

Japan International Cooperation Agency (JICA)  
Ministry of Transport, Socialist Republic of Vietnam (MOT)  
Transport Development and Strategy Institute (TDSI)

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**THE STUDY ON THE  
NATIONAL TRANSPORT DEVELOPMENT STRATEGY  
IN THE SOCIALIST REPUBLIC OF VIETNAM  
(VITRANSS)**

**Technical Report No. 8  
PORT AND SHIPPING**

July 2000

**ALMEC CORPORATION  
PACIFIC CONSULTANTS INTERNATIONAL**

## PREFACE

During the period of the Study on the National Transport Development Strategy in Vietnam (VITRANSS), various technical papers have been prepared by different Study Team members in various occasions to facilitate the discussions with counterpart team, concerning subsector agencies and to document major findings and outputs produced in the process of the Study. These papers have been organized into a series of technical reports (See Table A below) which intend to provide more detailed background information for descriptions and discussions made on key study components and issues. These technical reports are working documents of the Study which, however, will be useful for further reference, by the counterpart team and related subsector agencies.

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No. 1	Transport Surveys and Database
No. 2	Main Commodities Analysis and Freight Transport
No. 3	Transport Cost and Pricing in Vietnam
No. 4	Transport Sector Institutions
No. 5	Road and Road Transport
No. 6	Railway
No. 7	Inland Waterway
No. 8	Port and Shipping
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No. 10	Rural Transport and Cross Border Transport
No. 11	Environment
No. 12	Transport Sector Funding

# Technical Report No. 8 SHIPPING AND PORTS

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## Glossary

<b>ADB</b>	Asian Development Bank
<b>APL-NOL</b>	American President Line-Neptune Orient Line
<b>APM</b>	AP Moller
<b>ATN</b>	Aids to Navigation
<b>C&amp;F</b>	Cost & Freight
<b>CATT</b>	Corporation for Advanced Transport and Technology
<b>CFS</b>	Container Freight Station
<b>CIF</b>	Cost Insurance and Freight
<b>COVASCO</b>	Saigon Waterway Transport Corporation
<b>DAMATOCOSCO</b>	Danang Maritime Transportation and Commercial Services Co.
<b>DMSP</b>	Domestic Shipping Modernization Program
<b>DWT</b>	Dead Weight Tonnage
<b>ECL</b>	Eastern Car Liner Co., Ltd.
<b>EIA</b>	Environmental Impact Assessment
<b>ESCAP</b>	Economic and Social Commission for Asia and Pacific
<b>FALCON</b>	Falcon Shipping Company
<b>FOB</b>	Freight on Board
<b>GEMADEPT</b>	General Forwarding and Agency Co., Ltd.
<b>GEMATTRANS</b>	GEMATTRANS (VIETNAM) LTD.
<b>GMDSS</b>	Global Maritime Distress and Safety System
<b>HAMATCO</b>	Hanoi Maritime Transport Company
<b>HCMC</b>	Hanoi Maritime Commercial Center
<b>IADA</b>	Intra-Asian Discussion Agreement
<b>ICD</b>	Inland Container Depots
<b>IMO</b>	International Maritime Organization
<b>INLACO</b>	International Labor Cooperation Agency
<b>ISM Code</b>	International Safety Management Code
<b>JBIC</b>	Japan Bank for International Cooperation (formerly OECF)
<b>JICA</b>	Japan International Cooperation Agency
<b>LOA</b>	Length Overall
<b>MAPETRANSCO</b>	Maritime Petroleum Transport Corporation
<b>MARIMEX</b>	Marine Import/Export and Trading Company
<b>MARISERCO</b>	Maritime Supply and Service Company
<b>MARPOL</b>	International Convention for the Prevention of Pollution from ships
<b>MASERCO</b>	Marine Servicing Company
<b>MATRA</b>	Maritime Trading Center
<b>MCC</b>	Maritime Credit Corporation
<b>MITECO</b>	Maritime Informatics and Technology Company
<b>MOT</b>	Ministry of Transport
<b>MOU</b>	Memorandum of Understanding
<b>MSRCC</b>	Maritime Search and Rescue Coordination Center
<b>MTTS</b>	Maritime Technical and Training School
<b>NOWATRANCO</b>	Northern Waterway Transport Corporation
<b>ODA</b>	Overseas Development Assistance
<b>OECF</b>	Overseas Economic Cooperation Fund
<b>PJICO</b>	Petrolimix Joint Stock Insurance
<b>PSC</b>	Port State Control
<b>PVIC</b>	Petro Vietnam Insurance Company
<b>RORO</b>	Roll-on Roll-off
<b>SFICO</b>	State Financial Investment Company
<b>SOLAS</b>	Safety of Life at Sea
<b>SSF</b>	Ship Finance Facility

<b>SVF</b>	Shipping Venture Facility
<b>STCW</b>	International Convention on Standard of Training Certification and Watch-keeping for Seafarers
<b>TDSI</b>	Transport Development and Strategy Institute
<b>TRAMASCO</b>	Marine Trading and Servicing Company
<b>TRANSVINA</b>	Vietnam Hi-Tech Transportation Co., Ltd.
<b>UIC</b>	United Insurance Company
<b>VIA</b>	Vietnam International Assurance
<b>VICONSHIP HP</b>	Vietnam Container Shipping Agency-Hai Phong
<b>VICONSHIP SG</b>	Vietnam Container Shipping Agency-Saigon
<b>VICT</b>	Vietnam International Container Terminal
<b>VIJACO</b>	Vietnam Japan International Transport Co., Ltd.
<b>VIMADECO</b>	Vietnam Maritime Development Corporation
<b>VIMARU</b>	Vietnam Maritime University
<b>VINALINES</b>	Vietnam National Shipping Lines
<b>VINAMARINE</b>	Vietnam National Maritime Bureau
<b>VINASHIN</b>	Vietnam Shipbuilding Industry Corporation
<b>VINASHIP</b>	Vietnam Shipping Company
<b>VISERITRANS</b>	Vietnam Sea and River Transport Corporation
<b>VISHIPEL</b>	Vietnam Ship Electronic Communications Company
<b>VITRANCHART</b>	Vietnam Sea Transport and Chartering Transport
<b>VITRANSS</b>	Vietnam Transport Strategy Study
<b>VIWA</b>	Vietnam Inland Waterway Bureau
<b>VMRCC</b>	Vietnam Maritime Regional Coordination Center
<b>VMSA</b>	Vietnam Maritime Safety Agency
<b>VOSA</b>	Vietnam Ocean Shipping Agency
<b>VOSCO</b>	Vietnam Ocean Shipping Company
<b>VTS</b>	Vessel Traffic Service

**Part I**

**SHIPPING**

## 1 INTRODUCTION

Since the 1990s, Vietnam has successfully been integrated with the global trade market. Vietnam imports various industrial products and exports agricultural, mining and industrial goods. Such an interactive economic relation is firmly supported by overseas shipping.

Although there is no comprehensive policy framework available on Vietnam's overseas shipping, some expressions regarding shipping nationalisms are observed in government documents such as "transport right". But the utmost importance is how to provide smooth and economical shipping services to shippers and consignees, since trade is the heart of the economy and transport influences the competitiveness in trade. Thus the policy to strengthen Vietnam's overseas shipping industry should facilitate trade.

Coastal shipping has a significant role in Vietnam. Between 1995 and 1998 the shipping volume doubled despite the Asian economic crisis, proving that the north-south economic linkage has been tightened. Many transport officers and planners believe that coastal shipping is an economical means to carry bulk cargo over long distances. However, not many understand that coastal shipping could also compete even with truckers handling small consignment, if more container and roll on-roll off (roro) ships would be assigned in liner operation.

The shipping industry should be strengthened but without unnecessary protection measures. In this sense, a liberalized market access with a level playing field is very much important. Some policy interventions effective in neighboring countries should be studied such as tax exemption for providing public service and a ship finance facility.

Lastly, safety and environmental considerations will become more and more important in Vietnam. There are some significant movements against maritime accidents, oil pollution and substandard ships, e.g., international conventions, regional agreements and joint operations. These intend to enhance maritime safety and environmental protection through technical harmonization and upgrading and joint enforcement of laws or regulations such as the Global Maritime Distress and Safety System (GMDSS), Standard of Training Certification and Watch-keeping 1995 (STCW-95), port state control (PSC), and International Safety Management Code (ISM Code). It should be noted that Vietnam shipping development must be sustainable as well as competitive.



## **2 REVIEW OF RELATED STUDIES, PLANS AND PROJECTS**

### **2.1 Past Study and Recommendations**

In coordination with the Vietnam Ministry of Transport (MOT), the Japan International Cooperation Agency (JICA) organized a Study Team with the primary aim of developing a master plan for coastal shipping in Vietnam. The main output of this study was the Master Plan on Coastal Shipping Rehabilitation and Development in Vietnam (1997). On the other hand, there is no comprehensive study on overseas shipping available in Vietnam, except for business plans of shipping operators. Therefore this section only highlights the JICA coastal shipping study.

The study identified the expected roles of coastal shipping as follows:

- bulk cargo haulage over long distances as an economical means;
- regional linkage between two different economies, the north and the north; and
- an alternative mode from land transport in an emergency.

Development of coastal shipping, however, requires a comprehensive approach wherein relevant aspects should be effectively integrated. The study directed the development of following relevant aspects:

- Major coastal shipping routes were identified on which development of 3,000 to 5,000 DWT (dead weight tonnage) vessels would be most economical.
- The coastal shipping fleet needs to be expanded, modernized and diversified, including container ships, roll-on roll-off (roro) ships and transport of special goods.
- Improvement of shipyards and ship repair is badly needed.
- Seventeen (17) ports were identified as key general ports for coastal shipping.
- A total of 832 km of sea-cum-river ways should be developed to effectively connect coastal shipping ports.
- The management skills of shipping operators should be improved to strengthen marketing and customer relations, and management know-how in modern business and ship operation practices.
- Adequate forms of secondary transport should be provided in accordance with the situation at each port.
- An adequate supply of competent maritime personnel should be ensured by improving existing institutions such as the Vietnam Maritime University (VIMARU).
- Enhancement of maritime safety and environmental protection is becoming more and more important, covering ship inspection, PSC, aids to navigation (ATN), search and rescue (SAR), and oil spills.

The overall cost of the Master Plan was estimated to be US\$ 1.76 billion between 1997 and 2020 (refer to Table 2.1.1).

Table 2.1.1  
Estimated Cost of the Coastal Shipping Master Plan (1997-2010)

Subsector/Category	Mainly Incurred by:	Estimated Cost	
		US\$ M	%
Fleet Expansion and Modernization			
-Vessel Acquisition <sup>1/</sup>	Ship Operators	986.5	56.2
-Improvement of Ship Construction Yards	Ship Yards	14.3	0.8
-Improvement of Ship Repair Yards	Ship Yards	16.8	1.0
-Shipyards Quality Management Center	Ship Yards	0.6	0.03
Ports and Waterways Development <sup>2/</sup>			
-Coastal Shipping General Ports Infrastructure	Port Operators	240.5	13.7
-Coastal Shipping Specialized Ports Infrastructure	Port Operators	61.4	3.5
-Sea-cum-River Way Infrastructure Improvement	VINAMARINE/IWB	26.0	1.5
		N/A	-
Coastal Shipping Management Modernization			
-Training in Modern Operating Methods	Ship Operators	N/A	-
Secondary Transport Improvement Program			
-Improvement of River and Road Infrastructure	IWB/VRA		
Maritime Human Resources Development Program		22.7	1.3
		2.7	0.2
-Improvement of VIMARU and MTTS	VINAMARINE/VIMARU		
-Training Equipment for Tanker Operation	VIMARU		
Maritime Safety Enhancement and Environment Protection Program		1.3	0.1
		173.0	9.9
-Establishing Testing Laboratories	VIRES	169.4	9.6
-Aids to Navigation Equipment	VMS	40.4	2.3
-Maritime Safety Vessels (for ATN and SAR)	VINAMARINE/VMS etc.		
-Sea Communication Equipment	VISPHEL/Ship Operators		
<b>TOTAL</b>		<b>1,755.6</b>	<b>100.0</b>

1/ Including oil tankers (assuming the Dung Quat project is implemented)

2/ Excluding oil facilities

## 2.2 Ongoing and Committed Projects

The JICA Coastal Shipping Study (1997) proposed priority project packages (refer to Table 2.2.1). As of November 1999, the implementation progress was checked as follows:

1) Nine key coastal shipping ports

Eight ports except Dong Nai were or are being rehabilitated and improved by either domestic or official development assistance (ODA) fund.

2) Five sea-cum-river ways serving selected ports

Minimum rehabilitation works have been done by domestic effort. The Lach Giang-Hanoi route was investigated by the Asian Development Bank (ADB) consultant. The Hai Phong access channel is being investigated by a Japan Bank for International Cooperation (JBIC) consultant.

3) Safety equipment

The Spanish government committed to rehabilitate and build part of the visual ATN. No arrangement was done to deploy SAR fleet on Vietnamese waters.

4) Fleet development and modernization

The coastal shipping fleet has been expanded to meet increasing traffic demand. But some are temporarily diverted from overseas shipping. No financial institution has been established to support domestic ship acquisition.

5) Sea communications system

In compliance with the GMDSS, an investment of US\$ 18 million was made to acquire land facilities and sea communications equipment mostly for northern Vietnam. However, southern Vietnam should be covered as well.

6) Maritime human resource development

VIMARU Hai Phong installed new training equipment in compliance with STCW-95. But it is not enough to train and retrain all Vietnamese seafarers. So far, Vietnam Maritime Registry (VMR) has not improved its testing equipment.

Table 2.1.2  
Priority Project Packages (1997-2000) of the JICA Coastal Shipping Study

Proposed Components	Cost (US\$ Million)
<b>Package A</b>	
1. Improvement and Rehabilitation of Existing Main Ports (Haiphong, Hanoi, Cua Lo, Danang, Qui Nhon, Nha Trang, Saigon/Dong Nai, and Can Tho)	160.1
2. Five Sea-cum-River Ways serving Selected Ports	10.9
3. Safety Equipment	65.8
Visual aids to navigation	(21.7)
Maritime safety fleet deployed to the above-mentioned ports	(41.2)
Workshops for fleet maintenance	( 2.9)
4. Fleet Development and Modernization Program	234.6
Acquisition of ships	(225.9)
Shipyards	( 8.7)
5. Shipping Operation-related Improvement	N/A
Subtotal	471.4
<b>Package B</b>	
6. Technical Improvement	
Sea communication system in compliance with GMDSS	
Land facilities	33.8
Vessel equipment	3.0
Subtotal	36.8
<b>Package C</b>	
7. Maritime Human Resource Development	
VIMARU improvement in compliance with STCW	4.5
Installation of testing laboratories to strengthen ship inspection	1.3
Subtotal	5.8
<b>TOTAL</b>	<b>514.0</b>

Source: JICA Study Team 1997

## 2.3 Government Policies and Regulations

### Related Rules and Regulations

The fundamental laws and regulations covering maritime activities in Vietnam are provided in the Maritime Code of Vietnam (which was passed in the National Assembly on 30 June 1990 and took effect on 1 January 1991). The Maritime Code consists of the following:

- Chapter I      General Provisions
- Chapter II     Seagoing ships
  - Section A    Vietnamese seagoing ships
  - Section B    Maritime safety and prevention of environmental pollution
  - Section C    Control of capacity of seagoing ships
  - Section D    Documents of ship
  - Section E    Right to ownership of seagoing ships

Chapter III	Ship crew
Chapter IV	Seaports and port authority
Chapter V	General provisions
	Section A Carriage contracts
	Section B Cargo loading
	Section C Bill of Lading
	Section D Cargo carriage
	Section E Discharge and delivery of cargo
	Section F Freight and additional costs of cargo carriage
	Section G Termination of contract
	Section H Responsibility to compensate for loss of cargo
	Section I Detention of cargo
Chapter VI	Contracts on transportation of passengers and luggage
Chapter VII	Charter party
Chapter VIII	Shipping agents and maritime brokers
	Section A Shipping agents
	Section B Maritime brokers
Chapter IX	Maritime piloting
Chapter X	Sea towage
Chapter XI	Maritime salvage
Chapter XII	Recovery of sunken property
Chapter XIII	Collisions
Chapter XIV	General average
Chapter XV	Civil liability of ship owners
Chapter XVI	Marine insurance contracts
	Section A General provisions
	Section B Insured value and insurance payment
	Section C Transfer of right under a marine insurance contract
	Section D Cargo Insurance
	Section E Performance of marine insurance contract
Section F	Payment of compensation where a third person is responsible for loss
	Section G Abandonment of subject matter insured
	Section H Assessment of compensation payment
Chapter XVII	Resolution of maritime disputes
Chapter XVIII	Final provisions

Provisions in this code applies to all kinds of seagoing ships which engage in the following activities: (1) carrying cargo, passengers and their effects, (2) exploiting, exploring and processing maritime resources at sea, and (3) conducting other activities for economic purposes, ships of which shall hereinafter be referred to as merchant ships (Article 3 of Chapter 1). It is also provided that seagoing ships as referred to in this Code means floating vessels, with or without engines, which engage in activities at sea and in navigable water (Article I of Chapter 1).

According to Prime Minister Decree No.14/CP dated 25 February 1994, seagoing vessels in Vietnam are defined as follows:

- Seagoing vessels whose engines have a power rating of over 75 CV,
- Nonpropelled vessels over 50 GRT or 100 DWT or 20 m in length, and
- Seagoing vessels smaller than the above-stated vessels and which operate more than 12 miles from the coast of international sea lanes.

In addition, government issued various ordinances, decrees and directives to meet regulatory requirements and international maritime conventions. In 1998, for instance, it promulgated the following decrees and legal issuances:

- 1) Decree 39/1998/ND-CP on sunk assets
- 2) Decree 40/1998/ND-CP on maritime transportation of companies and private enterprises
- 3) Decree 55/1998/ND-CP on cargo detained in Vietnam
- 4) Decree 99/1998/ND-CP on purchasing maritime ship
- 5) Decree stipulating administrative punishments for violation of maritime navigation rules
- 6) Rules on Training, Certification and Rank Assignment (Decision No. 1387/1998/QD-MOT)
- 7) Rules on Management of Maritime Communication System
- 8) Rules on Foreign Ships in Transit in Vietnamese Territory
- 9) Rules on Management of Pilotage
- 10) Official letters providing guidelines for the issuance of legal documents by the Vietnam National Maritime Bureau (VINAMARINE)
- 11) Directive No. 56/1998/CT-BGTVT on the intensification of administrative reform in the transport sector

From these supplemental legal issuances, a safe assumption can be made that the Vietnamese government is keen on providing a certain regulatory formality to the maritime subsector in accordance with national and international maritime policies and their enforcement should be required for a long-term effect.

### **Overseas Shipping Policy**

Government and the MOT have indicated their intent to export 40% of the volume of goods, 30% of crude oil, and 20% of dry goods by container (Notice No. 19/TB of 24 February 1996).

Recently, maritime authorities announced their expectation of adequate investments to upgrade and increase domestic fleet capacity from the present level of less than 1.0 million tons to 4.4 million tons, capable of handling 40% of the volume of national export and import. Industry observers estimated that fully carrying out this expansion project would require an investment of US\$ 2 billion by 2000 and US\$ 5 billion by 2010 (Viet Nam News, 24 March 1999).

### **3 CURRENT SITUATION**

#### **3.1 Administrative Framework**

##### **Vietnam National Maritime Bureau**

The administrative duties and functions of Vietnam's maritime transportation subsector is under the mandate of VINAMARINE. This organization is authorized to assume governmental responsibilities over the administration of maritime activities and agencies including seaport authorities, search and rescue and registration of seagoing vessels and seafarers.

On behalf of the MOT and directly reporting to the Prime Minister, the VINAMARINE chairman exercises the function of state administration over the maritime subsector throughout the country including all state-run maritime enterprises, organizations and individuals.

However, the Bureau's administrative management is weak, perhaps due to its equally weak institutional organization and regulatory functions and the lack of expertise in shipping. In particular, as reported in the JICA study, the Bureau is weak in investment planning, legal framework and maritime safety aspects.

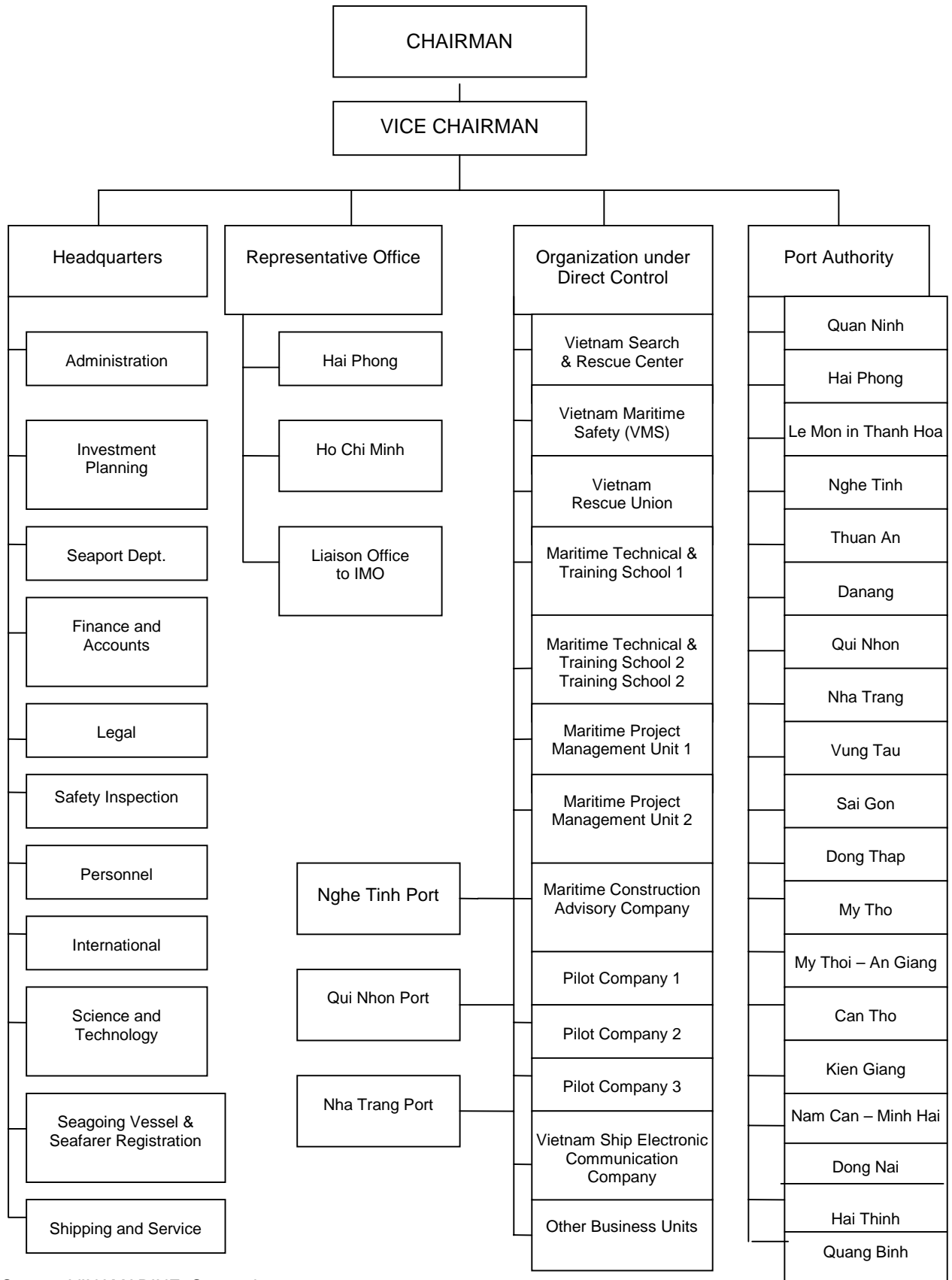
A recent VINAMARINE report indicates a proposal submitted to the MOT for the Bureau's administrative reform specifically on the following concerns:

- 1) Reform of administrative mechanism
- 2) Reinforcement of maritime administrative apparatus at all levels
- 3) Training of government officers

This proposal led to the MOT's issuance of Directive No. 356/1998/CT-BGTVT dated 3 November 1998, which addresses the intensification of administrative reform in the transport sector. VINAMARINE then issued notification 1950/TB-CHHVN dated 14 December 1998 to units under its direct administration in compliance with the MOT directive. This notification outlined the Bureau's programs and plans to implement administrative reform which are as follows:

- 1) Continuing to reform the Bureau's administrative procedures and those of its administrative organs;
- 2) Ensuring to work within its mandate in a manner that is transparent, simple and fair to avoid problems and negative feedback;
- 3) Setting up regulations and publicizing specific instructions on procedures and order in dealing with work ethics.
- 4) Implementing administrative reform in performing the following tasks:
  - (1) Issuing business licenses for transport shipping and maritime services,
  - (2) Issuing business licenses for business in new seaports,
  - (3) Registering sea vessels and crews,
  - (4) Organizing training courses and issuing maritime professional certificates,

Figure 3.1.1  
 Organizational Chart of VINAMARINE



Source: VINAMARINE, September 1999

(5) Issuing licenses for foreign sea vessels to enter Vietnam and issuing



- licenses for sea vessels to come in/out of ports,
- (6) Dealing with infrastructure construction for the sector,
- (7) Dealing with administrative procedures, records at VINAMARINE and its organs.

