats 80%
Haiphong - Cat Ba Island	60	3h 1 round trip/day	18,000 VND	100 seats 80%
HCMC - Vung Tau	70 km	1h15m 2 round trips/day	110,000 VND	116 seats 50-60% on weekdays 80-90% on weekends

Source: JICA Study Team

Figure 1.4  
**TRAFFIC VOLUME OF PASSENGER SHIPPING BY ZONE**