Under the above-mentioned new directive and notification, a more effective and enhanced administration of the maritime subsector is expected in the near future.

### **Other Related Organizations**

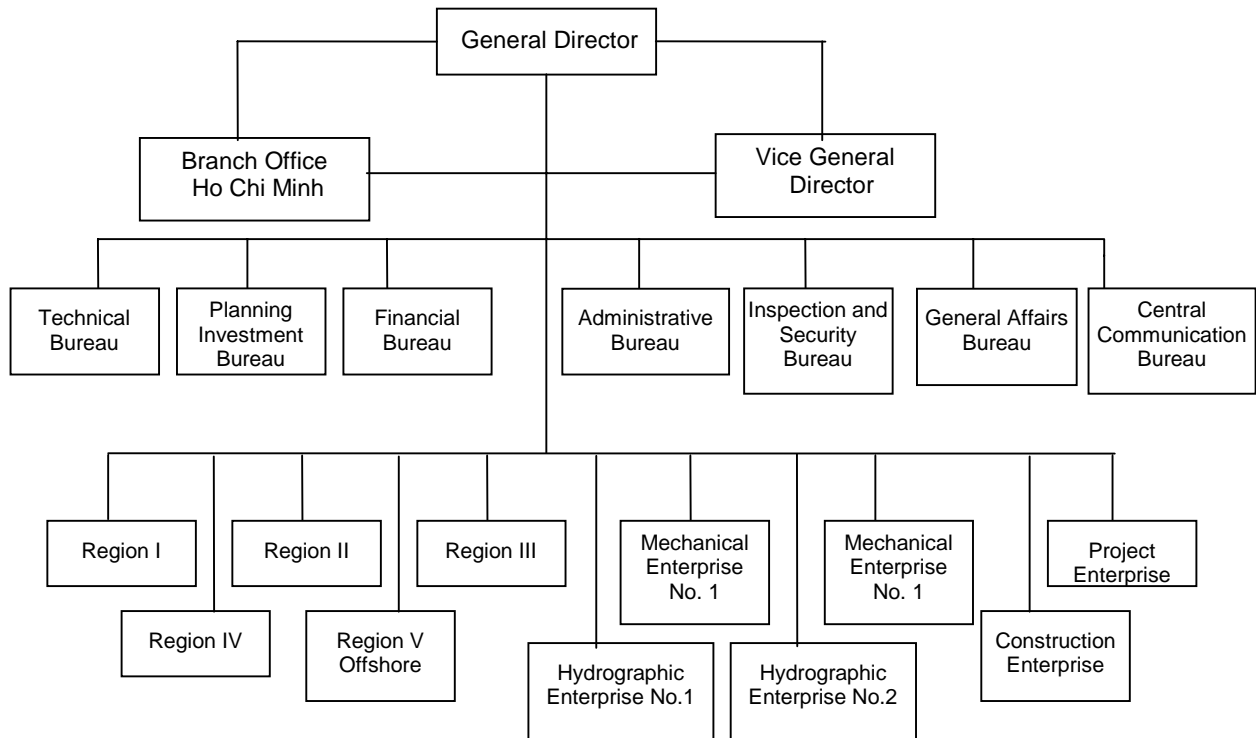
There are two organizations on maritime safety and ship registration under the MOT – the Vietnam Maritime Safety Agency (VMSA) and Vietnam Maritime Register (VMR).

The VMSA was created on 1 January 1995 with the primary responsibility of providing conventional ATN services, while the VMR started as a section in 1964. It was then named Vietnam Register of Ships and upgraded to bureau level on 19 July 1979.

In 1990, VMR started the technical supervision and classification of offshore installations. On 16 December 1998, Notice No. 1959/CHHVN-TTATHH was issued informing everyone concerned that the Vietnamese government and MOT has signed the memorandum of understanding (MOU) on PSC in the Asia-Pacific region in Tokyo on 1 December 1998. This MOU took effect on 1 January 1999. Vietnam's adoption of Resolution A.787 (19) of the International Maritime Organization (IMO) on PSC procedures intensifies the roles and functions of the VMSA and VMR.

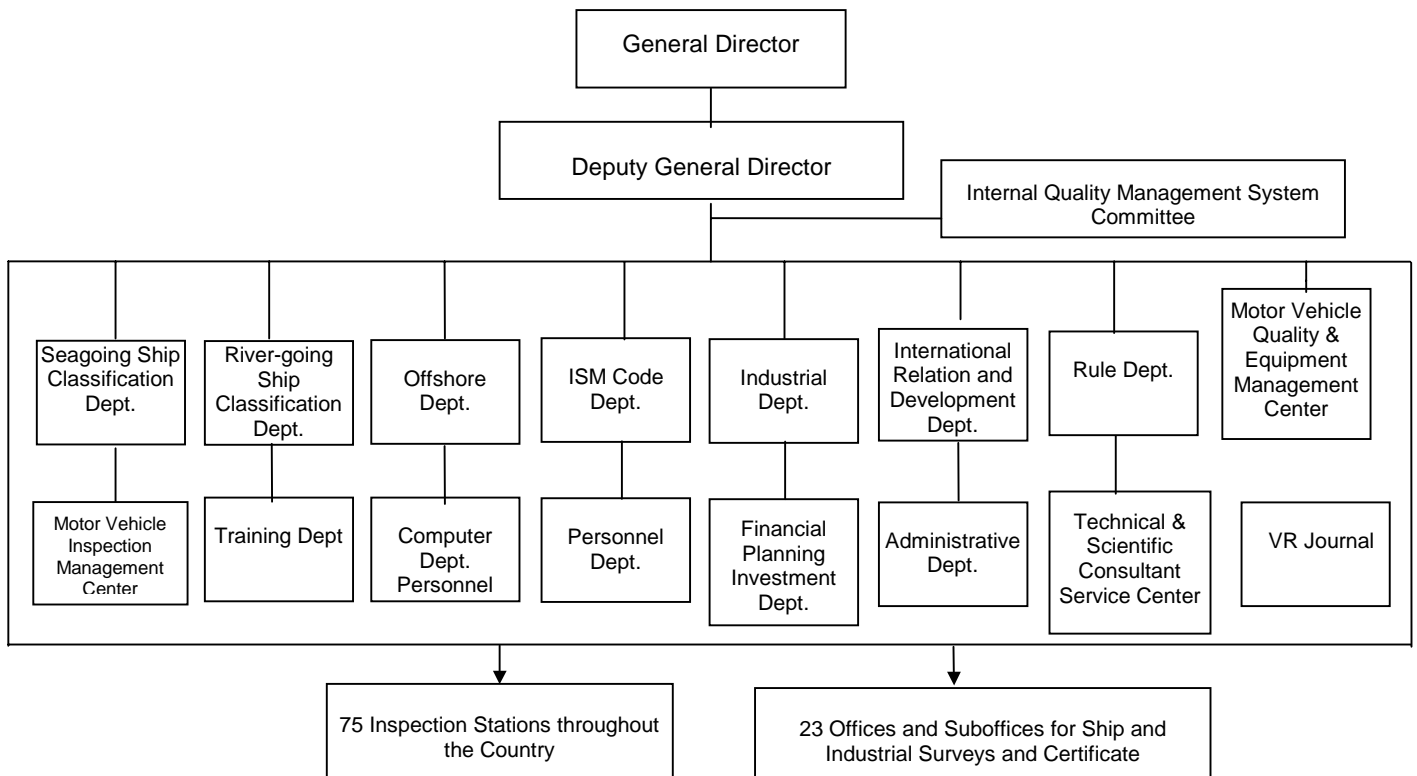
In aiming for “safe ships and clean seas” and the elimination of substandard ships, both organizations are required to improve procedures on ship inspection, issuance of certificate and marine safety enforcement.

**Figure 3.1.2**  
Organizational Chart of the Vietnam Maritime Safety Agency



Source: VINAMARINE, September 1999

**Figure 3.1.3**  
Organizational Chart of the Vietnam Maritime Registry



Source: VINAMARINE, September 1999

## 3.2 Industrial Framework

### Vietnam National Shipping Lines

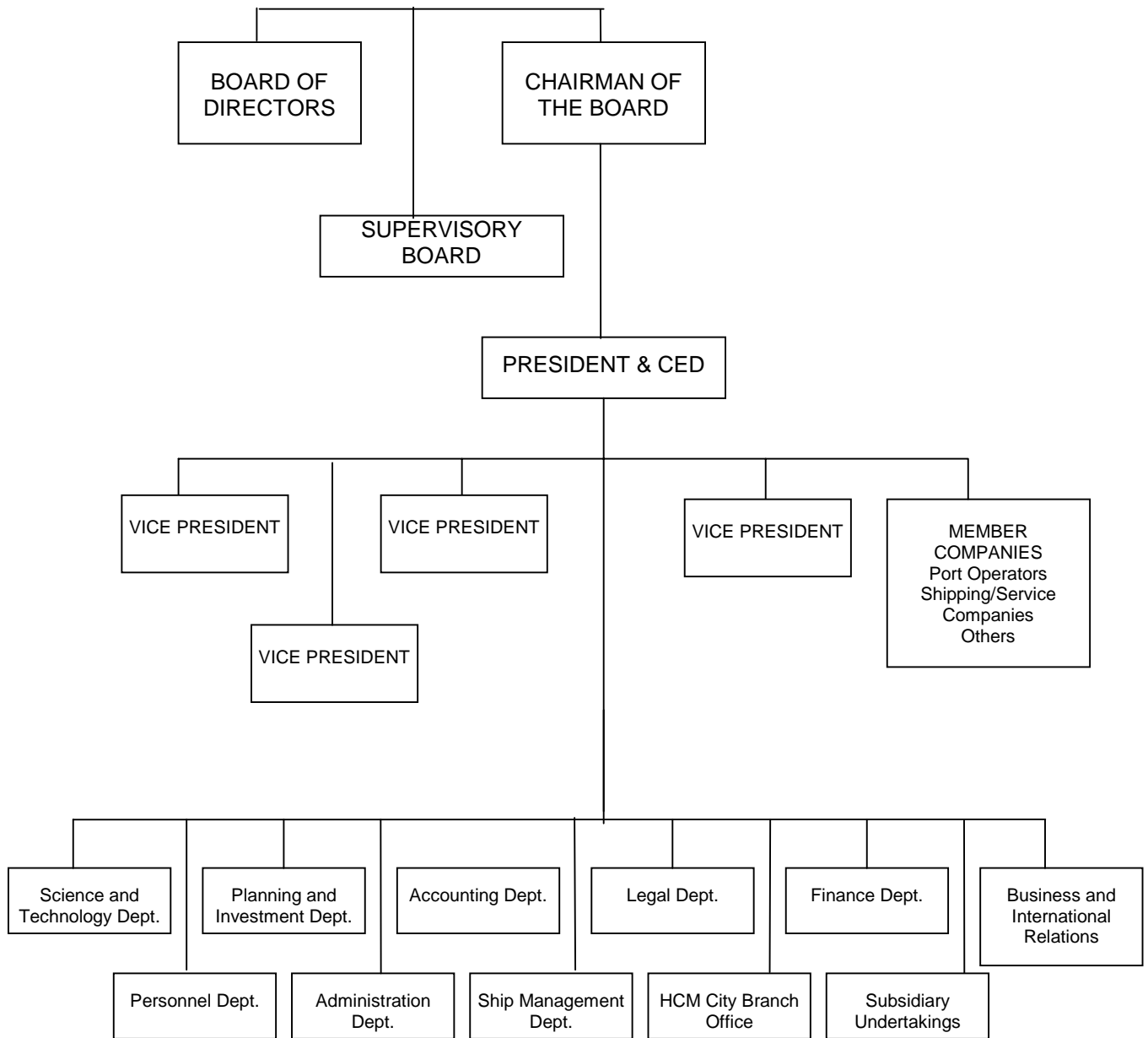
VINALINES was established on 1 January 1996 in accordance with the Prime Minister's Decision No. 250/TTg dated 4 April 1995. To pursue organizational reform, operational management and commercial functions were transferred from VINAMARINE to VINALINES. As a result, a number of state-owned enterprises (SOEs), many of them leading ocean-going and coastal shipping companies, such as Vietnam Ocean Shipping Company (VOSCO), Vietnam Sea Transport and Chartering Company (VITRANCHART), Vietnam Shipping Company (VINASHIP), and Falcon Shipping Company (FALCON), were placed under VINALINES.

One of the organization's major functions is to operate five major ports in Vietnam, namely: Hai Phong, Quang Ninh, Danang, Saigon, and Can Tho, and the respective companies operating in these ports.

Since its inception VINALINES has expanded its business activities in shipping, port operation and other services to improve cargo-handling capacity and increase transportation capacity. Together with its member companies, VINALINES has become a major stockholder in several joint venture and holding companies in the maritime industry. Following are the major operators and companies that comprise VINALINES' business activities:

- 1) Port Operators
  - (1) Hai Phong Port (port and container terminal operation)
  - (2) Quang Ninh Port (port operation)
  - (3) Danang Port (port operation), joined in 1997
  - (4) Saigon Port (port and container terminal operation)
  - (5) Can Tho Port (port operation), joined in 1997
  
- 2) Shipping Companies
  - (1) VOSCO
  - (2) VITRANCHART
  - (3) VINASHIP
  - (4) FALCON
  - (5) Vietnam Sea and River Transport Corporation (VISERITRANS)
  - (6) Maritime Petroleum Transport Company (MAPETRANSCO)
  - (7) Thuy Bac Shipping Company
  
- 3) Service Companies
  - (1) Vietnam Ocean Shipping Agency (VOSA)
  - (2) Vietnam Maritime Development Corporation (VIMADECO)
  - (3) Vietnam Container Shipping Company – Hai Phong (VICONSHIP HP)
  - (4) Vietnam Container Shipping Company – Saigon (VICONSHIP SG)

Figure 3.2.1  
Organizational Chart of VINALINES



Source: VINALINES

- (5) Maritime Informatics and Technology Company (MITECO)
- (6) Hanoi Maritime Trading Center (MATRA – 1)
- (7) International Labor Cooperation Company (INLACO Saigon)
- (8) Maritime Supply and Service Company (MARISERCO)
- (9) International Labor Cooperation Company (INLACO Hai Phong)
- (10) Marine Technical Material Import/Export & Supply Company
- (11) Marine Import/Export and Trading Company (MARIMEX)
- (12) Marine Servicing Company (MASERCO)
- (13) Marine Trading and Servicing Company (TRAMASCO)
- (14) Marine Trading Center No. 2 (MARTA 2 – Nha Trang)

- 4) Joint Venture, Holding and Subsidiary Companies
  - (1) GEMATRANS (Vietnam) Co., Ltd.: Feeder service operator, liner agency and container-related service provider, with CGM- France
  - (2) Vietnam-Japan International Transport co., Ltd. (VIJACO): Freight forwarder, CFS operator, truck and warehouse operators, with group of Japanese companies
  - (3) Vinabridge Co., Ltd.: Freight forwarder, truck and warehouse operator, shipping agency and CFS operator, with K-Line of Japan
  - (4) Phili-Orient Lines Vietnam, Ltd. Freight forwarder, with Singapore partner
  - (5) Hanoi Maritime Commercial Centre (HCMC): Hotel and office apartment services (with foreign partner)
  - (6) General Forwarding and Agency Co., Ltd. (GEMADEPT): Terminal and inland container depot operator, shipping agency, trucking and warehouse operator and freight forwarder
  - (7) VINALINES' Consulting Company: Marine consulting firm

VINALINES is created to be a nationwide shipping network and has grown to be one of the top economic groups in Vietnam.

## **Shipping Companies**

In Vietnam, there are various types of shipping companies, namely: 1) state-owned companies, 2) shipping companies under the provincial government, 3) joint-venture companies, 4) companies under corporation, and 5) private companies.

### State-owned Shipping Companies

About 70 of state-owned shipping companies are owned by only a few ship owners and operators in Vietnam, such as VOSCO, VITRANSCHART, VINASHIP, and FALCON, organized under VINALINES. These major companies currently operate 48 vessels (including six foreign-registered vessels) with a total DWT of 568,030, serving ocean-going and coastal shipping requirements.

As regards container transportation, member lines are allowed to serve foreign trade using two container vessels and a roro vessel only, but they have a monopoly over domestic container transport.

In the past, a Japanese car carrier named Eastern Car Liner Co., Ltd. (ECL) was granted permission to participate in the domestic container transport on the north-south route. Later, however, said cabotage was revoked by the maritime authority due to the commencement of operations by a joint-venture company under VINALINES. Other state-owned shipping companies under VINALINES are independently operating within the coastal and inland waterway shipping industry using their own vessels. Vietfracht, for one, has three vessels with a capacity of over 3,000 tons.

Table 3.2.1  
State-owned Shipping Fleet, 1998

No.	Name of Company/Ship	Vessel Type	Year Built	DWT
	VOSCO			
1	Fortune Freighter	Dry cargo vessel	1978	6,559
2	Fortune Navigator		1978	6,559
3	Son Ben Hai		1974	11,849
4	Chuong Duong		1974	11,849
5	Tra Khu		1974	11,849
6	Song Duong		1978	15,210
7	Thai Binh		1979	15,210
8	Lucj Nam		1980	15,210
9	To Lich		Bulk cargo vessel	1980
10	Song Thuong	1976		10,029
11	Song Day	1976		10,029
12	Vinh Phuoc	1986		12,300
13	Hau Giang	1977		12,800
14	Hau Giang 02	1978		12,665
15	Hai Au 01	1982		6,476
16	Cabot Orient	1984		4,485
17	Morning Star	1983		21,353
18	Golden Star	1983		23,970
19	Polar Star	1984		24,835
20	Huong Giang	1989	13,880	
	TOTAL			262,327
	VITRANSCHART			
1	Long Khanh	Dry cargo vessel	1968	16,745
2	Sai Gon 03		1980	15,547
3	Far East		1982	15,622
4	Sai Gon 01		1973	15,625
5	Sai Gon 02		1973	15,625
6	Long Thanh		1978	11,814
7	Long An		1982	9,873
8	Long Binh		1984	9,062
9	Viet Nam-Nam Tu		1970	9,111
10	Long Hai		1974	8,579
11	Sai Gon 04		1982	15,555
12	Hwk One		1983	14,986
	TOTAL			158,144
	VINASHIP			
1	Dien Bien 01	Dry cargo vessel	1975	8,294
2	Dien Bien 02		1976	8,294
3	Dien Bien 03		1975	8,294
4	Truong Son		1960	12,430
5	Hung Vuong 01		1981	4,747
6	Hung Vuong 02		1981	7,071
7	Tan Trao		1966	4,302
8	Bach Long Vi		1981	2,118
9	Hung Vuong 03		1975	5,923
10	Thang Loi 01		1969	2,569
11	Thang Loi 02		1970	2,569
	TOTAL			66,665

Table 3.2.1 continued

No.	Name of Company/Ship	Vessel Type	Year Built	DWT
1	VINALINES Van Lang	Container vessel	1983	5,223
2	Hong Bang		1984	5,223
3	Me Linh		1983	11,235
4	Van Xuan		1984	11,242
5	Dien Hong	Semi-container vessel	1984	6,289
6	Phong Chau	Container vessel	1983	17,000
	TOTAL			56,212
1	FALCON Healthy Falcon	Product oil tanker	1985	6,022
2	Pretty Falcon	Crude oil tanker	1985	6,631
3	Pacific Falcon		1986	60,960
	TOTAL			73,613
1	XNLHVTB FA SONG Viet Ba 01	Coastal vessel	1980	1,400
2	Back Dang 22		1988	1,000
3	Back Dang 06		1985	1,230
4	Phuong Long 01		1987	1,000
5	Back Dang 14		1987	1,000
6	Hong Ha 16			600
	TOTAL			6,230
1	CTVTHUY BAC Trang An	Coastal vessel		5,105
2	Thuy Bac 01			200
3	Livaso 02			400
	TOTAL			5,705
1	INLACO Pha Lai (HP)	General cargo vessel		4,354
2	Inlaco (SG)	Training vessel		2,223
3	Tam Dao/Chuu Long	General cargo vessel		6,000
4	Tri An	Training vessel		4,190
	TOTAL			16,767
1	VIETFRACHT (MOT) Kim Lien	Dry cargo vessel		10,050
2	Nguyen Du			3,700
3	Hoa Sen			3,500
	TOTAL			17,250
1	VIETRANSTIMEX (MOT) Vietranstimex 01	Coastal vessel		2,056
2	Vietranstimex 02			1,401
	TOTAL			3,457
70	GRAND TOTAL			666,370

Source: VINAMARINE 1998

### Shipping Companies under the Provincial Government

There are shipping companies under the provincial government's control and with head offices in Hanoi, Danang and Ho Chi Minh. They have their own vessels and are individually operating in foreign and domestic shipping. These are:

- Hanoi Maritime Transport Company (HAMATCO in Hanoi)

- Danang Maritime Transportation and Commercial Services Co. (DAMATOCOSCO in Danang)
- Saigon Shipping Company (head office in Ho Chi Minh City)

Saigon Shipping owns four cargo vessels (1,000 to 5,080 DWT) plying the Vietnam-southeast Asia-Vietnam route. It has 114 employees and 281 seafarers (Officers 138, Rating 143) and fields its crewmembers to foreign shipping companies from their own human resource pool. Saigon Shipping has entered into a joint venture with a foreign partner for container feeder services.

#### Joint Venture Companies

There are several joint venture companies in the maritime subsector, particularly in container feeder service, which can be considered successful such as GEMATRANS and APM-Saigon Shipping.

- 1) GEMATRANS (Asia) Co., Ltd. is a joint venture between VINALINES and Compagnie General Maritime (CGM – France) and established in 1989. It is owned 51% by VINALINES and 49% by CMG. The line is now operating 11 container vessels with a total capacity of around 4,000 TEU. With the expansion of their feeder network to cover major ports in southeast Asia, it is estimated that their current share in the total container carriage is around 30%.
- 2) APM-Saigon Shipping is a joint venture between Saigon Shipping and AP Moller (Danish). Its feeder service operation started in 1997, with Saigon Shipping owning 25% of the stocks and APM, 75%. It now operates seven to 11 middle-type container vessels under a chartered contract and runs to/from Hong Kong, Kaohsiung, Pusan, and Singapore. Its share is estimated at 30% of total carriage.

#### Private and other Shipping Operators

It was reported that there are several private ship owners particularly in inland waterway transportation operating mainly small-sized ships belonging to transport corporations.

In the north, there is the Northern Waterway Transport Corporation (NOWATRANCO) located in Hanoi. It comprises six inland waterway and river-sea transport companies and four inland port operators. NOWATRANCO carries and handles containers and bulk and bagged cargo, such as coal, stone, sand, and gravel, on northern river routes.

In the south, the Saigon Waterway Transport Corporation (COVASO) located in HCM City operates 24 vessels mainly steel barges, with an average of 250-300 DWT with no power and towed by tugboat on Mekong Delta. These barges carry major commodities such as construction materials, cement and agricultural



products. The freight tariff is usually not fixed but negotiated subject to cargo volume, season and regularity.

Almost all of its barges are old (average is 10 to 15 years) and have low productivity due to high operating cost and low space utilization. These vessels usually do not meet their monthly target of 10,000-15,000 tons, managing to use only 30% of its available space. Their barges sometimes transport foreign cargo directly from ocean-going ships.

There are also some independent private operators using their own vessels in foreign and domestic transportation. One of these is the Mekong Shipping Company which has two cargo vessels (1,232 DWT and 22,140 DWT) that serve foreign and domestic demand.

### Fleet

There were a total of 772 registered vessels in the Vietnam registry as of end of September 1999. Table 3.2.2 indicates the number of vessels by type and weight.

Table 3.2.2  
Registered Vessel by Type and Weight

Type	Number of Ships by Weight							Total
	< 200 DWT	200-499	500-999	1,000-1,999	2,000-4,999	5,000-9,999	>10,000 DWT	
General Cargo Boat (incl. Reefer)	117	205	45	46	26	15	8	462
Container (incl. ro-ro)							2	2
Oil Tanker	19	2	7	11	7		2	48
Passenger & Cargo	42	2						51
Barge	1	24	5	16	1	2		49
Tug & Supply Boat	65	6	7	7				85
Dredging Boat	1	7		2	1	1		12
Others <sup>1/</sup>	30	15	10	3	3	2		63
TOTAL	282	261	74	85	38	20	12	772

Source: Register of Ships; Vietnam Register of Shipping as of September 1998.

1/ Others include fishing boat, pilot boat, floating crane, patrol boat, pontoon, floating dock and research boat, etc.

### State-owned Shipping Fleet

Almost all big cargo vessels and tankers belong to state shipping companies and

transport foreign and domestic cargo forwarders. Of these, only 10 vessels are under five years old, and the rest are over 19 years old.

Besides these figures, the Institute of Shipping, Economics and Logistics (ISL) merchant fleet database also provided the number of Vietnamese registered ocean-going vessels as of 1 January 1998, based on a quarterly update by Lloyd's Register of Shipping (see Tables 3.2.3 and 3.2.4).

Table 3.2.3  
State-owned Shipping Fleet (as of March 1999)

Company	Number of Ship by Weight							Total
	< 3000	3000-5999	6000-8999	9000-11000	12000-14999	15000-19999	>20000 DWT	
VOSCO 251,242 DWT		1	7	3	3	4	3	21
VITRANSCHART <sup>1/</sup> 145,698 DWT			1	3	1	6		11
VINASHIP 75,377 DWT	2	3	4	2				11
FALCON 80,001 DWT		3	1				1	5
TOTAL	2	7	13	8	4	10	4	48

1/ Including six open-registered vessels of 81,402 DWT.

Table 3.2.4  
State-owned Shipping Fleet

Type of Vessel	No. of Fleet	DWT
Bulk Carrier	10	151,000
General Cargo		
Single Deck	225	353,000
Multideck	44	250,000
Oil Tanker	23	66,000
Chemical Tanker	3	2,000
TOTAL	305	822,000

Source: ISL, January 1998

The existing transport capacity of the Vietnamese mercantile ship fleet is shown in Table 3.2.5.

Table 3.2.5  
Transport Shipping Capacity

Owner Type	Number of Cargo Ships								Total	
	<200	200-499	500-999	1000-1999	2000-4999	5000-9999	>10000	ALL	DWT	%
Mainly Ocean-going of Foreign Seagoing Ships										
State	9	11	8	16	15	21	27	107	676,320	58.9
Joint Venture			1	4	7	1	5	18	255,021	22.2
Subtotal	9	11	9	20	22	22	32	125	931,341	
Mainly Coastal Shipping Vessels										
Local Government	16	127	12	33	14	3		205	146,761	12.8
Cooperative	1	18						19	4,400	0.4
Private	7	85	20	14	2			128	65,351	5.7
Subtotal	24	230	32	47	16	3		352	216,512	
TOTAL	33	241	41	67	38	25	32	477	1147853	100%

Source: VINAMARINE

The number of ships over 10,000 DWT and 2,000 DWT mainly serving foreign trade accounted for 6.7% (32 vessels) and 20%, respectively. Table 3.2.6 lists the newly purchased ships built and purchased between 1996 and 1998.

Table 3.2.6  
Purchased Ships during 1996-1998

Sector	1996		1997		1998	
	Ship	DWT	Ship	DWT	Ship	DWT
Mainly ocean-going Shipping Total	6	69,007	11	110,643	4	67,799
State Government	6	69,007	8	98,945	4	67,799
Joint Venture			3	11,698		
Mainly Coastal Shipping Total	13	4,185	15	8,321	3	1,455
Local Government	3	600	4	2,463	2	979
Cooperative	2	400	1	200		
Private	8	3,185	10	5,658	1	476

Source: VINAMARINE

The figures above are inclusive of the vessels purchased by VINALINES between 1996 and 1998.

**Table 3.2.7**  
**Ownership of Purchased Ships in 1996-1998**

Lines	Type of Vessel	No. of Vessel	DWT	TEU
VINALINES	Container	5	50,500	3,128
	Roro	1	6,400	290
VOSCO	Bulk cargo ship	4	83,858	
	General cargo	4	25,588	
VITRANSCHART	General cargo	2	31,472	
FALCON	Crude oil tanker	1	60,600	
	Product oil tanker	2	11,240	
INLACO SAIGON	Product oil tanker	1	1,924	
TOTAL		20	271,582	3,418

Source: VINALINES

According to the 1998 annual report of VINALINES in 1998, in 1996-1997 they invested US\$ 82 million to expand their fleet to 220,000 DWT and US\$8 million for 26,000 DWT.

Newly purchased vessels by SOEs dealing mainly in foreign trade are second-hand vessels built between 1982 and 1989 (mainly in 1983/1985). Despite these acquisitions and expansion, the present technical condition and structure of the Vietnamese ocean-going fleet are still not competitive and suitable: Given the ship's average life of about 21 years, the technical condition of these purchases would already be suffering. It is thus an urgent issue for the Vietnamese maritime subsector to replace and rehabilitate its ocean-going fleet.

### **Domestic Shipbuilding Industry**

The shipbuilding industry in Vietnam is unable to comply with ship owners' requirement for bigger vessels, primarily due to the lack of expertise in designing and technical skills. Other specific problems are insufficient supply of steel plates and the lack of machinery, equipment and capacity to domestically produce the main engine.

Recently, VINASHIN, a state-owned shipbuilding enterprise, established a joint venture with Hyundai, a South Korean company, to repair and maintain ships. This joint venture is also planning to build big-sized vessels in their shipyard in Khoan Hoa province. But due to the insufficient supply of iron steel plates, this may not be feasible in the near future. According to the Vietnam Steel Corporation, their current capacity in producing iron steel plates is at an average of 300,000 tons per annum. Almost all are for domestic construction and there seems to be no possibility to supply to shipbuilders.

It was also estimated that the quantity of mined crude ore in Vietnam is capable only of supplying the industry for the next 30 years given the present average consumption. However, importing iron steel plates for shipbuilding is not practical due to the stiff competition from shipbuilders in other countries.

An alternative is being offered by a joint venture between an enterprise under the Vietnamese defense force and its Japanese partners. This company produces the needed plates, sourcing them from broken down ships and melting them in an electric furnace. This factory in Ky Ha has a capacity of 300,000 tons of steel plates a year. Although labor-intensive, it is expected to be managed well in Vietnam.

In the meantime, the industry will have to continue buying used vessels or building new ships in foreign shipyards, until such time that local production of iron steel plates for shipbuilding has improved.

### **3.3 Operation and Management**

#### **Shipping Traffic Volumes**

Seaborne traffic can be defined as the movement of seaworthy vessels between ports in accordance with Maritime Code 1990 of Vietnam. Seaborne traffic has substantially increased from 17.9 million tons in 1991 to 56.9 million tons in 1998, showing an annual growth rate of 17.8%, parallel with Vietnam's trade expansion for the same period (29% annual in current prices). Regarding the relationship between shipping and trade in Vietnam during the 1990s, the imported value always exceeded the exported one (e.g., 26% of import surplus in 1998) while the outgoing shipping volume is always larger than the incoming one in terms of tonnage (e.g., 20% of outgoing surplus in 1998). It clearly shows the characteristics of Vietnam's trade structure in which more agricultural and mining products are exported and more industrial products are imported.

Throughput amounted to 5.9 million tons in 1998, 40.6% of which was dry cargo, 38.5% liquid cargo, 13.8% container, and 7.1% transit cargo.

The need for containerization is acute in Vietnam. The average growth rate per year is 34% between 1991 and 1998. The current containerization rate of 14% (containerized cargo/total cargo) implies that there must be a large room for containerization in line with industrial development.<sup>1</sup> VINAMARINE estimated the cargo transported by Vietnamese flag vessels in 1998 at 12.8 million tons, sharing 22.6% of the overall shipping traffic connected with Vietnamese ports.

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<sup>1</sup> Containerization in overseas shipping in other ASEAN countries: Singapore – 48%, Malaysia – 30%, Cambodia – 25%, Philippines – 21%, Thailand – 18%, Indonesia – 12%, Myanmar – 11% (Source: ASEAN)

**Table 3.3.1**  
**Shipping Traffic Volumes for 1995-1998**

Shipment	Unit	1995	1996	1997	1998
Cargo Throughout	Total	34,000,000	36,656,337	45,760,326	56,899,006
Container	TEU	315,134	464,849	760,610	799,665
Export	TEU	152,500	225,527	381,399	375,674
	Tons	1,200,000		3,222,062	3,079,023
Import	TEU	162,634	239,322	372,313	381,817
	Tons	1,463,706		3,417,957	4,332,855
Domestic	TEU			6,898	42,174
	Tons			33,637	468,619
Liquid Cargo	Tons	13,180,000	15,510,642	18,126,701	21,889,442
Export	Tons			9,778,933	11,785,583
Import	Tons			6,329,780	7,925,973
Domestic	Tons			2,017,988	2,177,886
Dry Cargo	Tons	14,470,000	17,522,766	20,927,308	23,123,193
Export	Tons			8,180,911	7,925,222
Import	Tons			7,537,763	7,748,009
Domestic	Tons			5,208,634	7,449,962
Transit Cargo	Tons		2,085,160	3,150,506	4,038,619
Passenger	Person		55,981	64,296	47,683

Source: VINAMARINE

**Table 3.3.2**  
**Total Throughput and Output by Domestic Ships**

Total Throughput	Tonnage (1998)	% increase from 1997
Export	24,142,049 tons	10.0%
Import	20,772,398 tons	19.0%
Domestic (circulated)	11,643,553 tons	55.0%
<b>TOTAL</b>	<b>56,558,000 tons</b>	<b>23.6 %</b>
Carried By Domestic Ships	Tonnage (1998)	% increase from 1997
Overseas	9,440,405 Tons	4.82%
Domestic	3,404,596 Tons	8.07%
<b>TOTAL</b>	<b>12,845,000 tons</b>	<b>10.0%</b>

Source: VINAMARINE

### Shipping Management

Through the business activities of VINALINES can be gleaned the features of major shipping lines in Vietnam. Table 3.3.3 shows VINALINES' performance in relation with its yearly total revenue and profit since their organization on 1 January 1996.

Based on its report, the annual growth of transport output increased from 16% in 1996 to 25% by the end of 1998, while transport throughput increased 80% from 12.4 million tons (end of 1996) to 15.2 million tons (end of 1998) or a 23% growth.

Table 3.3.3  
VINALINES Income (1996-1998)

Year	Unit	Revenue	Profit	Contribution to State Budget
1/ 1/ 1996	VND bil	1,529.9	154.0	125.9
December 1996	- do -	1,759.0	148.7	164.5
December 1997	- do -	2,000.9	175.5	167.8
December 1998	- do -	2,269.3	196.3	175.4
% Increase since 1996		48%	27%	39%

Table 3.3.4 illustrates the annual operation indicator in 1997 as reported by major lines under VINALINES.

Table 3.3.4  
Annual Operation Indicator of Major Shipping Lines

Indicator in 1997	Unit	VINALINES	VOSCO	VITRANS- CHART	FALCON	VINASHIP
Load Factor	%			63	91	60.60
Proportion Distance	%			78	50	81.11
Capacity of Means	VND mil	103,850				
Total Transport Revenue	VND/T/km		443,038,347	191,894	129,730,343	71,941,159
Average Transport Charge	VND 1,000	99,744.20		37.68	29.77	132,539
Total Expenditure	Ditto	12,446.80	414,713,243	200,459	123,221,895	71,841,159
Out of which		63.10				
Salary and Allowance	Ditto	2,040.31	34,801,739	16,616	3,113,522	7,447,987
Social Insurance	Ditto	14.05	993,290	596	124,522	506,835
Seaport Fee	Ditto	3,341.05	83,624,947	25,708	18,167,658	8,623,421
Fuel	Ditto	7,297.82	78,246,234	37,924	17,421,154	21,374,618
Periodic Reparation	Ditto		37,555,856	16,070	32,326	2,636,304
Material, Lub-oil, Spare part	Ditto	45,846.45	52,847,969	18,752		7,023,651
Basic Depreciation	Ditto	45.94	74,767,381	28,692	564,748	7,170,103
Management	Ditto	2,399.16	18,511,708	6,823	1,057,144	3,698,093
Depreciation of Major Repair	Ditto			9,834		6,996,179
Charter	Ditto				75,863,395	
Pocket Money	Ditto					1,674,001
L/C Fee & Bank Fee	Ditto	9,135.79				
Insurance Fee	Ditto	11,065.00	15,396,529			
Other Expenses	Ditto	6,048.21		7,415	6,827.726	18,157,376
Out of which Mean Inspection	Ditto			1,537		249,262

Generally, the proportion of salary and allowance to total expenditure is comparatively low compared to the allocations of other foreign shipping lines. Meanwhile, other direct and operating costs, such as seaport fee, fuel oil, periodic repair, material/lubricant, and other spare parts, comprise the biggest bulk of the budget. Given the state and age of the vessels, high maintenance and operational expenses are expected. Thus an old fleet in operation is costlier and less competitive because expenditures on repair, maintenance and insurance become financial burdens on individual shipping companies.

### **Shipping Operation**

VINALINES has concentrated its fleet expansion program on container vessels, resulting in an increase in GEMATTRANS' loading share in intra-Asian container services.

Other shipping lines under VINALINES operate specific types of vessel. VOSCO specializes in bulk and specific cargo vessels, VITRANSCHART in general cargo vessels, and FALCON is a liquid-cargo vessel operator. INLACO Saigon is mainly a service company providing crew and training and acting as shipping agency to foreign shipping companies for freight forwarding. This firm is aggressively expanding its business and now owns vessels for crew training and carriage of oil products.

According to VINALINES, the funding for fleet expansion by each firm is through bank loans, with each respective company accountable for the loan. In cases where huge investments are required, VINALINES serves as co-guarantor, for example, in the purchase of a 60,000 DWT tanker by FALCON.

During the last three years, VINALINES and its group of companies purchased 20 various types of vessels, all are second-hand vessels built during the period 1982-1989, but mostly in 1983 and 1985. The acquisition of used vessels is primarily due to financial constraints and partly because of the lack of shipbuilding capacity in Vietnam.

### **International Shipping**

Though the Vietnamese government intends to boost its loading share of imported and exported cargoes to about 40% through the national fleet from its current share of 11%, it is not feasible at present in the face of fierce competition from foreign carriers. Given the present insufficient capacity of the national fleet and the less competitive trade terms and volumes, it would be quite difficult to realize government's target. Therefore, the critical issue here is the urgent need to expand and modernize the national fleet.

These days, most of the attractive cargoes are containerized and carried by semi-container or full container vessels. Currently in Vietnam, container shipments are



mainly handled by some state-owned shipping companies and a local government-controlled company with two nationally registered semi-container vessels and feeder container vessels, the latter operated by joint-venture companies.

At the initial stage of the establishment of VINALINES in 1996, a container ship development plan up to year 2000 was developed (see Table 3.3.5). However, given the changes in the economic situation brought about by the Asian economic crisis, this initial plan might have been affected. A review of possible expansion plans is thus required.

Table 3.3.5  
Development Plan for VINALINES Container Ship (1996-2000)

Year	1996	1997	1998	1999	2000
Percentage of Cargo Transport	15%	15%	20%	25%	30%
Transported Volume (TEU)	97,500	127,500	210,000	312,000	450,000
Average Productivity (TEU/year)	35	35	37	37	37
Total Tonnage Needed (TEU)	2,785	3,643	5,675	8,432	12,200
Present Total Tonnage (TEU)	800	2,435	3,195	5,675	8,430
Additional Tonnage to be Produced	1,985	1,210	2,480	2,757	3,770
No. of Ship to be Procured	2X600	2X600	4X600	3X850	1X850
Tonnage	2X350			1X350	1X3000
No. of Empty Containers to be Produced to Assure Smooth Operation (20-30% of the circulation) (TEU)	2,000	2,000	3,000	4,000	5,000
TOTAL INVESTMENT CAPITAL (US\$ MILLION)	39	29	85	88	92

VINALINES reported that in 1996 and 1997, investment was made on 220,000 DWT vessels at a total capital of US\$ 82 million. In 1998, however, VINALINES has only invested an additional 26,000 DWT, fulfilling only 26% of its projected plan which indicates an investment capital of a little more than US\$ 8 million.

VINALINES established a joint-venture company with a foreign counterpart for the carriage of feeder containers and they have been successful so far. But the expansion plan of owned vessels has not satisfactorily proceeded yet.

In accordance with government and MOT policy, all concerned agencies are requested to establish a common investment plan to expand nationwide capacity of container and bulk cargo vessels as well as oil tanker.

### Domestic Shipping

With regard to coastal shipping and inland waterway transport, the JICA Study Team reported about the prevailing circumstances and problems to be addressed. The team cited in particular the approach to forecasting coastal shipping which should rely on a synthesis of macro-economic development scenario and individual development plans concerning land use and industrialization.

The JICA study recommends the adoption of short-term priority projects, which shall address issues such as maritime safety, ATN and allocation of liner services in the north-south domestic-cargo traffic route. On this route, there are regular demands for shipment of coal, cement and other mining products in bag or bulk. The return leg mainly carries agricultural products and other general cargoes.

In relation to the economic growth of and the growing regional industrial zones in the north, center and south of Vietnam, cargo volumes in the near future will exceed the available traffic capacity of other modes such as rail and truck. This being the case, the establishment of an adequate service channel from the northern to the southern main corridor should be closely linked with cargo and passenger demand. Allocation of liner services to this route will increase traffic demand in coastal shipping.

TRANSVINA, a joint venture company between VINALINES and Japanese partners, started a scheduled liner container services in 1998. Two vessels, named m/v E Linh and m/v An Xuan (8,384 GRT, service speed of 14.50 kts, built in 1983, owned by VINALINES), provide regular container services. TRANSVINA also utilizes feeder vessels, with a space charter contract with its associated companies, to carry domestic cargoes.

VINALINES has dominated the market for domestic transport of container. With the recent launch of TRANSVINA, both companies will still be able to maintain a lion's share in the domestic market for container transport services. In any event, the increase in the supply of available space in the main traffic route would provide better transport conditions to shippers and complement the expected increase in demand as the coastal shipping industry progresses.

### **Container Operation**

Major container transportation are provided by feeder vessels being operated by foreign and joint-venture shipping companies mainly from/to Singapore, Hong Kong, Kaohsiung, and Bangkok.

Two joint ventures, GEMATRANS and APM-Saigon Shipping, are presently enjoying a dominant share (about 60%) among various feeder service operators in Vietnam, such as Wan Hai and Unigroly (Taiwan), Strait Shipping and APL-NOL (Singapore), and RCL (Thailand), in the carriage of feeder containers. Many foreign shipping companies serving international routes have also availed themselves of the feeder vessel services provided by these operators.

According to VINAMARINE's annual report, there was a 20.57% increase in total throughput of container at ports in 1998, broken down as follows:

Export	376,790 TEU	(3,139,545 tons)
Import	373,429 TEU	(4,439,442 tons)
Domestic and transit	40,827 TEU	(467,143 tons)
<b>TOTAL</b>	<b>791,046 TEU</b>	<b>(8,064,130 tons)</b>

The share of Vietnamese ships in the total cargo movement in 1998 was 57% (454,000 TEU or 4,040,432 tons), or a 15% increase in volume compared to 1997. Container cargo flow in Vietnam can be attributed by area: 70%, 20-22% and 8-10% are being handled in southern, northern and central Vietnam, respectively.

The charge table for cargo handling in Vietnam is exclusively being decided and controlled by the Government Price Committee (GPC). Thus, all ports are covered with a single tariff provided under Decision No. 127/VGCP-CNTD.DV issued on 28 October 1997 and enforced since 1 January 1998. As to the charges for container handling, the respective tariff rates in the regions are being applied, as illustrated in Table 3.3.6.

Several container ports are operating in Vietnam, as follows:

1) Vietnam International Container Terminal (VICT)

This is a privately owned container terminal that began operation in November 1998 in HCMC, the major container-handling port in the south. This terminal is equipped with an automated transport and handling system and modern crane facilities and can provide an efficient mechanical operation similar to other dominant hub container ports like Singapore and Hong Kong.

For the initial year, VICT targeted container handling at approximately 170,000 TEU. However, there were only two shipping companies, NOL and Wang Hai, which regularly availed of its services. Moreover, traffic congestion in HCMC restricted inland container movement making it doubly difficult for VICT to attain its initial target.

2) New Saigon Port

This port is enjoying the lion's share with 75% total cargo handling in Saigon. It is a commercially operating terminal located at Binh Thanh district in HCMC and is owned and operated by the defense force. It has a very accessible location, making it the primary choice for shipping companies for the transport and release of their cargoes.

The company's reported container cargo throughput and forecast are as follows:

1996	351,832 TEU (100 %)
1997	403,437 TEU (114.7%)
1998	413,469 TEU (117.5%)
1999	430,000 TEU (122.2%)
2000	500,000 TEU (142.1%)

Table 3.3.6  
Container Handling Charges

(unit: US\$/container)

No.	Handling Operation	Ship hold-Wagon-Truck- Barge or Vice versa			Ship hold-Barge- Warehouse or Vice Versa			Warehouse-Wagon-Truck or Vice Versa		
		R1	R2	R3	R1	R2	R3	R1	R2	R3
1	≤ 20 feet									
	With Cargo	37	26	30	57	50	57	23	20	23
	Without Cargo	24	16	20	37	30	37	15	12	15
2	40 feet									
	With Cargo	55	40	45	85	76	85	35	31	35
	Without Cargo	36	23	29	55	44	55	23	18	23
3	40 feet and above									
	With Cargo	82	59	67	127	113	127	53	47	53
	Without Cargo	53	35	44	83	66	83	34	28	34

## Notes:

- Region 1 (R1): Seaports lying in region from latitude 20 to the North  
Region 2 (R2): Seaports lying in region from latitude 11.5 to latitude 20  
Region 3 (R3): Seaports lying in region from latitude 11.5 to the South
- Handling container from warehouse and yard into the wagon (or vice versa) transported by truck: 100% increase in unit of warehouse-wagon and truck.
- Handling container in the same cargo hold is accounted 25% of unit of ship in hold-warehouse and yard or vice versa.
- Handling container from this cargo hold into another hold (but in the same vessel) is accounted 55% of unit of ship in hold-warehouse and yard or vice versa.
- Handling container and transferring into the same vessel (unloading from vessel, taking on land and loading into the same vessel) is accounted 100% of unit of ship hold-warehouse and yard or vice versa.
- Handling container and transferring into other vessel (unloading from vessel, taking on land and loading into another vessel) is accounted 150% of unit of ship hold-warehouse and yard or in vice versa, from which:  
Unloading from vessel, then taking into warehouse: 75% of unit mentioned above.  
Unloading from warehouse, then loading onto vessel: 75% of unit mentioned above.

(Other exceptional handling charge quotations are omitted)

However, due to some limitations (e.g., no modern gantry crane, limited space in the container yard due to high volume of import/export, domestic and military cargoes, etc.), New Saigon Port has extended its services in receiving and delivering containers at two inland container depots (ICDs) located close to the port, Van Phong ICD Nos. 1 & 2, which have an area of 105,000 sq m for two container depots and 82,000 sq m for four container depots, respectively. They are directly connected to National Road No. 1A. The container directly discharges barges from feeder vessels for forwarding to the ICDs.

Moreover, the company intends to transform this port into a terminal that will offer modern and specialized container-handling facilities and to invest on its new port at Cai Lai. With these investments, the company expects an annual handling capacity of 800,000 TEU at each port.

## 3) Hai Phong Port

The port of Hai Phong handles about 20% of total container transport in Vietnam. However, port equipment for cargo operation at this conventional port do not allow for a smooth container operation.

In the central area of Hai Phong port, there are two berths available for container operation out of the total 14 berths. However, shore cranes can only carry five to 16 tons. At Chua Ve berth, which has a 300 m LOA and 7.0 m depth, shore cranes can accommodate as much as 10 to 40 tons, making it more suitable for container operation.

Given these port capacities, usual container operations are being handled mainly by the vessel's cargo gears, which, however, result in inefficient operation and slow dispatch of vessels. Rehabilitation of cargo handling equipment is therefore a major issue not only for container operation but also for conventional cargo operation. One of the Vietnamese leading shipping companies with a registered homeport in Hai Phong, reported that in 1998 alone the company suffered from demurrage (costs for extra stay) of 1,122 days from the operation of their 21 general cargo vessels. This is mainly caused by waiting for high tide and their turn for cargo loading/unloading. Rehabilitation of port facilities and dredging of river channels are therefore other key aspects that need to be improved for better port and shipping operations.

### **Operational Efficiency**

Vietnamese seagoing vessels and coastal shipping vessels are generally comprised of old (average of 21 years) and small-size vessels, except for some specialized cargo vessels. Major ports in Vietnam are still not well equipped with cargo-handling machines, such as gantry or shore crane on wharves, and some are too obsolete to be used.

Thus, shipping vessels are often forced to operate cargo from berth or anchor using obsolete cargo gears for cargo loading and discharging, to and from wharves or floating barges alongside their ships. This system is neither efficient nor quick and prolongs the vessels' stay at the port. The situation is different, however, at HCMC's Tan Can Port which has a substantial number of containers. Here, cargoes are unloaded directly to barges and forwarded to the ICD. The problem though is that the ship's responsibility for cargoes cover only up to their delivery to the ICD.

Another problem affecting shipping operations is the insufficient water depth of the access channel to the main ports, particularly in the north. Vessels have to wait for high tide before they can approach or depart from the port, further decreasing the ship's productivity. One of the leading state-owned shipping companies reported that in 1998, they suffered from demurrage at an average of

55 days from the operation of their 20 vessels. This is mainly due to the waiting time for high tide and their turn for cargo operation.

The VICT in Saigon, which offers a more efficient container operation, is regularly serving four feeder service companies only, all of which are its investment partners. Given the legal restrictions to container haulage operation in the urban area, other shipping lines do not utilize this more efficient port for cargo operation despite its proximity to the Saigon city zone.

### **Management Efficiency**

One state-owned shipping company, the FALCON, specializes in the transport of liquid cargoes such as crude oil and other oil products. In 1998, this company has acquired a large oil tanker built in 1986 with a capacity of 60,600 DWT, aiming to transport 60,000 tons of crude oil from Vietnam to Japan. However, due to a depression in the market price of crude oil, the Japanese contractor insisted on an increase in capacity to 80,000 tons. FALCON lost its original consignment and had to seek for another contract.

Specialized cargo vessels, such as oil tankers and bulk carriers, are used to carry out serve a long-term contract between cargo supplier/shipper and trader/buyer. Generally in this case, basic trade terms, such as freight on board (FOB) term and a nomination right to shipping line, are fully handled by the trader/buyer. Since there are only occasional offers for chartering vessels to transport specific consignments, it would be cost-effective to first conduct a study on the feasibility of investing on this operation prior to the acquisition of vessels. It may be more appropriate to charter vessels given the present unstable conditions in the market.

### **Financial Viability**

Investments in shipping fleet expansion by state-owned companies under VINALINES are shouldered by each company without government subsidy. Shipping companies usually apply for bank loans from the Investment Development Bank.

Although VINALINES is authorized to administer the finances of its subsidiary companies, financial arrangements are generally attended to by each individual company, except in cases of large acquisition such as the case of FALCON. VINAMARINE, on the other hand, has its own investments for expansion, thus, it cannot anymore extend assistance to its subsidiaries.

### 3.4 Safety Enhancement and Environmental Protection

#### Maritime Accidents

A total of 615 accidents have been recorded during the nine-year period between 1987 and 1995. Of the total, 25% were due to collision, 17% to engine trouble, 9% to capsizing, etc. and 17% involved loss of lives and injuries. Operational errors and technical deficiencies are the main causes of accidents. The number of recorded accidents has been increasing year by year, especially between 1993 and 1995. Considering that many accidents occur during stormy weather and within 12 mile of the coast, consideration should be given to the establishment of improved vessel traffic systems and regulations, weather forecasting services and effective communication systems, especially in heavily trafficked areas.

#### Substandard Vietnamese Vessels

During the period 1996-1998, 59 Vietnamese flag vessels were detained at various foreign ports as a result of strict port state control.

Through the recently published detention information, the required standardization for ship management and operation in Vietnam can be discerned. For example, a three-year detention percentage for Vietnamese flag vessels between 1996 and 1998 was recorded at 35.12%. It was the highest rate among the flags while the average detention rate was 6.49%.

Thus, it is recommended that Vietnamese flag fleet should improve its equipment and maintenance condition, management tactics and crew competence, in accordance with the requirements provided for in international maritime conventions.

Table 3.4.1  
Number of PSC Actions on Vietnamese Flag Vessels, 1996 –1998

Flag	Number of Inspections				Number of Detentions				3-Year Rolling Average Detention (%)
	1996	1997	1998	Total	1996	1997	1998	Total	
Vietnam	51	55	62	168	28	22	9	59	35.12

Table 3.4.2  
Countries with Higher Detention Rates than the Regional Average

No	Flag	Number of Inspection 1996-1998	Number of Detention 1996-1998	Detention Percentage 1996-1998	3-year Rolling Average Detention Percentage 1996-1998	Excess of Average Detention Percentage 1996-1998
1	Vietnam	168	59	35.12	6.49	28.63
2	Cambodia	196	44	22.45	6.49	15.96
3	Korea, Dem. People's	120	25	20.83	6.49	14.34
4	Belize	1,064	218	20.49	6.49	14.00
5	Indonesia	282	45	15.96	6.49	9.47
6	Saint Vincent and the Grenadines	1,035	151	14.59	6.49	8.10
7	Ukraine	64	9	14.06	6.49	7.59
8	Turkey	237	31	13.08	6.49	6.59
9	Egypt	77	9	11.69	6.49	5.20
10	Honduras	1,125	129	11.47	6.49	4.98
11	Malta	720	78	10.83	6.49	4.34
12	Thailand	444	46	10.36	6.49	3.87
13	China, People's Rep.	2,142	213	9.94	6.49	3.45
14	Cyprus	1,545	119	7.70	6.49	1.21
15	France	80	6	7.50	6.49	1.01
16	Malaysia	708	53	7.49	6.49	1.00
17	Taiwan, China	530	38	7.17	6.49	0.68
18	India	362	25	6.91	6.49	0.42
19	Korea, Republic of	1,248	84	6.73	6.49	0.24

Source: Tokyo MOU

Table 3.4.3  
Detention Cases of Vietnamese Vessels

Ship Name	Year Built	Ship Type	Owner/ Operator	Place of Detention	Date of Detention	Date of Release	Nature of Deficiencies
Ha Long 15	1979	General cargo ship	Ha Long Fiscom	Osaka, Japan	5/10/98	8/10/98	Lack of stable information chart and nautical publication, EPIRB and its launching arrangement, hidden cargo, life-saving devices.
Nah Rong 09	1958	Bulk carrier	Nha Rong Transportation	Hainan, China	1/12/98	6/12/98	Fire pumps do not start; minimum manning certificate not on board; auxiliary engine not working.
VINH	1982	General cargo ship	Nghe An Ocean Shipping	Newcastle, Australia	16/3/99	18/3/99	Broken lifeboats; fixed fire extinguishing system in cargo spaces not provided
Ha Tinh 06	1982	General cargo ship	Ha Tinh Shipping	Hong Kong	8/4/99	9/4/99	Lack of life-saving devices; too low load lines (overloading); marine pollution



### Box 3.4.1 Port State Control

Port State Control is a new practice authorizing port authorities to inspect foreign vessels in anchor. Port authorities assign PSC officers and participate in a regional MOU to combat substandard ships. Vessels holding necessary certificates issued by international class societies can enter and anchor at any public port. For those without such certificates, PSC officers give one of two judgments:

**Detention:** In case a ship's condition, equipment and crew do not substantially conform with the standards, and such deficiency would present danger to the ship, persons on board or marine environment, the ship would be detained and its operator ordered to correct the situation before it is allowed to sail.

**Deficiencies:** In case a ship's condition, equipment and crew do not substantially conform with the standards, and such deficiency would present danger to the ship, PSC officers would request the shipmaster to rectify the deficiencies at the next port of call and to notify that port's Authority about the situation.

#### **Recent Undertakings**

Since all the aspects of shipping affect maritime safety, it is inevitable to develop an integrated system that consists of:

- 1) Infrastructure: ports, navigational channels
- 2) Fleet control: ship registration and periodic inspection
- 3) Human resource development: education of seafarers and maritime safety personnel
- 4) Navigational aids: lighthouses, vessel traffic services (VTS), pilotage services
- 5) Sea communications: ship reporting system, distress signals
- 6) SAR operation

During the 1990s Vietnam made concerted efforts to tackle the above issues, as follows:

Accession to International Conventions: Vietnam acceded to some IMO and ILO conventions in the early 1990s (refer to Table 3.4.4).

Participation in the Tokyo MOU: Vietnam signed the MOU on port state control in the Asia-Pacific region in 1998 and has been a member since January 1999. There are 25 PSC inspectors in Vietnam, carrying out daily ship inspection in accordance with international conventions.

ATN Development: With the assistance of the Spanish government, 16 lighthouses will either be rehabilitated or built. It is considered an initial effort since the JICA Coastal Shipping Study concludes that Vietnamese territorial waters need 97 lighthouses by the year 2010.

### Box 3.4.2 ISM-Code

It is a new practice to enhance maritime safety from a navigational management viewpoint. Conventional ways focus on hardware such as seaworthiness, training equipment, lighthouses, etc. But most of maritime accidents occur due to human errors. The ISM (International Safety Management)-Code aims at minimizing human errors by improving navigational management.

Shipping operators or companies that manage ship under contract are regarded as obligatory bodies. The ISM-Code stipulates the following obligations:

- 1) Preparation of the SMS (Safety Management System)
- 2) Selection of a responsible land officer to the ship
- 3) Preparation and keeping a safe navigation manual in the ship
- 4) Enforcement of the SMS by a captain and its reporting to the obligatory body

To ensure the effectiveness of the ISM-Code, a flag country conducts inspection and, if favorable, issues an SMC (Safety Management Certificate), while a port country conducts port state control (refer to Figure 3.4.1). The ISM-Code has been introduced globally since 1 July 1998. To practically operate the ISM-Code, flag countries are required to respect relevant guidelines the IMO made. Some countries also need to modify their domestic legal system.

Figure 3.4.1  
Concept of ISM-Code

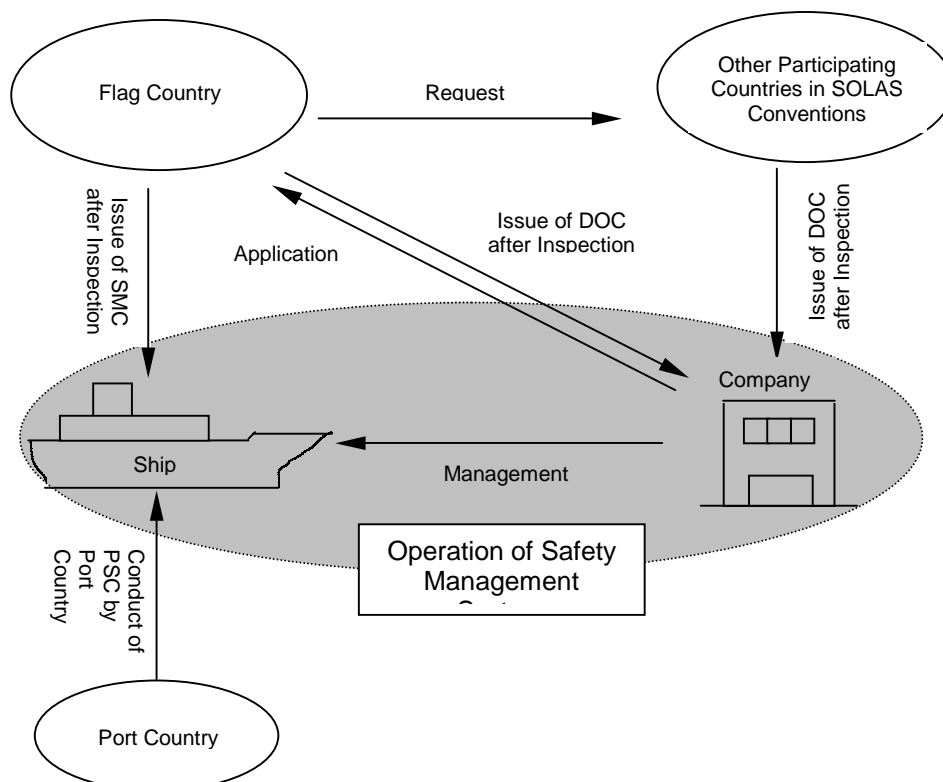


Table 3.4.4  
Accession Status of ASEAN Member Countries to Maritime Conventions

No.	Status of Convention	Brunei	Indonesia	Laos <sup>1/</sup>	Malaysia	Myanmar	Philippines	Singapore	Thailand	Vietnam
1.	International Convention for the Safety of Life at Sea, 1974 (SOLAS 1974)	1987	1981	-	1984	1987	1982	1981	1985	1991
2.	Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREG 1972)	1987	1979	-	1980	1987	-	1977	1979	1990
3.	Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships, 1973 (MARPOL PROT 1978)	1987	1987	-	1997	1988	-	1991	-	1991
4.	International Convention on Road Line 1966 (LL 1966)	1987	1977	-	1971	1987	1969	1971	1993	1991
5.	International Convention on Civil Liability for Oil Pollution Damage, 1969 (CLC 1969)	1992	1978	-	1995	-	-	1981	-	-
6.	International Convention on the Establishment of and International Fund for Compensation for Oil Pollution Damage, 1971 (FUND 1971)	1992	1978	-	1995	-	-	-	-	-
7.	International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 (STCW 1978)	1987	1987	-	1992	1988	1984	1988	1997	1991
8.	Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 (LC 1972)	-	-	-	-	-	1975	-	-	-
9.	Convention on Facilitation of International Maritime Traffic, 1965	-	-	-	-	-	-	1967	1992	-
10.	International Convention on Tonnage Measurement of Ships, 1969	1987	1989	-	1984	1988	1982	1985	1996	1991
11.	International Convention for Safe Containers (CSC) 1972	-	1990	-	-	-	-	-	-	-
12.	International Convention on Oil Pollution Preparedness, Response and Cooperation, 1990	-	-	-	1997	-	-	-	-	-
13.	International Labour Organization 147	-	-	-	-	-	-	-	-	-
14.	International Convention on Maritime Search and Rescue, 1979	-	-	-	-	-	-	1997	-	-

Source: The 1<sup>st</sup> WG on Maritime Safety and Pollution in ASEAN (September 1997)

1/ Non-IMO Member

**Search and Rescue:** In January 1997 the National SAR Committee was established with four subcommittees, including maritime SAR. However there is no SAR fleet available and Vietnam has not acceded to the maritime SAR convention in 1979.

**Sea Communication:** Under the SOLAS (Safety on Land and Sea) convention, IMO has introduced the GMDSS since February 1999. The JBIC financed VINAMARINE and its subsidiary, Vietnam Ship Electronic Communications Company (VISHIPEL) to install GMDSS communication facilities.

**Seafarers' Education:** The Center for Training and Improving Maritime Professions (VINIC) provides state-of-the-art education with course syllabus incorporating STCW-78/95 requirements in offshore drilling operations at the VIMARU with assistance of the Nippon Steel Shipping Co., Ltd. (Japan). However, VINIC is too small to educate or reeducate all Vietnamese seafarers, (there is nearly 20,000 registered seafarers) and students in various maritime schools.

**Oil Spill Prevention:** Vietnam acceded to MARPOL 1978 in 1991. However only Petro Vietnam has the necessary equipment against oil slick such as oil fence, boom and fire-fighting equipment. For example, the Study Team checked that the Hai Phong Port Authority does not have any equipment despite three medium-size oil tanker berths.

Box 3.4.3  
STCW-78/95

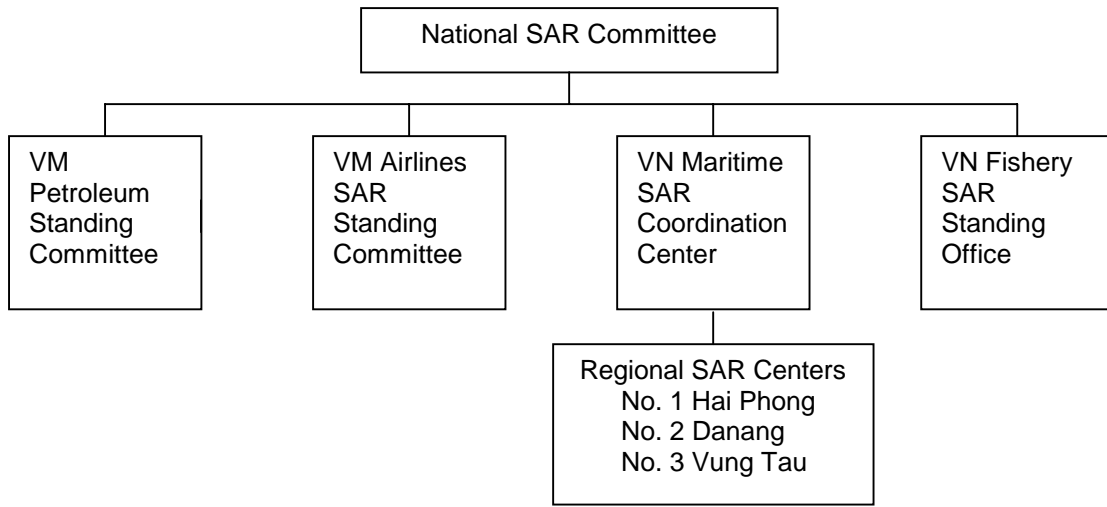
The STCW-78 Convention (Standards for Training, Certification and Watch-keeping) is the principal treat worldwide. The 1995 amendments stipulate that all seafarers working on board the ships must have the following certificates or specialized training and qualification:

- 1) Radar simulation (for shipmaster and navigation officers)
- 2) Tanker safety familiarization (for officers and ratings involved with tanker operations)
- 3) First aid and medical care (for designated officers and ratings)
- 4) Fire fighting/advanced fire fighting (for designated officers and ratings)
- 5) Personal survival and life saving (for all officers and ratings)
- 6) Ability to solve engine malfunction

The enforcement Schedule of STCW-95 is as follows:

- 1) 1 February 1997: The 1995 amendments were enforced.
- 2) From 1 August 1999: New training is required to adhere to the new standards.
- 3) 1 February 2002: All other transitory provisions will cease.

Figure 3.4.2  
Vietnam SAR Organizational Chart



## 4 DISCUSSIONS ON SELECTED ISSUES

### 4.1 Governmental Policies on the Shipping Industry in Asia

These are references on Asian governments' measures to promote shipping in their respective countries. Also summarized and attached are study reports prepared by Japan's Maritime International Cooperation Center (MICC) in 1998 and 1999 and by the Economic and Social Commission for Asia and the Pacific (ESCAP) in 1997-1998.

#### 4.1.1 Governments' Development Policy on the Shipping Industry

Many developing countries in Asia are supportive of their respective shipping industry, in particular by issuing policies that promote it. According to the MICC report which studied the countries of Indonesia, Malaysia, Thailand, and Taiwan in 1998, their governments are implementing the following measures:

- 1) Exemption from corporate tax: Shipping industries in Malaysia, Thailand and Taiwan are exempted from paying corporate tax. It was also reported that the Indonesian government might adopt a similar measure.
- 2) Payment of subsidies: In Malaysia, Thailand and Taiwan, there are subsidies to the shipping industry, though no details were provided. As for Indonesia, there is no subsidy except in the case of Pioneer Shipping (37 ships, 22,600 DWT) which serves domestic transport demand in the country's remote eastern islands. It received Rp 29 billion in 1997-1998.
- 3) Cargo reservation: Some countries have been holding a cargo reservation right to promote the local shipping industry. In Indonesia, there existed cargo reservation laws on trade and shipping. Under the Cargo Reservation Law on Trade, some specific commodities controlled by State enterprises were transported by national flag vessels, as follows:

Cement	:	PT Panja Niaga
Flour, Rice, Soya beans	:	Bulog
Steel	:	Krakatau Steel
Government projects	:	State forwarders and private forwarder nominated by government

The Cargo Reservation Law on Shipping stipulated that cargo shipments for government projects be carried by liner vessels of conference members or Indonesian flag vessels. The cargo reservation policy is now suspended after a policy dialogue with the International Monetary Fund (IMF).

In Malaysia, although the restriction on local cargo/ship was abolished, there remains an incentive allowing shippers to double the freight amount

transported by national ships and declare this as expenditures which can be deducted from their fiscal income (Income Tax Rules 1995).

- 4) Ship depreciation: In Indonesia, the following ship depreciation rule under the 1994 income tax law is applied:

Ship Tonnage (DWT)	Class	Depreciation	%
Less than 100	1	4 years	50
Up to 100	2	8 years	25
100-1,000	3	16 years	12.5
Over 1,000	4	20 years	10

The depreciation term on second-hand vessels is applied using the original owner's selected term.

In Malaysia, there are provisions for vessel depreciation and accelerated depreciation is allowed. Details will be mentioned in the ESCAP report.

In Taiwan, there is no specific policy supporting its shipping industry except for an exemption from corporate tax. Perhaps, it prefers to follow APEC maritime initiatives and the Asian shipping forum, supporting a freer and more fair competition in the shipping industry.

#### 4.1.2 Fiscal Measures in Malaysia

- 1) Bank Industri: Bank Industri is the first bank in Malaysia to go into the shipping industry. Until now, their main business is still the financing of ships, shipyards and marine-related activities. Government, through the Five-year Malaysian Plan, allocates funds to Bank Industri. Those wanting to apply for loans for shipbuilding should purchase the vessel from the local shipyard. If local yards were incapable of building the required vessel, then foreign purchase would be allowed.
- 2) Shipping Fund: The Shipping Fund established by government is intended for eligible local shipping companies who wish to expand and increase their carrying capacity to meet the growth of export following the rapid pace of industrialization (Prime Minister's Speech, 1995).

The two main components of this fund are the Ship Finance Facility (SFF) and the Shipping Venture Facility (SVF). Initially, when this fund was established, government, through Bank Nagra, provided a sum of RM 800 million. Bank Nagra then chose Bank Industri as the managing authority of this fund. Of the government allocation, RM 300 million was set aside for the acquisition of new and second-hand vessels under the SFF program. The RM 500 million balance was intended for the SVF program (EPU: 1993). Under

the SVF program, the Central Bank of Malaysia utilized RM 300 million to set up a shipping company named Global Maritime Venture Berhad (GMVB) on March 1994 (NST: September 1994).

Government increased the fund to RM 1.1 billion in 1994. From this amount, RM 600 million was set aside for the SFF program. Its coverage was extended to include not only the purchase of new and second-hand vessels, but also for the construction of facilities to build and repair ships. The remaining RM 500 million was allocated to the SVF program.

Bank Industri contributed RM 200 million, and other financial institutions were to cough up the remaining RM 300 million (NST: December 1994). Bank Industri, as the managing authority for the SFF program, disbursed the fund for the purchase and building of vessels plying domestic and international routes and the shipyard facility.

The total financing given to domestic shipping was RM 165 million, to international shipping, RM 235 million and financing for the shipyard, RM 117.2 million. As of March 1997, the SFF program had a balance of RM 82.2 million (Bank Industri: 1997).

- 3) Other incentives: In addition to the above-mentioned measures, there are also a number of incentives provided to the Malaysian shipping industry. For one, income is tax-free and import duty exemptions are also provided. For instance, a 30% import duty is imposed on Malaysian vessels which are less than 26 GRT, a 10% duty on vessels between 26 GRT to 4,000 GRT and vessels above 4,000 GRT are exempted from import duties.

Provisions are also made for vessel depreciation, whereby accelerated depreciation of ships is allowed with a first year capital allowance of 20% and a further special allowance of 6-10%. The Malaysian government also provides income tax exemptions to the ship's crew.

#### 4.1.3 Fiscal Measures in the Philippines

- 1) Domestic Shipping Modernization Program (DSMP)

DSMP is a policy-based lending program of the Philippine government with the Development Bank of the Philippines (DBP) as executing agency and JBIC as funding agency. It aims to provide financial assistance to enterprises engaged in domestic shipping and shipping-related industries. JBIC has so far funded ¥ 15 billion for phase I under the 19<sup>th</sup> Yen Loan Package (1995-) and ¥ 20 billion for phase II under the 22<sup>nd</sup> Yen Loan Package (1999-).

DSMP I was to a large extent concentrated on bringing in appropriate shipping technology to address the urgent upgrading of the domestic fleet. Under DSMP II, however, the focus of the program is developmental. DSMP



II projects are designed to provide more cost-effective maritime transport systems to enhance the competitiveness of Philippine products in national and international markets. Further, DSMP II aims to contribute to a sustainable socio-economic development particularly in the countryside through increasing the area's productivity, improving the people's standard of living and supporting government's food security program.

Until the end of 1998, DBP approved 103 vessels, one container handling equipment, one shipyard and three port terminal facilities. The vessels, 9.3 years old on average, lowered the overall age of the fleet to some extent. The financed vessels are divided into the following types:

- |   |           |
|---|-----------|
| • 28 Passenger ferries / high-speed craft | ₱ 502.8 M |
| • 17 Passenger cargo vessels              | ₱ 830.2 M |
| • 22 Tankers / LPG / tanker barges        | ₱ 793.3 M |
| • 17 Lighters / self-propelled barges     | ₱ 231.0 M |
| • 17 General cargo vessels                | ₱ 339.7 M |
| • 2 Fish carriers                         | ₱ 90.0 M  |

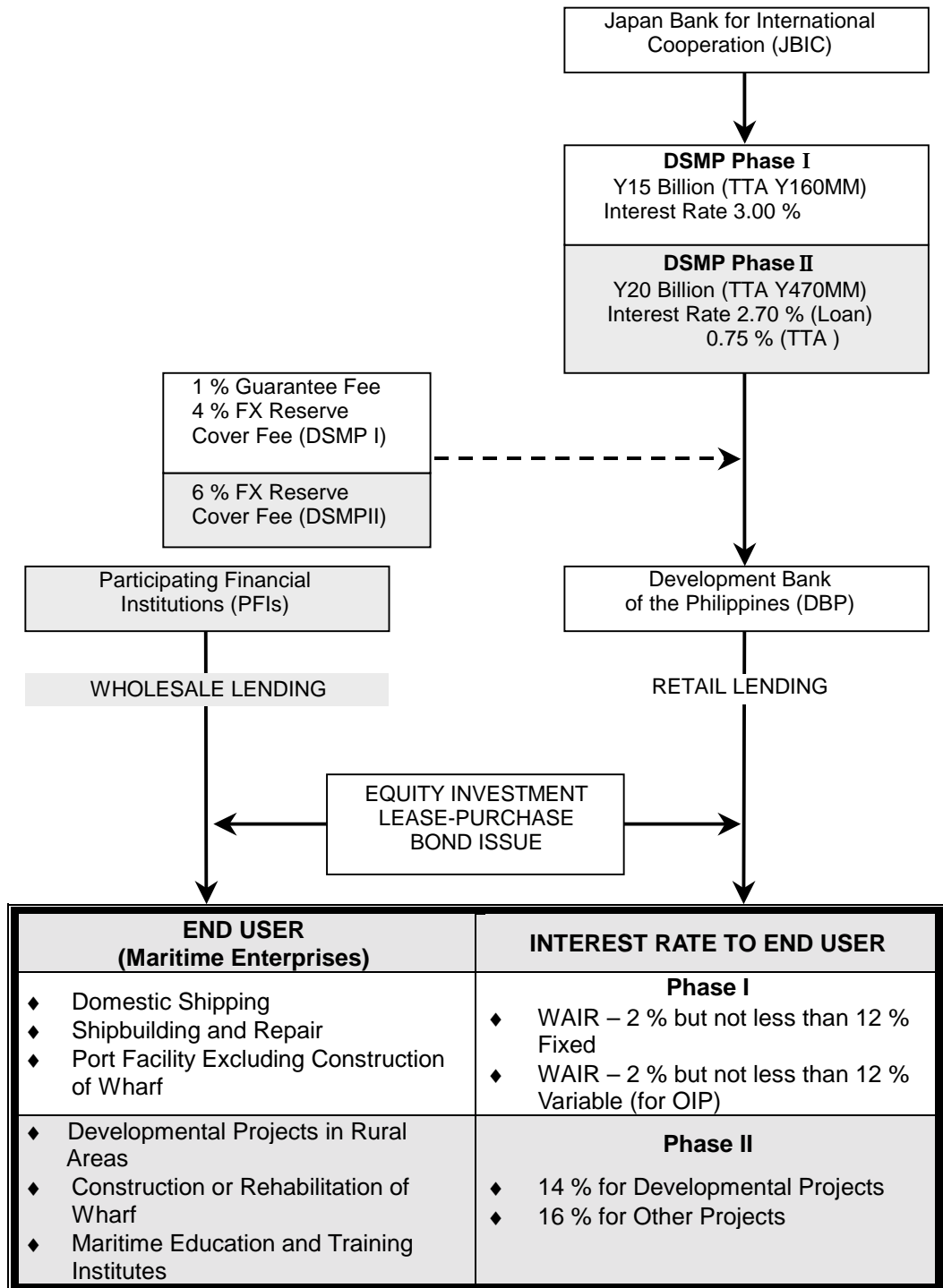
## 2) Republic Act No. 7471

Unless covered by the Philippine Overseas Shipping Development Act or RA 7471 (exemption from income tax), the following rates of corporate income tax are provided for under the Tax Reform Act of 1997 (R.A. 8424):

Upon effectivity of the Act	35 %
As of January 1, 1998	34 %
As of January 1, 1999	33 %
As of January 1, 2000	32 %

RA 7471 provides for tax-free importation of vessels and spare parts for the repair/overhaul of vessels engaged in overseas traffic. It also provided for income tax exemption on income derived from Philippine overseas shipping for a period of 10 years from the date of approval of the law (05 May 1992 to 05 May 2002). The exemption is applicable only if 90% of a company's net income is reinvested on the construction, purchase or acquisition and/or the modernization or improvement of vessels and related equipment. A further condition is that said investment is not withdrawn for a period of 10 years after the period of income tax exemption expires.

Figure 4.3.1  
 Overall Framework of the DSMP



### 3) Investment Priorities Plan

Under the Omnibus Investment Code of 1987 (Presidential Decree No, 266), capital equipment is imposed a 10% import duty and a 10% value-added tax (Expanded VAT Law – Republic Act No. 7716).

Since 1987, however, the shipping industry has been exempted from import duties and VAT through its inclusion in the IPP, which is issued annually. Under the 1998 IPP, the interisland shipping industry was included again (with modernization program) and as a priority investment area, covering purely cargo or passenger and passenger-cargo vessel operations. For accredited shipping companies, this means the imposition of a 3% import duty instead of the regular 20% on imported capital equipment and its accompanying spare parts.

Accredited/registered firms are also exempt from paying income taxes from 3-6 years, depending on the status of the project. But both international and domestic shipping companies have to pay 10% VAT on their gross receipts.

#### 4) Tax on seafarers

The Tax Reform Act of 1997, Section 24-(A) (1) (a), considers only as taxable the income derived by Philippine seafarers within the country. Philippine seafarers who receive compensation for services rendered abroad as crewmembers of a vessel engaged exclusively in international trade are exempt from paying individual income tax.

#### 4.1.4 Japanese Experience on Joint Vessel Ownership

Of the various governmental assistance given to the shipping industry in Japan, the most noteworthy is the assistance provided through the Corporation for Advanced Transport and Technology (CATT), formerly known as the Maritime Credit Corporation. The basic objective of the CATT is centered on the "contribution to the provision of adequate and smooth shipping and port transport". Although the statement is simple and abstract, it aims to promote social stability and economic growth.

##### CATT Profile and Scale

Established	: June 1959 as the Maritime Credit Corporation and changed to the Corporation for Advanced Transport and Technology in October 1997
Capital	: Yen 14.9 billion (as of 31 March 1999, government-financed)
Staff	: 132
Operational budget:	Yen 1,245.5 billion (for 1997 fiscal year)
Operating capital	: Procured through government loans and privately accepted bonds

To meet its objective, the CATT has two conditions:

- 1) Its assistance will be limited to domestic operators who find it difficult obtaining adequate financing, at the same time can their project's assure financial viability, and

- 2) Its assistance covers two major areas, investment (joint vessel ownership project) and finance (financing project).

The CATT participates in shipbuilding not only by financing it but through joint ownership, involving shared financing between the CATT and the domestic merchant shipping company. Each ship although owned by both companies is managed and operated by the local shipping company.

#### (1) Key Features

- Prior to ship construction, both the CATT and shipping company determine basic specifications and design (taking into account the route on which the ship will operate and relevant harbor conditions).
- When the specifications and design are decided, shipbuilding cost and the proportion thereof to be borne by each party is determined. An order is to be jointly placed with the shipyard by the CATT and shipping company. The latter selects the shipyard, whose technical expertise and building capacity are assessed by the CATT.
- As a partner or joint owner of the ship, the CATT supervises all stages of ship construction at the shipyard, attends shop tests, sea trials, and conducts final inspection.
- Upon completion, vessel ownership is resolved by basing it on the respective costs shouldered by the CATT and shipping company. The two parties then execute a joint-ownership contract for the ship's use. The ship is managed and operated by the merchant shipping company, who shoulders the ship's operating costs and retains all profits earned through the ship's operation.
- The merchant shipping company pays the CATT charges for the period of joint ownership, i.e., the ship's service life, and the residual book value (10%), which in turn provides funding the merchant shipping company's request for technical support, including periodic inspections and additional surveys when the ship figures in an accident.

#### (2) Merits

- Easy access to construction financing: Ship construction is quite expensive. Since the CATT partly owns the ship and does not merely provide financial assistance, a ship owner does not have to fork out huge capital investments compared with direct private financing. This way, many ship owners would likely prefer to build new ships and replace aged vessels.
- Available technical support: CATT technical specialists are experienced and competent from years of actual shipbuilding. Technical support is available from the specification/design stage to shipbuilding supervision and throughout the joint-ownership period.

### (3) Charterage and Joint Ownership Conditions

Charterage is to be paid to the CATT by the merchant shipping company during the period of joint ownership of the ship which will be calculated as follows:

- Proportion financed by the CATT X 9/10 X 1/joint ownership period-Deferred period
- Residual book value x interest (Defined in joint ownership contract)
- The charterage per annum is the sum of a + b payable in monthly installments.

At the end of the joint ownership period, the merchant shipping company pays CATT a residual book value of 10% of the amount initially financed by CATT. The joint ownership period and proportion to be financed by the CATT are defined in the following table:

Table 4.4.1  
Joint-ownership Period and Proportion to be Financed by CATT

Category		Financed Proportion (%)	Joint-ownership Period		
			Ship Type	2,000 Gross Tons or More	Less than 2,000 Gross Tons
Passenger Ship	Interisland ship Medium-/long-range ferry	80	Car ferry General passenger ship Light alloy ship FRP ship	15 years 15	11 years 14
	Others	70		9 years 7 years	
Cargo Ship	General cargo ship	80	General cargo ship	15	14
	Oil tanker	60 – 80	Oil tanker	13	11
	Car carrier	70 – 80	Car carrier	15	14
	Cement carrier	60 – 70	Cement carrier	15	14
	Special tanker	60 – 70	Special tanker	13	11

### (4) Track Record

In the 37 years since its establishment in 1959, the CATT has engaged in numerous joint-ownership projects (see Table 4.4.2), thereby greatly contributing to the modernization of Japanese merchant shipping.

Table 4.4.2  
Joint-ownership Projects, 1959-1996

Type of Vessel	Number	Gross Tonnage
Passenger Ships	857	664,000
Cargo Ships	2,399	2,277,000

It is advisable to adopt the joint-ownership method and organization in Vietnam to support ship owners who are financially constrained.

#### (5) Maritime organization

Another critical aspect is the overall management of the industry. To achieve a coordinated, well-planned and complementary development of the maritime industry, it is necessary to establish a government agency that will attend to all maritime affairs and agencies.

### 4.1.5 Implications for Vietnam's Shipping Industry

To pursue the planned fleet expansion program in Vietnam, it is likewise necessary to establish supporting policies for the shipping industry.

- 1) State financial organization: In particular, as a practical measure in securing financial funds for ship acquisition and shipbuilding, the establishment of a state financial organization is strongly recommended. This organization should be created as a financial center and an advocate of shipping and related industries. Also, the possibility for this organization to be a credit facility should be explored. Funding can come from foreign cooperation funds for relending to eligible borrowers regardless of sector at a reasonable interest rate. As already discussed, similar organizations already operate in Malaysia and the Philippines with the full support of their respective governments.
- 2) Tax breaks: These are effective measures to relieve ship owners with financial burden. New taxation policies on corporate and income taxes should be adopted until such time as ship owners become competitive.
- 3) Other schemes: There are certain schemes to encourage a fair and free competition in shipping at the international level like the APEC maritime initiative and Asian shipping forum. However, since the Vietnamese shipping industry is still under the process of improvement in terms of available capacity and ability, appropriate and supporting measures should be strictly enforced. The shipping industry in Vietnam must proceed cautiously toward opening its market and allowing competition, particularly in domestic shipping, if the public and national interests are at stake.
- 4) Joint ownership and corporatization: As one of the specific measures to assist ship owners in acquiring and building vessels for domestic use, it would be appropriate to encourage joint ownership which has long been adopted by the CATT to promote and modernize Japan's domestic fleet.

## 4.2 Development of a Transshipment Port in Vietnam

## Introduction

The concept of building a specialized port for the transshipment of containers in Vietnam comes from the following observations:

- 1) Container shipping is booming, particularly in Asia;
- 2) The shipping strategy for mega carriers leads to the use of bigger vessels which require deeper water ports;
- 3) Regional hub ports, Hong Kong and Singapore, enjoy increasing container traffic volume, while land scarcity becomes apparent.
- 4) Vietnam is located between Hong Kong and Singapore and endowed with a long coastline, thus offering favorable alternative sites from a nautical point of view.
- 5) If a regional transshipment port is situated in Vietnam, shippers and consignees will benefit from direct shipping services with many overseas markets.

It is Vietnam's hope and many Asian countries' as well that with an available transshipment port in their respective territories the present demand on Singapore and Hong Kong for transshipment services will spill over to them.

Table 4.2.1  
Relational Distances among the Major Ports in the Region

(unit: km)

Ports	Hong Kong	Vung Tau	Singapore
Kaohsiung	719	2,003	3,317
Manila	1,172	1,700	2,422
Cebu	1,780	2,142	2,560
Vung Tau	1,625	-	1,120
Kota Kinabalu	2,010	1,329	1,600
Bangkok	2,760	1,207	2,226
Singapore	2,650	1,120	-
Jakarta	987	1,875	3,310

## International Container Shipping Business

Container traffic has continuously grown since its appearance in the 1960s. In 1980, international ports in total handled 36 million TEU whilst they recorded 138 million TEU in 1995. It should be noted that the ports at least double count the number of global container movements while they handle substantial LCL (less than container load) and empty containers and the containers in transshipment. It is therefore estimated that the total number of full, international shipping containers in 1995 was 50 million TEU. The UN ESCAP<sup>1</sup> forecasts that this total

<sup>1</sup> UN ESCAP "Intraregional Container Shipping Study, 1997"

will rise to 105 million TEU by the year 2006. It means that further containerization is expected at the pace of more than 7% annually.

The shipping business has considerably changed in the last years. Ship owners and ship operators had to face a fiercer competition in global markets. This has led them to elaborate the following three strategies:

1) Global alliance, merger and acquisition

Ship operators have resorted to global alliance, merger and acquisition in order to offer the best possible service to shippers by combining routes, destination, frequencies of sailing and cut down the operation cost at the same time through mass service effects. Some examples are:

- Joint-operation between P&O and Nedlloyd or Hanjin and DSR-Senator
- Acquisition of APL (American President Lines) by NOL (Neptune Orient Lines)
- Merger of Navix with MOL (Mitsui O.S.K. Lines)

2) Larger container ships

Mega carriers, as the results of global alliance, merger and acquisition, have ordered many larger container ships even under over-capacity business environments. It enables to cut down the production cost per TEU: from US\$ 10 on small size ships to US\$ 5-6 on Over Panamax type ships. In addition, the operational speed of the new vessels is higher than that of the old ones, e.g., ships over 5,000 TEU have now a standard speed of about 25 knots while the 2,000-3,000 TEU capacity ships built a few years ago, could sail at 21-22 knots only. Higher operational speeds increase the actual carrying capacity. (Refer to Table 4.2.2)

3) Hub ports













The assignment of larger ships theoretically leads mega carriers to a strategy of "hub port" or "hub and spokes". It is reported that the container terminal accommodating Over Panamax ships should be able to handle at least 2,000 containers in 24 hours. The strategy is particularly shown in Kaohsiung where Maersk operates its own private high productive terminal. It also needs to develop feeder routes in order to serve small amounts of containers at small ports. Mega carriers usually assign small and old container ships for such services<sup>2</sup>.

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<sup>2</sup> Average container ship size assigned at Vietnamese ports in 1999: HCM City ports – 622 TEU, Hai Phong – 312 TEU, Danang – 250 TEU.



Figure 4.2.1  
Historical Scale-up of Container Vessels

Category	Breadth (m)	Vessel Size		
		Length (m)	Capacity (TEU)	Necessary Port (m)
Under Panamax (1966-1980)	17-31 	110 - 210 	-1,700 	-12
Panamax (1980-1990)	32 	210 - 270 	1,900-3,400 	12-14
Panamax-max (1985-)	32 	289 - 294 	3,000-4,300 	14-15
Over Panamax (1995-)	Over 32 	262 - 300 	Over 4,100 	Over 15

Source: Ministry of Transport, Japan

Table 4.2.2  
World Container Ship Fleet

Size Range (TEU)	1998			1999		
	No.	'000 TEU	Growth	No.	'000 TEU	Growth
5,000 and over	33	188	94.8%	48	280	48.9%
4,500-4,999	29	138	42.9%	32	151	9.4%
4,000-4,499	110	466	18.2%	125	529	13.5%
3,500-3,999	55	205	13.4%	71	265	29.3%
3,000-3,499	111	365	12.5%	117	384	5.2%
2,500-2,999	213	590	8.4%	221	668	13.2%
2,000-2,499	170	374	24.5%	215	476	27.3%
1,500-1,999	301	515	15.9%	346	590	14.6%
1,000-1,499	529	632	8.4%	584	698	10.4%
750-999	206	180	11.0%	241	210	16.7%
500-749	475	295	18.6%	520	324	9.8%
Total	2,232	3,948	17.0%	2,520	4,575	15.9%

Note: Growth in relation to the previous year

### Prime Container Ports in Asia

At present, seven ports are regarded as prime container ports in Asia with handling more than two million TEU yearly, i.e., Singapore, Hong Kong, Pusan, Kaohsiung, Kobe, Tokyo and Yokohama. In 1998, Singapore recorded 15.14 million TEU in container operation, the biggest port handling volume in the world.

The transshipment rate was estimated at 80% in 1997<sup>3</sup>. The advantage of Singapore can be explained by the following:

- 1) Modern and sufficient port infrastructure and facilities: deep and long berths for exclusive purposes such as container traffic, liquid bulk and dry bulk; efficient cargo handling equipment; advanced cargo distribution centers and various warehouses.
- 2) Expeditious port documentation procedure using advanced EDI technologies
- 3) Convenient port services such as pilotage, towage and bunkering
- 4) Premier location for some 400 shipping lines with links to over 700 ports worldwide

Singapore and the other governments who own the prime container ports are all keen on investing in deep and exclusive container terminals in order to promote further containerization and compete with the rival ports.

Table 4.2.3  
Development Trend in Deep and Exclusive Container Terminals in Asia

Country	Port	Container Throughput (Mil. TEU in 1998)	No. of Existing Container Terminals (as of 1998)	No. of Scheduled Container Terminals (as of 2000)
Singapore	Singapore	15.1	6	13
PR China	Hong Kong	14.7	4	16
Taiwan	Kaohsiung	6.3	0	3
Korea	Pusan	5.8	4	4
	Kwangyang		4	4
Japan	Kobe	2.1	4	5
	Yokohama	2.2	0	3
	Tokyo	2.5	0	3
	Osaka		0	3

Source: Ministry of Transport, Japan

Note: Berth water depth is 15 meters and more.

### Followers in the ASEAN Region

Neighboring countries heavily rely on Singapore as a transshipment port not only for interregional cargo but also intra-ASEAN cargo. In the late 1990s, however, Port Klang in Malaysia and Laem Chabang in Thailand have increased their direct linkage with the ports outside the region due to two common reasons:

- Both governments clearly define their primary container ports and guide containerized cargo to the ports; and

<sup>3</sup> Drewery Shipping Consultants Ltd., 1997.

- Both the ports have recently developed container berths 14 to 15 meters deep, which may accommodate vessels of at least 50,000 DWT or Panamax-type container ships (1,900-3,400 TEU). For instance, Port Klang has a 15-meter deep container berth capable of receiving vessels of 80,000 to 100,000 DWT with capacity of more than 6,000 TEU. It now has 67 direct line services and 38 feeder services to/from 300 ports worldwide.

Brunei Darussalam, Indonesia and the Philippines are also very keen on deep seaport and containerization, while Cambodia, Myanmar and Vietnam, which do not have deep seaports and modernized container berths, have ongoing studies on port improvement/upgrading.

Table4.2.4  
Gateway Ports of ASEAN Countries

Port/Country	No. of Berths		Total Length of Berths (m)	Port Depth (m)	Port Traffic 1997	
	Conventional <sup>1/</sup>	Container <sup>2/</sup>			Cargo (000 tons)	Container (000 TEU)
Muara/Brunei Darussalam	4	3	861	10-11	2,379	84
Sihanoukville/Cambodia	3	0	350	8	794	61
Tanjung Priok/Indonesia	14	6	8,911	-12	28,643	1,820
Port Klang/Malaysia	31	13	8,648	15	56,766	1,684
Yangon/Myanmar	15	2	2,550	9	7,977	96
Manila/Philippines	87	9	7,592	3.3-12.5	11,081	2,117
Singapore/Singapore	43	37	n.a.	-15	312,200	15,140
Laem Chabang/Thailand	5	5	2,250	6.5-14	2,211	1,036
Saigon/Vietnam	19	0	2,084	5.5-10.8	7,210	77

Source: ASEAN Transport and Communications Cooperation Framework Plan, 1999

Note 1/ Including oil, bulk, multifunctional berths

2/ Including exclusive berths for container handling

Table 4.2.5  
Committed/Ongoing Container Port Development in ASEAN

Country	Port	Development Plan
Brunei Darussalam	Muara	Additional berths with deepening channel to 13 m.
Cambodia	Sihanoukville	2 berths (240 m in width, 8.5 m in draft, Year 2005)
Indonesia	Tanjung Priok	Terminal III : 4 berths (900 m in length, Year 1998)
Malaysia	Port Klang Penang Johor	10 berths (250m long x 15 m in depth, Year 2000-2006) 3 berths (Year 2005) 4 berths (2000), 5 berths (2005)
Myanmar	Thilawa Yangon	5 berths (1,000m, under construction since 1995 September, 25 years BOT Project) 1 berth (1,000m long x 33m wide x 10m draft, 25 years BOT)
Philippines	Manila	MICT: 1 berth (300m long, year 1998)
Singapore		Pasir Panjang 6 berths (Draft 15 m)
Thailand	Laem Chabang	Phase 2: 5 berths (500-700m long x 16m deep/berth, from Year 2000 to 2005)
Vietnam	Ho Chi Minh City Area	VICT: 3 berths (550m long x 10 m deep, year 1998 to 2001)

Source: ASEAN Transport and Communications Cooperation Framework Plan, 1999

### Implications for the Vietnamese Port System

#### 1) Development of Exclusive Container Berth and Yard

A problem often found in Vietnam, where their trading partners in the industrialized world may impose the use of containers, is that containers have to be handled in conventional berths. The throughput rate and expected savings from unitization may be severely reduced as a consequence. It is probable that although the capital investment in container berths is higher than in conventional berths, the annual throughput in tons is proportionally much higher in the container berth. The port cost per ton is lower accordingly. In near future, even within intra-ASEAN, Vietnamese trading partners will strongly request the use of containers on much more occasions in line with a regional containerization trend. There is need, in other words, for a certain level of throughput in a container berth to obtain the positive effects on cost per ton.

#### 2) Development of A Prime Container Port in Vietnam

There are 12 prime container ports in the world on the conditions that they handle more than two million TEU annually. Those ports commonly show the following competitiveness:

- (1) Good port infrastructure and efficient cargo handling services;

- (2) Excellent intermodal connection with their hinterland; and
- (3) Encompassing wide hinterland where strong economic activities are done in connection with the global markets.

According to the VITRANSS traffic demand forecast, Vietnam will handle 6.6 million TEU under the high-assumption scenario of the year 2020, which is further divided into three gateway port areas:

North – 1.8 million TEU  
Central – 1.3 million TEU  
South – 3.5 million TEU

Therefore, Vietnam will be able to create a new prime container port in the south until the year 2020 with the following development strategies:

- (1) Vietnam will intensively develop Vung Tau as a prime container port. Vung Tau is in premier location in the south due to its deep waters (possibly more than 15 meters), wide and many accessible navigational channels and enough land for port complex development including container terminals, warehouses and industrial estates.
- (2) The intermodal connectivity between HCM City and Vung Tau will be strengthened by inland transport development (road, rail and inland waterway), ICD operation and multimodal transport operation.
- (3) Presently many ports along Saigon, Nha Be and Thi Vai rivers handle container cargo at either conventional or container berths. However, the concentration of container cargo at Vung Tau will be very important to provide economic-scale benefits to shippers and consignees, i.e., more frequent shipping in/out their cargoes by larger container ships at cheaper prices.

### 3) Increase in Handling Transshipment Container

Foreign shipping lines' preference to transship container cargo in Hong Kong and Singapore rests on five factors which this paper identifies thus:

- (1) Good port infrastructure and efficient port operation to minimize waiting and berthing time;
- (2) Reasonable transshipment charges;
- (3) Strategic location on the global/regional shipping network;
- (4) Many ship calls in connection with many ports around the world; and
- (5) Accumulated capital investment of foreign shipping lines.

The Vung Tau port development will be able to satisfy the first and second criteria through necessary capital investment and policy incentives while some alternative transshipment function can be expected from Hong Kong and Singapore because of its location. However, the achievement of the

fourth criterion will really depend on the economic development in the south and the development policy on regional port system that will encourage container cargo trade to Vung Tau. Last but not least is Vietnam's inherent weakness. Hong Kong and Singapore have exerted effort to attract the capital investment of foreign shipping lines as well as forwarders. Today, Singapore aims to become a regional business hub, encouraging foreign shipping lines to locate their regional headquarters in Singapore by giving them tax incentives. On the other hand, the Vietnamese government has not opened the transport industry to foreign investment. According to the ASEAN Framework Agreement on Services and its Protocols (CPC7212), government:

- (1) Allows foreign shipping companies to establish a representative office only;
- (2) Restricts representative offices of foreign shipping companies from conducting business activities in Vietnam; and
- (3) Requires foreign shipping companies to appoint their Vietnamese shipping agency counterpart as its general agent to supply maritime services.

#### 4) A Transshipment Port in the Central Region

The VITRANSS Study Team recognizes some issues related to transshipment port in central Vietnam. According to MOT Decision No. 608/QĐ-GTVT (13 March 1999), the Vietnamese government has a study plan to create a transshipment port facility at two candidate sites, i.e., Chan May and Vang Phong in the central region. However, when compared with the Vung Tau project, the viability of both sites is lower due to scarce hinterland population and inactive economy even if some parts of Lao and Cambodia are included.

It is true that there is some opportunity for a mega shipping line to construct a private transshipment port regardless of hinterland development. Evergreen, ranking second as the global container carrier, made such MOUs with the Indonesian government for a port at Batam Island (20km south from Singapore) in 1993 and the Vietnamese government at Vung Tau in 1996. However, both MOUs are not in effect anymore, thus hindering port construction.

Moreover, due to the inconvenient location, a transshipment port in the central region would apparently burden many shippers and consignees with additional transport costs. Therefore the project cannot justify tapping any public fund for port construction and related infrastructure development.

## **5 SHIPPING DEVELOPMENT STRATEGIES**

### **5.1 Strengthening Maritime Administration**

Vietnam's shipping industry is composed of various service sectors including:

- State-owned enterprises under VINALINES
- State-owned enterprises under the MOT
- Local government-owned enterprises
- Joint venture companies
- State-owned corporation
- Private corporation
- Private companies
- State-owned enterprises under the Ministry of Industry
- State-owned enterprises under the defense force

In general, shipping activities and port operation are conducted individually by each sector. Thus, overall administrative control is required to implement a nationwide policy in the maritime subsector, excluding national defense.

Although the MOT and VINAMARINE have issued Directive No. 356/1998/CT-BGTVT and Notification 1950/TB-CHHVN to intensify administrative reform in management activities, there has been no distinct change. It has been presumed that some sectors in the industry might have close relations with government authorities thus undermining VINAMARINE's authority. As far as the whole shipping administration is concerned, VINAMARINE should be an exclusive organization with control over all maritime activities as authorized by government and the MOT.

It is expected that in the coming years, the maritime subsector in Vietnam will have to address its problems to enable it to expand, modernize and rehabilitate its shipping fleet and port facilities. This would also require government to enforce uniform and consistent policies for the subsector.

The maritime subsector of Vietnam needs to regulate itself in accordance with international requirements as stipulated in related conventions. VINAMARINE's cooperation is highly expected, particularly since the Government of Vietnam has agreed with and signed the MOU on port state control in the Asia-Pacific region (Tokyo MOU) in 1996, and which took effect on 1 January 1999. The main objectives of this MOU are:

- 1) to establish an effective port state control regime in the Asia-Pacific region through cooperation and harmonization;
- 2) to eliminate substandard shipping to promote maritime safety; and
- 3) to protect the marine environment and safeguard working and living conditions on board the ships.

Toward this end, the role of the VMSA should be intensified to enable the country to

fully accede to the MOU's requirements. To promote maritime safety as a state administration function, it is an urgent task of VINAMARINE to increase the number of technical specialists competent on marine safety inspection.

\* Proposed Strategies \*

- Reform and strengthen VINAMARINE's administrative authority over the maritime industry.
- Comply with the industry's requirement and submit appropriate proposals to the government and MOT in order to enforce urgent measures for the promotion of shipping and upgrading of human resources.
- Increase the number of inspectors and improve the training programs for Port State Control inspectors.
- Transfer port management from VINAMARINE to other appropriate and capable agency to allow VINAMARINE to concentrate on other equally important administrative functions.

## 5.2 Competitive and Liberalized Shipping Environment

### Overseas Shipping

Government Circular No. 19/TB of 24 February 1996 indicated government's transport share targets of 40%, 30% and 20% of containerized exported goods, crude oil and dry goods, respectively, to be handled by its flag vessels. However, since government has not extended any kind of support to the maritime industry, these targets were not achieved. In fact, the share of national vessels in the transport of exported and imported cargoes was only 20% of yearly cargo movement to the discontent of all sectors of the industry, including shippers. Besides government's lack of support, the past years' poor performance has been caused mainly by poor service quality, limited capacity and the shipping operators' disadvantaged positions as compared to foreign shipping operators on trade contracts.

The present capacity for the carriage of foreign trade cargoes by Vietnamese flags is limited both in quality and space. VINAMARINE reported that the number of cargo vessels over 200 DWT as of February 1998 is 477, 57 of which are over 5,000 DWT and are mainly serving foreign trade. Then too, the average age of its present fleet of ocean-going vessels is high at 21 years. Thus, expansion and modernization of vessels is an important and urgent issue to comply not only with the national requirement but also with the expected increase in demand due to industrialization. However, the industry is also faced with existing constraints such as limited finance, which is most important in the acquisition of modern vessels, and domestic capability in shipbuilding.

A key factor to consider when establishing the required fleet expansion is the



accurate estimation of the required containerization, since, at present, almost all general cargoes are being containerized for safety and efficiency. Despite the impact of the economic crisis on Asian economies, container traffic to and from other parts of Asia will increase more rapidly than the world average. It was also reported that the most rapid container traffic increase is expected in west and south Asia, where container revolution is still in its infancy. This gives Vietnam a great potential to increase its container traffic in the coming years. In fact, Vietnam has handled a total of 820,190 TEU container cargoes in 1998, with an average growth rate of 37% from 1991 to 1998. In the past three years alone, it has recorded an average of 15% growth rate a year. Based on a comprehensive study and survey of demand patterns by the VITRANSS Study Team for the long-term strategy (2020) and the medium-term Master Plan (2010), the projected containerization is as follows:

Table 5.2.1  
Projected Containerization in Vietnam

Year	High Assumption
2010	3,404,000 TEU
2020	7,004,000 TEU

### **Domestic Shipping**

There is no distinct service jurisdiction between major state-owned shipping lines and the private sector. This makes the authorized state-owned shipping lines enjoy the dominant share in the transport of domestic cargoes on their ocean-going vessels. It may be an acceptable arrangement for the meantime to protect its own flag vessels. But in the coming years, opportunities for major consignments should be given to both state-owned and private operators, thus liberalizing the shipping industry to encourage its continuous development and upgrading of services.

Domestic shipping services will be upgraded through the (1) assignment of medium-size vessels (3,000-5,000 DWT), (2) promotion of containerization and specialization; and (3) provision of economical and reliable operations with good intermodal connection.

### **Ship Finance**

Except for some dominant state shipping and JV companies with foreign carriers, almost all shipping operators have difficulty securing financial loans to fund their fleet expansion plans. The Ministry of Finance (MOF) is planning to establish a State Financial Investment Company (SFICO) and is submitting its project proposal to government. The SFICO is expected to be an intermediary financial body between government and shipping companies and will be authorized to carry out direct investments, at the same time it will be responsible to government for capital investments in the industry.

In relation to this plan, a specific concession in the loans to ship owners should be considered, since there are many issues to be solved covering not only fleet expansion but also shipbuilding technology and ship operation. A similar structure that could be adopted is the joint-ownership method that has long been implemented in Japan (refer to Section 4.4). A new financial facility such as the proposed SFICO may collect funds from government and foreign lenders. However, ODA fund is only valid for lending to a domestic cabotage transport.

## **Shipbuilding**

The development of the Vietnamese shipbuilding industry is one important component of the long-term strategy, especially in the production of over 5,000 DWT vessels at reasonable price levels. In this connection, VINASHIN launched a new shipbuilding program for 6,500 DWT bulk cargo vessel at their Bac Dan Shipyard as ordered by a leading state shipping company.

### **\* Proposed Strategies \***

- Direct allocation of the state budget to a newly established finance facility an invitation/allocation of foreign loans to this credit facility for it to function like a financial corporation.
- Provide incentives to the shipping industry, such as tax breaks, exemption from corporate tax and/or income tax (VAT), etc. until their fleets meet a certain level of competitiveness.
- Promote containerization and multimodal transport not only at ships and ports but at port access and relay facilities such as ICDs.
- Liberalize the domestic traffic to invite a freer and fairer competition among domestic shipping companies and separate the operation of ocean-going domestic shipping vessels.
- Encourage state-owned shipping companies to gradually concentrate their business activities in serving foreign trade only. The VITRANSS Study Team is further suggesting the necessity of an open market and fair competition in this field.
- Conduct further studies on the possible areas where government may upgrade, expand and modernize the shipping industry of Vietnam. The identified areas by the VITRANSS are (1) adoption of government support policies for the industry such as tax incentives, (2) establishment of a credit facility for investment purposes, and (3) strengthening of the domestic shipbuilding capacity.

Although initial shipbuilding of big vessels has been undertaken, this has been done under the supervision of foreign technical experts and with sufficient equipment. It would still be advantageous for the local shipping industry and manpower to be exposed to shipbuilding activities in a domestic shipyard. Since the VINASHIN project is reportedly receiving policy support from government, this would mean that there is room for similar support for the proposed nationwide fleet expansion and modernization in Vietnam.

### **5.3 Fleet Expansion and Modernization**

#### **Overseas Shipping Fleet**

Future Vietnamese flag vessels engaged in overseas shipping have been analyzed by vessel type based on the following sources:

- Recent shipping business environments
- VINALINES fleet investment plan for the period 2001 to 2010 (refer to Box 5.3.1) and
- VITRANSS traffic demand forecast

#### 1) Container Vessels

VINALINES plans to invest in container fleet expansion with the acquisition of 14-18 vessels of 800-1,200 TEU, in the short to medium term (2001-2010). The vessels shall be used in intra-Asia traffic. In the long term (2010-2020), given the expected progress on the construction of new container berths and rehabilitation of existing ports, the present 400 TEU vessels will be replaced with bigger vessels with 1,000-2,000 TEU.

VINALINES is also exploring the potential of engaging its vessels in American and European trade. However, taking in the present tight competition among shipping lines from all over the world, this is not recommended at this time, especially since the Asia-USA trade, for instance, has not shown any sign of profitability for the carrier. Under the circumstances, the shipping strategies that should be adopted by Vietnam's container vessels are as follows:

- Concentration on intra-Asia traffic
- Increase of the share of private and local provincial operators in coastal shipping
- Upgrading of the service quality of coastal shipping

#### 2) Crude Oil Tanker

Generally, transportation of crude oil is conducted by buyers or traders and depends on the terms of the business contract. The so-called Oil-Major and Oil-Trader buy large quantities on FOB terms and sell the product to users on

## Box 5.3.1

## Fleet Supply Plan of VINALINES

Major carriers under VINALINES recently reported their strategies and orientation in the field of marine transportation and fleet expansion, as follows:

- 1) Privatization of VINALINES to obtain capitalization for a medium-size maritime company in the region with advanced technology and operations, competent enough to cooperate and share in the Asian market in all transport activities such as container handling and transport services.
- 2) Development and modernization of fleet vessels and ports to increase competitiveness, to gradually increase transport share of import-export cargoes and to participate in the transport market in the region.
- 3) Development and improvement of maritime infrastructures' capacity to accommodate vessels with increasing tonnage.
- 4) Construction of service units related to container transport procedures such as dry ports, container yards, freight dispatch centers, on-land and river container transport means, and general improvement on the quality of services of the facilities.

VINALINES' short-term fleet expansion plan shall have its vessel fleet operating mainly in Asian countries, and in the long term, it shall prepare to extend services toward Europe and the United States of America.

## VINALINES Investment Plan for the Period 2001 to 2010

Type of Vessel	No. of Vessel	Size of Vessels	TEU	Remarks
Container Vessels	14 – 18	800 – 1,200 TEU	11,200 – 21,600	To serve China, Japan, S. Korea, India
Crude oil Tanker	5	65,000 DWT		From 2001 to 2005 to carry oil for export from Refinery Plant No.1.
	3	90,000 DWT		From 2006 to 2010 to purchase 3 vessels of 90,000 DWT
Product oil carrier		60,000 – 80,000 DWT		To increase transport share from the current 14% to 40% by 2010
Bulk Carrier	10 – 14	24,000 – 35,000 DWT		To increase loading share to 20% by 2010

Source: VINALINES

certificate and freight (CF) or certificate of insurance and freight (CIF) terms. Therefore, factors such as clients, destination, trade term, and duration of shipment should be considered in planning fleet expansion (i.e., number and type of vessels needed).

VINALINES' investment plan is to acquire a total of five oil tankers of 65,000 DWT and three of 90,000 DWT in the short to medium term (2000-2010). Presumably, this expansion plan was made to increase its trade share in anticipation of the development of the Dung Quat oil refinery project. It is, however, advisable that the acquisition of bigger crude oil tanker (80,000 to 159,999 DWT) be considered instead.

The cargo forecast provided by the VITRANSS indicates a considerable volume of liquid cargo for export and import. As a source of crude oil, Vietnam would likely capture a reasonable share in the transport of this precious commodity. The country's shipping industry should thus have a supply of well-trained and competent seafarers. VINALINES should also establish a financial arrangement, such as letter of credit (LC), to enable ship owners to enjoy an advantageous trade term, an important factor in this kind of trade.

Thus, in the expansion plan for oil tankers, the acquisition of three to five oil tankers with load capacity of at least 90,000 DWT each vessel should be considered until 2010. Further expansion in the long term (2011-2020) should depend on market and charter trends and should already be focused on contracting larger volumes and transporting by large vessels.

### 3) Tanker for Petroleum Products

There is potential as well in expanding the trade share of transporting imported oil product in Vietnam. VINALINES has plans of increasing its lifting share from the present 14% to 40% by 2010. In 1998, Vietnam imported approximately 8 million tons of petroleum products. Thus, it is recommended that the planned expansion of tankers carrying these items be implemented with the acquisition of a total of 7-8 medium-size (25,000 DWT) and large (30,000 DWT) oil tankers until 2020.

### 4) Bulk Carriers/General Dry-cargo Vessels

At present, VINALINES has very old bulk carriers it plans to replace with 10-14 bulk carriers of 24,000-35,000 DWT. This will allow the company to increase its shipping share to 20% by 2010. A continuing investment until 2020 is recommended to carry out fleet expansion.

## **Domestic Shipping Fleet**

The JICA M/P Study on Coastal Shipping (19997) prepared a fleet development

plan with two phases, i.e., up to 2000 and 2001-2010. Some significant events occurred in the late 1990s supporting the fleet development plan as follows:

- Domestic coastal shipping traffic doubled during the period 1995-1998 and is being served by larger vessels that were used in overseas shipping.
- Container liner operation commenced in 1998.
- Nghi Son Cement constructed its private port.

The VITRANSS thus used the fleet development plan for 2001-2010 prepared by the JICA study and modified and extended it toward year 2020.

\* Proposed Strategies \*

- Expansion and modernization of Vietnamese flag fleet to meet traffic demand under a competitive business environment.
- Formulation of varied arrangements to manage the acquisition plan (e.g., hiring bare boat for charter services, leasing secondhand vessels, etc.) in light of limited financial resources.
- Strengthening of the Vietnam Ship owners Association (VSA) to further boost the interest of ship owners in bargaining with government their fleet expansion plans.

Table 5.3.1  
Fleet Development Plan for Overseas Shipping

Year	Type	Size	Number	Unit Price (US \$mil.)	Capital Requirement
2000-2010	Container ship	800-1,200 TEU	18	17.0	306
	Crude oil tanker	90,000 DWT	3	40.0	120
	Oil product tanker	25,000-30,000 DWT	8	25.0	200
	Bulker GC vessel	24,000-35,000 DWT	18	17.0	306
	Subtotal		47		932
2011-2020	Container ship	1,200-1,500 TEU	10	26.0	260
	Crude oil tanker	90,000 DWT	5	40.0	200
	Oil product tanker	25,000-30,000 DWT	10	27.5	275
	Bulker GC vessel	24,000-80,000 DWT	20	26.0	520
	Subtotal		45		1,255
2001-2020	TOTAL		92		2,187

Table 5.3.2  
Fleet Development plan for Domestic Shipping

Year	Type	Size	Number	Unit Price (US\$ mil.)	Capital Requirement
2000-2010	Bulker GC vessel	500-5,000 TEU	85	4.0	340
	Cement carrier	5,000-7,000 DWT	5	11.0	55
	Semi-container ship	2,000 DWT	2	7.0	14
	Roro ship	5,000 DWT	1	17.0	17
	Oil product tanker	3,000-20,000 DWT	3	15.0	45
	Passenger ship	60-490 GVT	8	0.5	4
	Subtotal		104		475
2011-2020	Bulker GC vessel	500-7,000 TEU	70	7.0	490
	Cement carrier	5,000-7,000 DWT	10	12.0	120
	Coal/Ore carrier	2,000-3,000 DWT	10	4.0	40
	Container ship	2,000-5,000 DWT	6	11.0	66
	Roro ship	5,000 DWT	2	17.0	34
	Oil product tanker	5,000-20,000 DWT	8	16.0	128
	Passenger ship	100-500 GVT	15	0.6	9
Subtotal		121		887	
2001-2020	TOTAL		225		1,362

Notes: 1/ The above figures are based on the assumption that the required vessels will be newly built.

2/ Shipbuilding prices supplied by the Shipbuilders' Association of Japan.

#### 5.4 Projects on Maritime Safety

##### 1) Aids to Navigation

According to the VITRANSS transport demand forecast, as international shipping grows, the volume of traffic along the coast of Vietnam will likewise increase by leaps and bounds, and shipping movement will be complicated around major ports. Unfortunately, accidents at sea are bound to increase as well, unless preventive measures are taken immediately.

ATNs are essential to prevent accidents and keep coastal shipping operating smoothly and efficiently. ATNs are broadly grouped into visual ATN and electronic ATN. ATNs supporting ships and workshops are necessary to maintain and repair ATN.

This project aims at lighting navigational channels along the long coastline and developing a sustainable repair and maintenance system. The proposed project covers the following components:

- (1) Visual ATN: including 97 lighthouses, 82 light beacons, 474 lighted buoys
- (2) Electronic ATN: including 28 radar beacons and the differential global positioning system (DGPS) nationwide
- (3) ATN support equipment and facilities: two buoy tenders, 10 small maintenance ships, 16 patrol boats, communication facilities, light

monitoring facility, four workshops, and two factories.

It should be noted that the above components consist of existing and newly built facilities/equipment. At present, there are 57 lighthouses in operation, 37 of which are to be rehabilitated. Thus 40 lighthouses are to be constructed during the M/P period. This proposed project excludes the Spanish undertaking that recently commenced in collaboration with the VMS (US\$ 3 million in total). It will cost VMS US\$ 63.6 million in total during the project period of 2001-2010. It will be supported by an ODA fund which the VMS will repay using the maritime safety fee it levies on both overseas and domestic sea-borne vessels (US 30 cents/DWT).

## 2) Maritime SAR System

In accordance with Prime Minister's Decision No. 780/TTG in 1997, the Vietnam National SAR Committee was established as the highest state organization in SAR operations, which directly commands specialized SAR coordination centers on aviation, maritime, fishery, and petroleum. The Vietnam Maritime SAR Coordination Center (VMRCC) has three regional maritime SAR coordination centers in Hai Phong, Danang and Vung Tau. However, they do not have any vehicles such as ships, planes and helicopters.

The proposed project aims at conducting maritime SAR operation and oil spill protection smoothly and effectively whenever accidents occur on Vietnamese waters. The proposed project will provide its regional coordination centers with the following facilities and equipment:

Table 5.4.1  
Facilities and Equipment for Regional Maritime SAR Coordinating Centers

Item	Hai Phong	Danang	Vung Tau
Middle-size Rescue Ship (41m)	1	1	1
Small-size Rescue Ship (27m)	2	2	2
High-speed Canoe	2	2	2
Life Buoy & Life Raft	10	20	10
Anti-pollution Equipment	1 set	1 set	1 set
(Estimated Cost: US\$ 52.8 million)			

## 3) Seafarers' Education

The number of Vietnamese seafarers is increasing both onboard Vietnamese and foreign vessels. However they are weak in, among others, modern navigation knowledge and techniques, onboard training experience, communication in maritime English language. With a view to overcoming these weaknesses, the project aims at upgrading existing education and



training institutions in compliance with the latest amendments of maritime conventions such as SOLAS, STCW, MARPOL, ISM Code.

The Vietnam Maritime University (VIMARU) and Maritime Technical and Training School (MTTS) with campuses in Hai Phong and HCMC need improvement in facilities, training programs, curricula, and instructors. Within the Master Plan period, they will be given the following equipment at an estimated cost of US\$ 20.9 million:

- Radar simulator with ARPA
- Celestial observation
- Gyro compass training set
- Fire prevention and fire-fighting equipment
- Life-saving apparatus
- Loading calculator for stability training
- Diesel engine plant
- Bilge separation mini-process model
- Electrical and electronic equipment
- Workshop machinery
- Testing and measuring equipment
- Radio communication and GMDSS training set
- Oil tanker operation simulator

Since STCW-95 will be globally applied only up to 1 February 2002, the related training program with the necessary equipment must be urgently provided to active seafarers as well as students.

\* Proposed Strategies \*

- Maritime safety and environmental protection always deserve top priority. It is noted that there are objective requirements as a member of global maritime communities in the form of conventions, regional agreements and guidelines.
- To harmonize with those requirements, tapping ODA fund can be justifiable during the planning period. However, it is important to institutionalize a “beneficiaries pay” principle.
- To meet the capacity and skill required by the maritime industry, all its personnel should have the necessary professional and technical knowledge and competency. For the time being, maritime administration should concentrate on satisfying the requirements of STCW-95.

**Part II**

**PORTS**

## 1 INTRODUCTION

Port development planning is conducted for many potential and existing sites throughout Vietnam. There are several types and sources of port plans, namely: authorized plans by the Government's office, private investment plans proposed by foreign developers, development plans by provincial governments or local developers, etc.

In port planning, reliable data on and a rational analysis of past Vietnamese traffic trends, characteristics of neighboring or developing countries, world trends in port cargo and maritime transport, among others, are necessary to forecast traffic volumes. As a second step, the feasibility of the site for port development is examined. Major factors that need to be studied include the site's natural condition, location on the world maritime route, conditions for vessels, accessibility to/from the hinterland, construction cost, and others. After reviewing these fundamental data, the priority level of the project is then determined.

Usually, however, relevant data on the above-mentioned items may not be available or adequate, hence an additional study is often needed. For example, if a development plan for a new port needs to examine the site's coastal and marine conditions and the size of port users in the hinterland and the gathered information is insufficient, a pre-study will have to be carried out.

In this report, various available planning data on Vietnamese port activities are referred to and explained.

Based on the site survey and study, the current and future status of Vietnamese port activities can be summarized as follows:

- 1) Port traffic at five major ports has smoothly increased since 1991. In 1997, it suddenly dropped due to the Asian economic crisis but recovered in 1998.
- 2) Container traffic at Hai Phong port has increased annually both in exports and imports and has become the prevalent type of cargo. Domestic container has also increased remarkably.
- 3) In Ho Chi Minh City (HCMC), container handling volume at New Saigon port has increased while general cargo at Saigon port has remained roughly at the same level.
- 4) Cargo handling productivity in Vietnamese ports is still low and rehabilitation and improvement of facilities are necessary.
- 5) Capital investment is centered on major ports especially for rehabilitation. EDI or modernized management systems have not yet been introduced.
- 6) The estimated container volume in 2020 is around 7 million TEU, the same volume recorded in Japan in 1988. This is enough traffic for mother vessels to directly call at Vietnam ports.
- 7) Large volumes of bulk cargo, such as fertilizer and rice, will be handled especially in southern Vietnam. Mechanical loading and unloading systems should be introduced for efficient operation.

## 2 REVIEW OF PORT STUDIES, PLANS AND PROJECTS

### 2.1 Past Studies and Recommendations

#### 1) Port of Hai Phong (JICA), September 1993

Name of the study: The Urgent Rehabilitation Plan of Hai Phong Port / The Master Plan Study on the Transport Development in the Northern Part of the Socialist Republic of Viet Nam

Result of the study:

Cargo throughput in 1998-2000: 4.7-5.7 million tons

Container throughput in 1998: 150,000 TEU

Channel improvement: Depth – 6m; bottom width – 80-100 m  
 Length – 38 km; ship size – 10,000 DWT

Major recommendations: Old equipment should be replaced as needed. The effectiveness of new alignment to determine the degree of sedimentation should be carefully examined. The major portion of the dredging cost should be borne by government

#### 2) Port of Cai Lan (JICA), February 1995

Name of the study: The Feasibility Study on Cai Lan Port Construction Project in the Socialist Republic of Viet Nam

Result of the study: The master plan includes development of port facility – 7 berths, length of 1,461 m and area of 435,950m<sup>2</sup> (1 berth existing).

Table 2.1.1  
 Cargo Volume at Cai Lan and Hai Phong Ports, 2000 and 2010

Year	2000	2010
Hai Phong Port	5,424,000 tons	8,350,000 tons
Cai Lan Port	2,676,000 tons	14,300,000 tons

Major recommendations:

- Cargo demand might be modified according to the new development plan and policy, if necessary.
- Hon Gai Port, B-12 and small oil jetties should be removed by year 2000.
- Berth No.7 is designated as a grain terminal.
- Based on the preliminary environmental impact assessment (EIA), additional environmental investigations are required.
- Operations at berth No.1 should begin as soon as possible.

### 3) Coastal Shipping (JICA), March 1997

Name of the study: Master Plan Study on Coastal Shipping Rehabilitation and Development Project in Vietnam

Result of the study: The Master Plan includes:

- Fleet expansion and modernization
- Ports and waterways development
  - 17 key general coastal shipping ports: Hai Phong, Cai Lan, Hanoi, Vi Tri, Ninh Binh, Danang, Cua Lo, Ha Tinh-Quang Binh, Thuan An, Qui Nhon, Nha Trang, Saigon, Dong Nai, My Tho, Dang Thap, My Thoi, and Can Tho
  - A total of 710 km sea-cum-riverways
- Coastal shipping management modernization
- Secondary transport improvement program
- Maritime human resources development program
- Maritime safety enhancement and environment protection program

Major recommendations:

- The program on trunk route development for north-south coastal shipping should be developed.
- The program to meet international requirements should be defined.
- The program on maritime human resources development should be implemented at the earliest possible time.

### 4) Central Ports (JICA), August 1998

Name of the study: The Study on the Port Development Plan in the Key Area of the Central Region in the Socialist Republic of Vietnam.

Result of the study: The Master Plan includes:

- Chan May port: 1 multipurpose berth, 1 deep conventional berth, 5 conventional berths
- Lien Chieu port: 2 container berths, 1 multipurpose berth, 8 conventional berths
- Dung Quat port: 2 deep tanker berths, 6 coastal tanker berths, 2 bulk berths, 9 coastal vessel berths

The initial stage includes:

- Chan May port: 1 multipurpose berth, 2 conventional berths
- Lien Chieu port: 1 multipurpose berth, 2 conventional berths
- Dung Quat port: 1 deep tanker berth, 2 coastal tanker berths, 4 coastal vessel berths

Major recommendations:

(1) Basic Development Strategy in Central Vietnam

- To avoid possible adverse impacts from drastic and random development, the target projects need to be critically selected.
- The development schedule should harmonize with local life and culture.
- The initial scale of target projects should be downsized as much as possible so as not to jeopardize national and regional financial security.
- Private sector participation in development schemes is desirable in principle but needs to be controlled carefully.

(2) Development of Tien Sa and Lien Chieu Areas at Danang Bay

- Tien Sa does not have enough room for future expansion, making the development of a large-scale container port difficult from the viewpoint of cost performance.
- The Tien Sa site is not convenient enough for cargo transportation from/to the industrial zone of Danang City.

(3) Basic Development Concept of Chan May Port

- The development of a large-scale port in Chan May should be postponed mainly to ease the current economic burden of the country and the province. However, it should be noted that the proposed development will lead to great benefits in the future and should thus be maintained.

(4) Basic Development Concept of Dung Quat Port

- This type of large industrial ports requires a corresponding scale of exclusive port facilities for both private and public sectors for industrial and general cargo traffic. To cope with this situation, the project needs to be supported by public funds to an appropriate extent, so that the project could be financially sustainable and the industrial location could be successfully promoted.

5) Central Vietnam (France), September 1998

Name of the study: Transport Master Plan for the Central Region of Vietnam

Result of the study: Feasibility of port projects:

- Qui Nhon: feasible in the year 2004
- Vung Ang: feasible in the year 2010

Major recommendations:

- Assistance to VINAMARINE in developing market oriented management and operation structures
- Assistance to MOT and VINAMARINE in order to set up private participation in port construction/extension in Vung Ang and Qui Nhon.

6) HCMC (United Kingdom), January 1999

Name of the study: Ho Chi Minh City Transport Study

Result of the study: The throughput of the port complex (million tons per annum) is shown in the table below:

Table 2.1.2  
 Estimated Throughput of the Port Complex

Scenario	Year	Port Complex			
		HCMC	Thi Vai	Vung Tau	Total
Scenario 1	2000	10.2	4.7	0.0	14.9
	2010	10.2	12.4	22.4	45.0
	2020	10.2	29.6	35.2	75.0
Scenario 2	2000	11.8	2.4	0.0	14.2
	2010	25.0	6.2	4.8	36.0
	2020	25.0	14.8	13.4	54.2
Scenario 3	2000	13.1	1.0	0.0	14.1
	2010	25.0	4.0	5.5	34.5
	2020	25.0	8.0	18.0	51.0

Note: Scenario 1: Dispersed development-maximizing activity at Vung Tau and Thi Vai River  
 Scenario 2: Early investment in HCMC  
 Scenario 3: Maximizing development in situ in HCMC by improving Soai Rap River

7) World Bank Transport Sector Report, January 1999

Comments: Vietnam's ports (except some in HCMC) have about five years' throughput capacity reserves without requiring major new investments. Hence, government should use this time to:

- assess the likely impact of the Asian economic crisis on its projections of port traffic and its port investment program;
- review the viability of its industrial and economic development and investment plans and estimate traffic types and volumes to be generated;
- assess the potential for increasing the throughput capacity and productivity of existing major maritime ports (with "limited investment") through port commercialization/corporatization; improved operational and management systems, including the introduction of a market-based regulatory and institutional framework to allow ports to be managed as commercial enterprises; and
- identify intermodal transport facility requirements, including investments, timetables, cash flows, and alternate solutions, to handle the additional traffic created by the planned industrial and economic development.

## 2.2 Ongoing and Committed Projects

Ongoing projects in Vietnam's port and shipping sector are being funded and conducted by the WB, ADB, JBIC, French and Belgian ODA. The WB funded the development of an inland waterway and port in Mekong delta, and ADB provided funds for Saigon and Red River delta. The JBIC is assisting in ports development in north and central Vietnam, while France is assisting in funding buoying systems in Saigon and Hai Phong ports. Belgium, on the other hand, is supporting a study on the access channel in Bassac River and Hai Phong port as well as a feasibility study of the latter. Ongoing projects are listed in Table 2.2.1.

Table 2.2.1  
Ongoing Projects

Project (Year Committed)	Funding Agency	Amount (Million)	Project Contents	Implementing Agency (Year Started)
Hai Phong Port Rehabilitation (1993)	JBIC	¥ 3,975	Improving and enhancing facilities to meet the rapidly increasing demand for cargo handling at Hai Phong port	VINAMARINE (1995)
Cai Lan Port Expansion (1995)	JBIC	¥ 10,273	Adding 3 berths to the existing deep-sea port located at about 50 km northeast of Hai Phong.	VINAMARINE (1997)
Coastal Communication System (1996)	JBIC	¥ 1,997	Upgrading the coastal communication system in northern Vietnam. GMDSS and microwave satellite communication are included.	VINAMARINE
Danang Port Expansion (1997)	JBIC	¥ 10,000	Rehabilitating existing piers, constructing breakwater, container terminal and access bridge, and dredging	MOT (1999)
Hai Phong Rehabilitation Phase 2 (1998)	JBIC		Dredging access channel, constricting container berth/terminal	VINALINES (1999)
Saigon Port Rehabilitation	ADB	US\$ 30	Rehabilitating the port and providing it with new equipment	Saigon Port Authority (SPA) (1995)
Saigon Port MIS	ADB	US\$ 0.5	Providing MIS technical assistance to SPA	SPA (1995)
Maritime Transport	France	FF 7.0	Installing buoys on Saigon River and Hai Phong Port	Vietnam Maritime Safety Agency (1990)
Study of the Accessibility to the Hai Phong Port	Belgium	US\$ 1.2	Cooperation in the field of engineering, advisory services for the general study of the port access channel of Hai Phong port	Haecon, TEDI (1995)
Accessibility Study on Caimep port	Belgium	US\$ 0.7	Feasibility study of the Caimep multipurpose port terminal in Vung Tau-Thi Vai	TEDI south (1998)
Technical and Economic Study on Bassac River	Belgium	US\$ 1.58	Feasibility study to improve the access channel to Bassac River	Mekong Secretariat (1996)



## 2.3 Government Plan and Policy

### Development Plan up to 2010 (MOT/PM)

Based on the current situation of port system in Vietnam and the forecast of increased cargo volume in the next decade, the MOT has worked out the Master Plan for the development of ports in Vietnam up to years 2000 and 2010. In the plan, priority is given to the rehabilitation, improvement and modernization of existing main ports to handle the increased volume of cargo. The construction of some deep-sea ports at key economic zones for vessels up to 30,000-40,000 DWT is also being considered to meet the increased demand of import and export cargoes generated by the planned economic development.

Vietnam's port development plan to year 2010 was announced in the "Summary Report on the Master Plan for Vietnamese Seaport System development to the year 2010 by MOT" (Hanoi, 31 October 1998). The report's outline is as follows:

- 1) Objectives, Orientation and the Essential Task of the Plan: Establishing a system of ports to meet the capacity of 106 million tons and 268 million tons in years 2003 and 2010, respectively.
- 2) Vietnamese Port Scale to the year 2010: Table 2.3.1 groups 114 ports and port sites into eight groups based on cargo throughput.
- 3) Cargo Throughput by Port: The estimated throughput capacity of each port in years 2003 and 2010 is given in Appendix A.

Table 2.3.1  
 Cargo Throughput of Ports up to 2010

Port Group	No. of Ports and Port Sites	Cargo Throughput (million tons)	
		To 2003	To 2010
1. Hai Phong, Cai Lan and northern Ports	27 ports and port sites	21.0 – 24.0	59.0 – 69.5
2. North Central Region (Thanh Hoa, Nghe An, Ha Tinh)	8 ports	3.5 – 4.5	23.0 – 25.5
3. Mid-central Region (Quang Binh, Quang Ngai)	11 ports	17.0 – 18.0	34.0 – 36.5
4. South Central Region (from Binhthuan to Phuyen)	11 ports and port sites	3.0	5.0 - 6.0
5. HCMC – Vung Tau – Thi Vai	42 ports	34.0 – 38.0	84.0 – 98.0
6. Mekong River Delta	14 ports	5.5 – 6.5	9.0 – 11.0
7. Phu Quoc and southwestern islands	2 ports	Fishing fleet and passenger transshipment	Cargo and passenger fleet potential to build international transshipment port
8. Con Dao			

## Development Plan up to 2020

The “Port Development Plan up to the year 2020” was provided by the TDSI. Its port development policy is basically the same as that of the plan up to year 2010. The document is summarized as follows:

### 1) Trend of Port Traffic

Table 2.3.3  
 Port Traffic up to 2020

	2000	2010	2020
North	20,000,000	50,000,000	122,000,000
Central	10,500,000	50,000,000	86,000,000
South	36,000,000	103,000,000	187,000,000
TOTAL	66,500,000	203,000,000	395,000,000

Sources: TDSI and VINAMARINE (1996)

Table 2.3.4  
 Increase Rate of Port Traffic

	2000-2010	2010-2020
North	10 %	9 %
Central	17 %	6 %
South	11 %	6 %
TOTAL	12 %	7 %

### 2) Investment in Port Development

Table 2.3.5  
 Investment Capital for Port Development

	Up to 2000	Up to 2010	Up to 2020	Total
North	878	3,185	6,315	10,378
Central	819	4,353	4,710	9,882
South	4,395	6,875	6,205	17,475
TOTAL	6,092	14,413	17,230	37,735

Capital investment by port is in Appendix A

### 3) Improvement Plan for Sea Channel

The ports of Hai Phong, Cua Lo, Le Mon, Gianh, Song Han, Vung Tau, Go Dau, and those in Mekong Delta, as well as Dong Nai petroleum port, need annual dredging for convenient and suitable navigation.

### **3 CURRENT SITUATION**

#### **3.1 Port Administration and Management**

The Vietnamese maritime subsector is under the MOT. Within the MOT, ports fall under two organizations – VINAMARINE for seaports and Vietnam Inland Waterway Administration (VIWA) for river ports. Port management, however, falls under the following six authorities:

##### **1) VINAMARINE, MOT**

VINAMARINE manages three ports, namely, Nghe Tinh Port, Qui Nhon Port and Nha Trang Port.

##### **2) VINALINES**

VINALINES was established in January 1996 as the general company that is responsible for state-owned corporations in the shipping industry. When VINALINES was formed under Decision No. 250/Ttg by the Prime Minister, the management of Hai Phong and Saigon ports was transferred to VINALINES from VINAMARINE.

VINALINES undertakes the following activities:

- shipping, port operation, maritime services, and other maritime-related business,
- export/import of specialized materials, equipment and labor deployment, and
- participation in joint-venture shipping companies with foreign and domestic partners and implementation of other businesses and tasks assigned by government.

##### **3) Local Governments**

Around 20 existing general ports are managed by local governments. Of these, cities manage three ports (Cua Cam Port by Hai Phong, Ben Nghe and Binh Duong ports by HCMC). Some provincial ports are handling a considerable volume of cargo.

##### **4) State-owned Corporations under Other Ministries**

State-owned corporations organized and operated by other central government ministries have many specialized ports. The representative ports are listed in Table 3.1.1.

Table 3.1.1  
 Specialized Ports under Other Ministries

Responsible Ministry	Ports	Operations
Ministry of Industry	Cam Pha Port Hong Gai port Dien Cong port	Loading of coal from Hong Gai mine for export and domestic markets
	Phai Lai Port	Unloading of imported coal and oil for domestic power plants
Ministry of Trade	B 12 Port My Khe Port Nha Be Port	Unloading and distribution of imported refined oil for domestic market
Ministry of Agriculture & Rural Development	Nha Be Vegetable Port	Loading of main agricultural products such as rice, etc, for export
Ministry of Construction	Chin Phong Port Hoang Thach Port Nghi Son Port Kien Luong Port	Handling of construction materials, i.e. cement, sand, gravel

5) Public corporations under the local government

Like state-owned corporations, some publicly owned corporations under the control of provinces and cities have specialized ports, for example, Hong Khoi Port is managed by a salt company under the control of Khanh Hoa Province.

6) Other Public Ports

It should be noted that New Saigon Port does not belong to any of the above categories since the management body is the Ministry of Defense, yet the port itself functions as a general port.

7) Private Sector

A joint-venture port project between foreign (French and Norway) and local Vietnamese investors commenced operation in 1996. Ba Ria Serece Port at Phu My was the first Vietnamese port to have private participation. VICT is the second. It is a joint venture of Singaporean, Japanese and Vietnamese state corporations. It is located just beside Tan Thuan Industrial Zone in HCMC and commenced operation in November 1998.

**3.2 Existing Port System**

Vietnam's 3,200-kilometer coastline can be divided into three parts – north, central and south – to describe the existing port system. In each part, there are major public, subordinate, industrial, and private ports (refer to Figure 3.2.1).

- In the north, Hai Phong port has functioned as a gateway port ever since its operation in 1876 with only a 60-meter long quay. Its physical nature as a river port, however, hardly allows large vessels of more than 7,000 DWT to dock. The port also requires substantial and continuous dredging works to maintain its access channel. Under such circumstances, Cai Lan port, 40 km northeast of Hai Phong, was proposed as an alternative deep-sea port in the first master plan done in 1970 by the USSR. After several revisions of the port development plan, three berths are now additionally being constructed to the existing single berth. In the course of planning, designing and construction, however, there is an increasing awareness to preserve the precious environment of Ha Long Bay.

Headed by Hai Phong port, a local port network can be observed involving small river ports like Ninh Phuc, Hanoi, Viet Tri, and Nam Dinh. Industrial ports for coal, cement and oil are located separately along the coast and river.

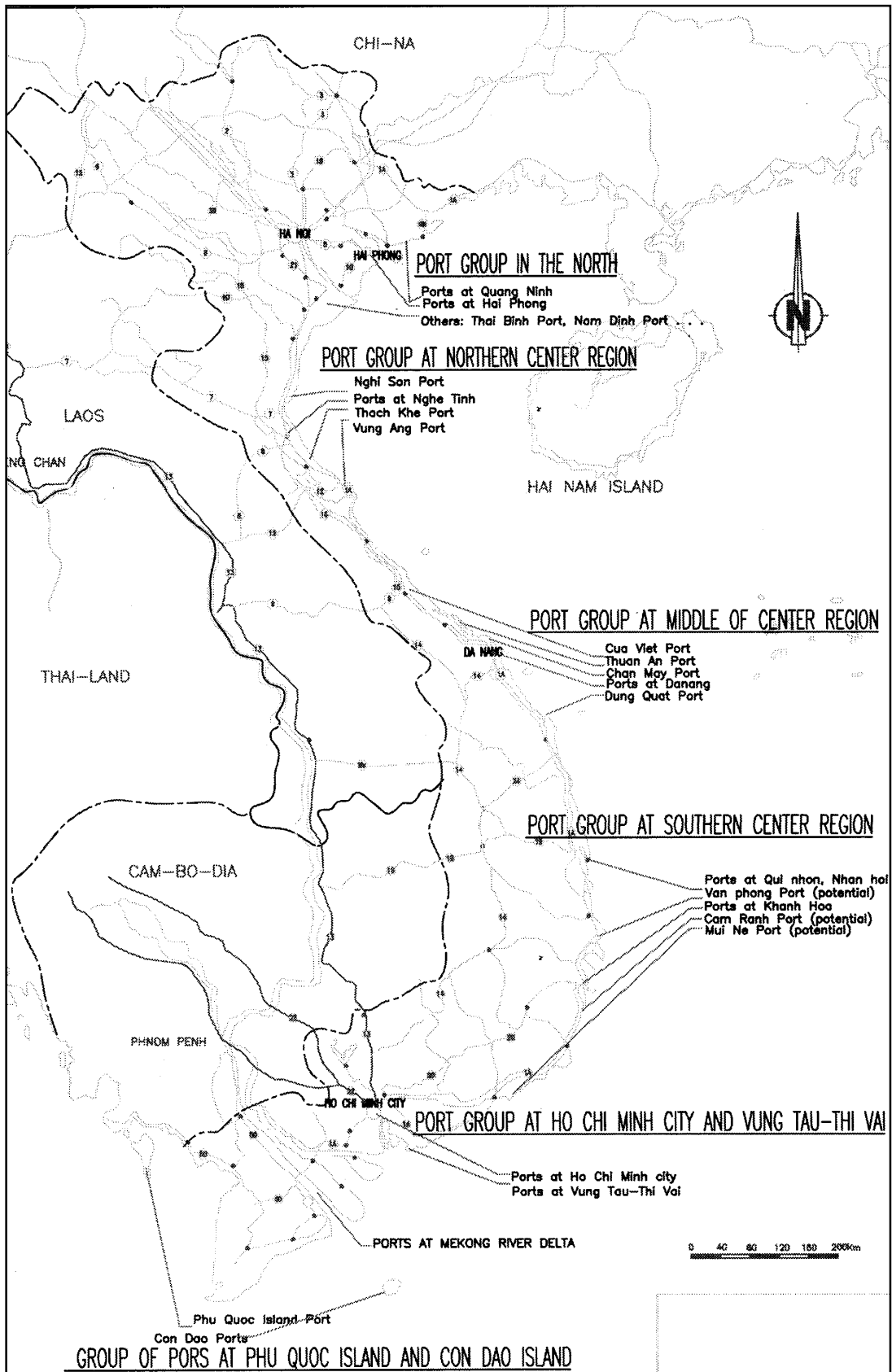
- In the central region, Danang port has functioned as a gateway port since the country's unification. Its Tien Sa jetties can accommodate vessels with 30,000 DWT. The existing facilities at Danang port are being expanded through the construction of a container pier (adjacent to the Tien Sa jetties). The port development, however, will have to overcome present problems like high waves, narrow cargo handling areas and a weak access road to the city center. Moreover, due to the small population and insufficient number of industrial establishments in the hinterland, the port's throughput is far behind that of Hai Phong and Saigon ports.

There are three more major seaports (i.e., Cua Lo, Qui Nhon and Nha Trang) dotting the long central coastline. With port improvement and/or additional infrastructure, these ports can receive vessels with 10,000 DWT throughout the year. However, the current traffic demand may not justify large investments in these ports. It needs industrial boom towns and transshipment/transit ports at many places, such as Vung Ang, Chan May, Lien Chieu, Dung Quat, Van Phong, etc., to generate sufficient traffic demand. Despite the present limited traffic demand, however, port development is very active in the region. When the regional economic crisis ends, it would be essential to carefully review the viability, timing and location of proposed/ongoing port projects in this area.

- In the south, Saigon River is the busiest navigational route where numerous ports are located. It accommodates various kinds of vessels and barges up to 20,000 DWT, which however is not enough for overseas shipping activities. Saigon port, established in 1860, is the most important port of the country. However, since it is located in the center of Ho Chi Minh City, it can hardly modernize due to narrow cargo-handling space on land and congested traffic in the city. Due to these factors, the Vung Tau-Thi Vai port area is becoming a crucial port.

There are many private ports and a few small public ports currently operating in the area, except for the alternate Saigon port project. Similarly, many ports are distributed in the Mekong delta. Among them, the largest and most promising is the Can Tho port which, after its rehabilitation and expansion, will enable direct exports of agricultural and fishery products to neighboring countries. Endowed with a developed inland waterway network, other delta ports, such as Vinh Thai, Cao Lanh, My Tho, Nam Can, My Thoi, etc., can be made more accessible to Can Tho port and the HCMC port groups.

Figure 3.2.1  
 Ports in Vietnam



### 3.3 Infrastructure

The combined berth length of the three major ports accounts for about 36% of the country's total berth length. One of these ports, Hai Phong, has undergone several expansion and improvement projects since beginning operations in 1876. It has a limited port area, a channel length of 38 km and a depth of only 4.2 meters. It can only accommodate vessels of 10,000 DWT or less even during high tide. Its berth occupancy rate is 60%, according to port management. This can be mainly attributed to the port's use of ship's gears instead of port cranes in handling cargoes. Moreover, the port is equipped with old equipment such as Kondor cranes, old American-made floating crane, old Russian-made Kirov jib cranes, mobile cranes, tug boats, etc., most of which are not suitable for handling containerized cargoes.

The facilities of Danang port are almost in the same condition. With an ideally deep channel of 11-12 meters, the port can accommodate vessels of 30,000 DWT. This port handled 40-50% of the total cargo throughput in the area.

Saigon port, being in the center of HCMC, cannot function effectively because of a lack of land and congested road network. Being a river port where the average depth of the channel is 9 meters, this port can accommodate vessels up to 25,000 DWT. Besides serving the whole area of Ho Chi Minh City and Mekong delta, this port is also important to the economic development of Ba Ria-Vung Tau province.

Table 3.3.1  
 Port Facilities in Vietnam

Owner	Berth Length (m)	Berth Area (m <sup>2</sup> )	Storage Area (m <sup>2</sup> )	Terminal Area (m <sup>2</sup> )
1. MOT	8,267	137,827	183,585	780,590
2. Province	2,288	48,993	52,420	170,400
3. Joint Venture	2,059	35,977	81,542	76,823
4. Other Ministries	7,544	85,500	525,947	1,156,113
<b>TOTAL</b>	<b>20,154</b>	<b>307,797</b>	<b>843,494</b>	<b>2,183,926</b>

Source: MOT-TDSI, 1998



**Box 3.3.1**  
**Required Water Depth as Function of Vessel Draft**

Draft (m)	Vessel Size (DWT)				Water Depth <sup>1/</sup> (in addition to draft)
	Cargo	Bulker	Container	Tanker	
2.0					+ 0.5
3.2	1,000				+ 0.5
4.0	2,000				+ 0.5
5.0	2,500				+ 0.5
6.0	5,000 (6.4-7.0)			3,000	+ 0.6
7.0	5,000	10,000 (7.5)	10,000 (7.3)	5,000	+ 0.6
8.0	10,000		5,000 (8.5)	10,000 (7.8)	+ 0.6
9.0	15,000 (9.2)	20,000 (9.3)	20,000 (9.2)		+ 0.6
10.0	20,000		25,000 (10.1)	20,000 (9.8)	+ 0.6
11.0	25,000 (10.7) 30,000 (11.3)	40,000 (11.5)	30,000 (10.7) 35,000 (11.1)	30,000 (10.8)	+ 0.6
12.0	35,000		45,000 (12.2) 50,000 (12.5)	40,000 (11.8) 50,000 (12.6)	+ 1.0 Panamax
13.0	40,000 (12.5)	60,000 (12.8)	55,000 (12.8) 60,000 (13.2) 65,000 (13.5)	60,000 70,000 (13.5)	+ 1.0 Post Panamax
14.0		80,000	70,000 (13.8)	80,000	+ 1.5
15.0		100,000 (15.3)		100,000 (15.1)	+ 1.5
16.0				125,000	+ 1.5
17.0		125,000 (16.5)		150,000	+ 1.5 Capesize

Source: PIANC for first five columns.  
 1/ Water depths are given for smooth waters. Add 1.0 m instead of 0.6 m for rocky bottom. Add 1.5-2 m to draft from ships at SPMs.

**Table 3.3.2**  
**Facilities in the Three Main Ports**

Port	Terminal	Berth Length (m)	Type of Ship Accommodated at Berth	
			Max. Size (DWT)	Cargo Handled
Hai Phong Total storage: 431,800 m <sup>2</sup> Jib Cranes: 35 Reach-Stackers: 7 Floating Cranes: 2	Hoang Dieu (conventional)	1,300	10,000	General, Bagged, Bulk
	Hoang Dieu (container)	410	10,000	Container, General, Metal
	Vat Cach	311	10,000	General, Bagged, Bulk, Metal
	Doan Xa	200	10,000	General, Bagged, Bulk, Liquid
	Chua Ve	335	10,000	Container, General
Danang Total storage: 186,225 m <sup>2</sup> Mobile Cranes: 16 Forklift, Reach-S: 16	Tien Sa	732	30,000	Container, Passenger
	Song Han (1,2)	235	5,000	Container, Passenger
	Song Han (3,4,5)	465	3,000	General, Passenger
	Song Han (6,7,8)	273		General
Saigon Total storage: 500,000 m <sup>2</sup> Mobile Cranes: 2 Jib Cranes: 7 Forklift, Reach-S: 86	Nha Rong	689	30,000	General, Passenger
	Khanh Hoi	1,389		General, Passenger
	Khanh Hoi B	140		Bulk
	Tan Thuan	713		Roro, Container, Bulk

### 3.4 Traffic Demand

#### Port Traffic Volume and Characteristics

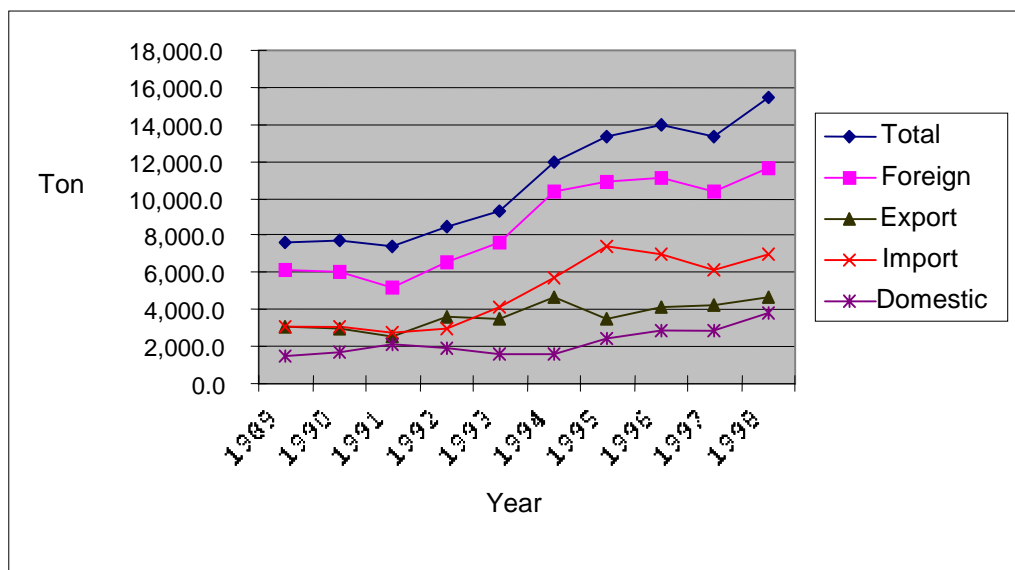
The “Statistical Yearbook, 1997” shows the port traffic volume since 1991. Before this year, it is believed that port traffic was greatly influenced by trade with communist countries. Therefore data after 1991 is reasonable for future estimation. Since 1991 the annual growth rate has exceeded 10% in five occasions while a minus growth was registered only once (1997). Overall, Vietnamese port traffic is demonstrating smooth growth (see Table 3.4.1 and Figure 3.4.1).

Table 3.4.1  
 Port Traffic in Major Ports

Port	(tons)							
	1991	1992	1993	1994	1995	1996	1997	1998
Hai Phong	2,433,400	2,378,200	2,706,300	3,249,000	4,515,000	4,809,000	4,600,000	5,442,000
Saigon	4,159,600	5,004,000	5,508,600	6,438,600	7,212,000	7,340,000	6,821,000	7,700,000
Quang Ninh	424,600	718,900	683,000	521,000	704,000	813,000	820,000	1,011,300
Nghe An	126,200	132,900	182,200	305,500	310,000	462,000	480,000	473,600
Danang	260,500	313,300	371,900	666,700	830,200	847,900	882,000	829,000
Quy Nhon	300,400	335,000	411,800	403,000	447,000	554,700	838,000	953,900
Nha Trang	148,000	154,500	181,000	214,000	343,400	426,000	424,000	485,000
Can Tho	n.a	n.a	n.a	65,800	125,900	183,200	202,000	332,300
<b>TOTAL</b>	<b>7,852,700</b>	<b>9,036,800</b>	<b>10,044,800</b>	<b>11,863,600</b>	<b>14,487,500</b>	<b>15,435,800</b>	<b>15,067,000</b>	<b>17,227,100</b>
<b>Growth Rate (%/yr)</b>		15%	11%	18%	22%	7%	-2%	14%

Sources: Statistical Yearbook, 1997 and Annual Report by VINAMARINE, 1999

Figure 3.4.1  
 Cargo Volume in Major Ports



Regarding throughput at ports, the total volume in 1998 was estimated at 56.558 million tons, 41% of which was liquid cargo, 45% dry and 16% transit. The component share among the 10 main ports was about 42%, with Saigon handling the largest volume (14%), followed by Hai Phong (10%) and New Saigon Port (7%) (see Table 3.4.2).

Vietnamese import volume has been larger than export except in 1992. Foreign trade volume has exceeded domestic trade volume except in 1991 at Haiphong and Hvvvvvvvvvv Hai Phong and 1996 at Can Tho (see Table 3.4.3).

Based on the trend of cargo handling at Saigon and Hai Phong ports, cement and fertilizer are the commodities shipped to Saigon from Hai Phong and foreign ports, while rice is the commodity that Hai Phong needs from Saigon. Concerning general cargo, the volume handled (loaded and unloaded) at Hai Phong port is greater than that of Saigon (refer to Table 3.4.4 and Figure 3.4.2)

Table 3.4.2  
 Shipping and Port Traffic

Target	1998	%	1999 Projection
	000 tons		000 tons
1. Maritime transportation (total output)	12,845		13,872
• Foreign transportation	9,440	73	10,196
• Domestic transportation	3,405	27	3,670
• Liquid cargo	2,480	19	2,700
2. Throughput at ports	56,558		61,082
Liquid cargo	22,913	41	24,750
Dry cargo	25,599	45	27,650
Transit cargo	8,770	16	9,295
Container (TEU)	791		859
Passenger (No.)	44		60,000
3. Major Enterprises			
• Transport enterprises of VINALINES	6,870		7,420
- Foreign transportation	4,877		5,267
- Domestic transportation	1,994		2,153
• Ports	5,442	10	5,832
- Hai Phong Port	7,700	14	7,992
- Saigon Port	1,011	2	1,082
- Quang Ninh Port	474	1	511
- Nghe Tinh Port	829	1	877
- Danang Port	954	2	1,045
- Quy Nhon Port	485	1	500
- Nha Trang Port	332	1	329
- Can Tho Port	4,199	7	4,250
- New Port Saigon	2,092	4	2,260
- Ben Nghe Port	12,845		13,872

Source: VINAMARINE Annual Report in 1999

Table 3.4.3  
 Port Traffic at Major Ports

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
<b>All Ports Total</b>	7,632.1	7,684.4	7,384.6	8,473.5	9,269.9	11,940.8	13,330.2	13,994.0	13,291.6	15,510.4
Foreign	6,097.9	6,032.7	5,227.4	6,600.1	7,641.4	10,348.5	10,926.7	11,086.7	10,415.8	11,660.4
Export	3,043.2	2,919.4	2,520.1	3,589.6	3,523.8	4,648.7	3,464.5	4,109.0	4,284.4	4,624.1
Import	3,054.7	3,113.3	2,707.3	3,010.5	4,117.6	5,699.8	7,462.2	6,977.7	6,131.4	7,036.3
Domestic	1,534.2	1,651.7	2,157.2	1,873.4	1,628.5	1,592.3	2,403.5	2,907.3	2,875.9	3,850.0
<b>Hai Phong</b>										
Total	2,724.5	2,516.0	2,433.3	2,378.1	2,706.3	3,249.8	4,516.0	4,809.6	4,588.2	5,445.7
Foreign	1,819.2	1,500.8	1,030.1	1,230.4	1,591.7	2,143.0	2,856.0	3,095.0	3,050.2	3,468.0
Export	751.0	524.4	408.9	381.5	415.6	440.8	494.0	654.6	803.1	850.0
Import	1,068.2	976.4	621.2	848.9	1,176.1	1,702.2	2,362.0	2,440.5	2,247.0	2,618.0
Domestic	905.3	1,015.2	1,403.2	1,147.7	1,114.6	1,106.8	1,660.0	1,714.6	1,538.0	1,977.7
<b>Danang</b>										
Total	566.9	430.3	260.4	313.3	371.9	666.7	830.3	847.9	882.2	1,119.7
Foreign	502.5	363.2	196.6	226.2	280.4	609.3	781.1	780.2	713.2	938.8
Export	175.1	107.5	69.6	62.7	69.4	119.5	149.5	198.2	279.7	469.3
Import	327.4	255.7	127.0	163.5	211.0	489.8	631.6	582.1	433.5	469.6
Domestic	64.4	67.1	63.8	87.1	91.5	57.4	49.2	67.7	169.0	180.8
<b>Saigon</b>										
Total	4,048.3	4,347.2	4,159.6	5,003.9	5,508.6	7,438.5	7,211.0	7,339.8	6,820.5	7,601.5
Foreign	3,559.4	3,875.5	3,508.8	4,407.4	5,087.4	7,019.9	6,567.0	6,489.9	6,040.6	6,460.1
Export	2,015.7	2,085.6	1,625.8	2,495.9	2,359.6	3,551.7	2,308.0	2,691.8	2,766.1	2,865.6
Import	1,543.7	1,789.9	1,883.0	1,911.5	2,727.8	3,468.2	4,259.0	3,798.1	3,274.5	3,594.6
Domestic	488.9	471.7	650.8	596.5	421.2	418.6	644.0	850.0	779.9	1,141.3
<b>Quang Ninh</b>										
Total	214.8	298.2	424.6	718.8	683.1	520.0	647.0	813.5	798.4	1,011.3
Foreign	157.3	205.6	389.9	699.3	681.9	518.6	633.0	631.7	431.1	507.9
Export	67.1	158.1	368.8	618.9	679.2	492.6	447.0	491.2	322.0	230.9
Import	90.2	47.5	21.1	80.4	2.7	26.0	186.0	140.6	109.1	276.9
Domestic	57.5	92.6	34.7	19.5	1.2	1.4	14.0	181.8	367.3	503.5
<b>Can Tho</b>										
Total	77.6	92.7	106.7	59.4	n.a	65.8	125.9	183.2	202.3	332.3
Foreign	59.5	87.6	102.0	36.8	n.a	57.7	89.6	89.9	180.7	285.7
Export	34.3	43.8	47.0	30.6	n.a	44.1	66.0	73.3	113.4	208.4
Import	25.2	43.8	55.0	6.2	n.a	13.6	23.6	16.5	67.3	77.3
Domestic	18.1	5.1	4.7	22.6	n.a	8.1	36.3	93.3	21.6	46.6

Sources: MOT (1989-1997), VINALINES (1998)

**Figure 3.4.2**  
**Port Cargo by Major Commodity at Saigon and Hai Phong Ports**

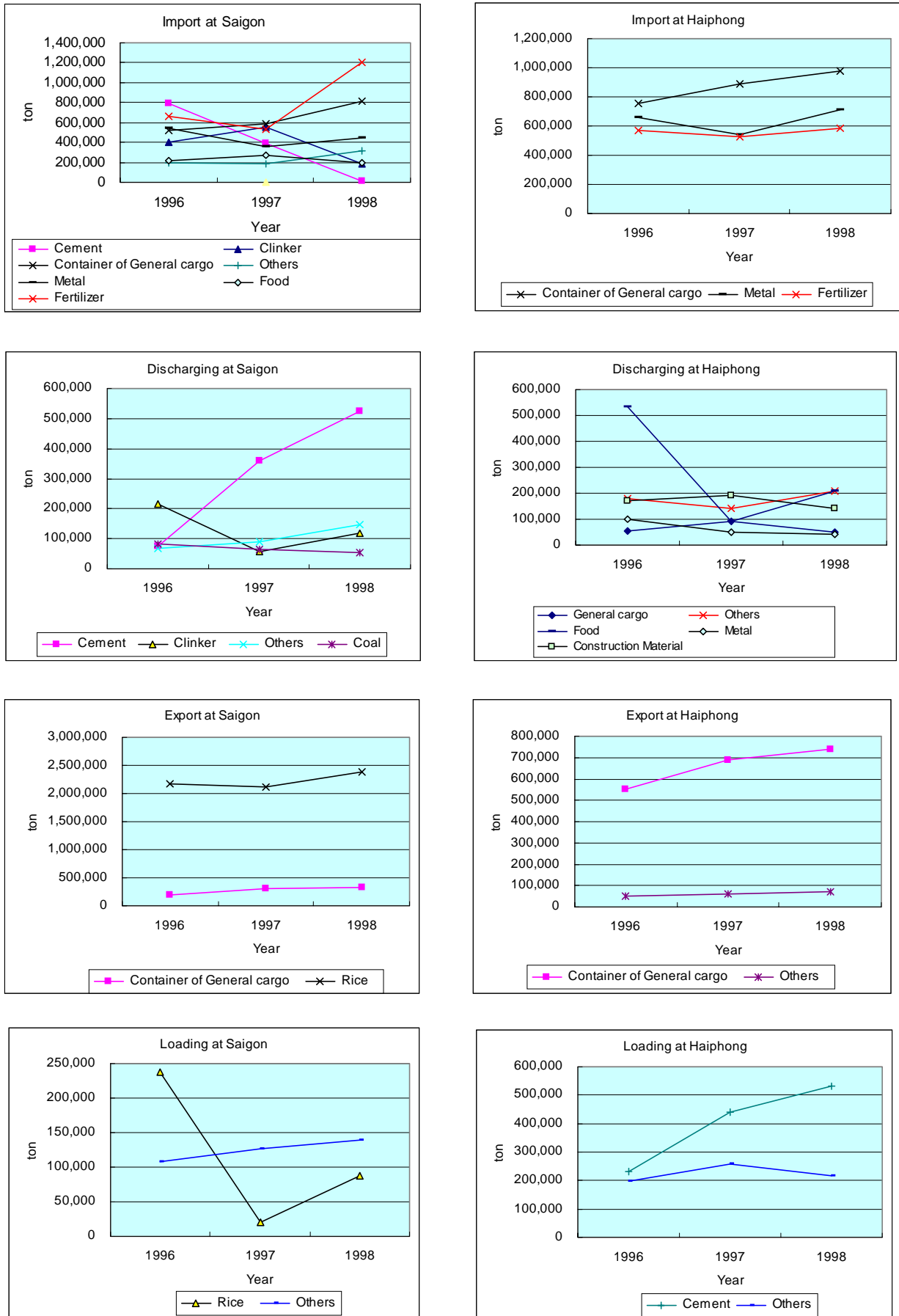


Table 3.4.4  
 Import and Export at Saigon and Hai Phong Ports

	Saigon			Hai Phong		
	1996	1997	1998	1996	1997	1998
Total	7 339 828	6 820 520	7 601 463	4 809 620	4 588 189	5 445 699
Imported Cargo	3 798 100	3 274 462	3 594 554	2 440 461	2 247 019	2 618 004
General cargo	112.814	51.312	104.225	31.754	29.300	80.672
Cement	789.668	395.888	9.891	-	-	-
Clinker	397.142	550.178	186.038	84.051	-	-
Container	522.530	586.226	815.517	758.623	887.093	981.088
Emotv Container	119.017	147.837	188.711	-	-	-
Paper	23.777	12.470	-	-	-	-
Others	190.645	179.303	313.416	65.044	43.692	35.882
Medical products	121.026	124.802	102.303	80.344	45.712	59.145
Metal	537.533	358.816	439.641	661.973	537.539	710.438
Food	218.210	266.299	195.667	35.156	9.873	11.361
Machine	50.658	41.758	33.355	116.372	67.273	54.368
Bitumen	-	530	-	39.114	58.429	31.360
Fertilizer	664.774	527.803	1.200.290	568.030	525.165	584.912
Metal ore	-	-	-	-	42.943	68.778
Plaster	50.306	31.240	5.500	-	-	-
Loaded Domestic Cargo	456 788	580 533	878 023	1 114 693	616 007	894 156
General cargo	14.731	7.561	30.954	53.048	91.624	48.481
Cement	76.301	358.281	525.433	2.905	2.398	39.706
Clinker	216.404	58.497	118.396	-	-	1.633
Others	67.000	90.943	148.948	179.231	142.887	208.170
Coal	82.352	65.251	54.292	7.548	990	1.825
Container	-	-	-	124	3.109	79.526
Aariculture products	-	-	-	36.643	30.060	56.458
Fertilizer	-	-	-	29.770	11.124	62.298
Food	-	-	-	532.259	90.967	209.920
Metal	-	-	-	100.548	50.090	42.583
Construction Material	-	-	-	172.617	192.758	143.556
Exported Cargo	2 691 771	2 766 146	2 865 577	654 564	803 141	849 967
General cargo	1.528	16.116	8.939	8.840	6.466	1.963
Container	200.113	303.217	335.106	550.430	689.785	738.431
Emotv Container	109.450	121.823	120.917	-	-	-
Rice	2.173.096	2.118.621	2.391.535	-	-	-
Others	99.350	105.476	9.080	49.891	60.685	69.771
Metal ore	-	-	-	45.403	37.085	450
Construction material	-	-	-	-	9.120	39.352
Aariculture products	108.234	100.893	-	-	-	-
Loaded Domestic Cargo	393 169	199 379	263 309	599 902	922 022	1 083 572
General cargo	19.107	19.801	21.627	49.274	31.347	31.911
Rubber	28.488	32.472	14.474	-	-	-
Rice	237.619	19.880	88.007	-	-	-
Container	-	-	-	2.198	3.092	85.594
Metal	-	-	-	73.293	98.627	102.058
Fertilizer	-	-	-	45.273	90.637	114.826
Cement	-	-	-	233.538	440.085	531.782
Others	107.955	127.226	139.201	196.326	258.234	217.401

Source: VINALINES

### **3.5 Finance and Management**

#### **Role of Port Office**

The port office has two functions, i.e., administration and service, and it consists of the following sections:

- Administration: General and Personnel Affairs, Development Planning, Port Operation, Accounting, Technical Service, etc.
- Services: Contracted out to stevedoring, warehousing and machinery maintenance enterprises

Therefore, a port office is responsible for:

- All undertakings regarding port facilities and equipment, covering construction, purchase, maintenance, and repair;
- Formulation of implementation programs for port development and management;
- Port finance;
- Provision of cargo handling and storage services;
- Determination and collection of port charges;
- Security within port areas; and
- Dredging work in the port.

#### **Annual Reports by VINAMARINE and VINALINES**

Capital investment in VINAMARINE reached VND 108,375 million in 1998, representing 26% of total investment of all sectors. Eighty-three percent (83%) of this or VND 89,575 million was used to implement projects (refer to Table 3.5.1).

The financial report of VINALINES revealed that planned investment in construction in 1998 was almost realized. Investment in equipment was less than planned – only 71% in Hai Phong projects, 70% in Saigon project and 75% as additional capital (refer to Table 3.5.2).

In addition, the turnover in 1998 exceeded the planned level in all ports except Quang Ninh port. Overall, the contribution to state budget by the port sector was double that of the shipping sector (refer to Table 3.5.3).

Table 3.5.1  
 Financial Report of Maritime Enterprises

(VND million)

Target	Projected in 1998	Plan in 1999	Approved in 1999
<b>I</b>			
Estimates of State budget			
(1) Sea port authorities			
Total receipts	112,000	122,000	
Total expenses	23,000		
Budget contribution	89,000		
(2) Maritime safety			
a. Total Receipt	195,288	200,000	
Repairs and Maintenance)			
(3) Coastal radio station			
Total receipts	3,000	8,900	900
Budget expenses	3,000	8,900	900
(4) Training			
Total receipts	7,375	13,000	6,610
Budget	7,050	12,844	
Extensive training	300	156	
Total expenses	7,350	13,000	
(5) Administration			
Total expenses	2,865	2,270	2,410
(6) Research and rescue			
Expenses	4,214	8,450	3,450
		8,450	3,450
<b>II</b>			
Capital construction			
(1) Total investment of all Sectors	424,000		
Domestic capital funding	119,000		
Foreign capital	305,000		
Of which distributed to Vinamarine	108,375		260,390
Planning engineering	300		
Pre-investment costs	1,500		
Implementation of project	89,575		259,690
(2) * Group A project	85,310		248,690
Cai Lan Port	61,310		155,000
- Domestic capital			10,000
- Foreign capital			14,000
Coastal radio station	24,000		93,690
- Domestic capital			5,000
- Foreign capital			88,690
(3) * Group B project	4,050		11,000
Rehabilitation of Nghe Tinh Port	4,000		8,000
Rehabilitation of Qui Nhon Port			2,000
Facilities of State management			1,000
Budget contribution			
(4) Discounted payback	3,000		
(5) Islands projects-Total investment	6,000	8,000	

Source: VINAMARINE – Annual Report 1999



Table 3.5.2  
 Estimated Capital Investment for Construction in 1998

(VND million)

Target	Annual plan			Estimated 1998's fulfillment			Achievements		
	Total	In which		Total	In which		Total	In which	
		Cons - truction	Equip- ment		Cons- truction	Equip- ment		Cons- truction	Equip- ment
Total	493,249	263,732	207,000	448,009	268,792	162,903	91%	102%	79%
1.State budget funding	125,600	103,033		108,290	152,792				
- Domestic capital	67,600	55,033		63,788	108,290				
- Foreign capital	58,000	48,000		44,502	44,502				
2.Borrowed capital	187,649	75,649	112,000	151,268	71,365	79,903			
3.Credit with preferred rate of interest	55,000		55,000	53,000		53,000			
4.Commercial credit									
5.Mobilized capital	125,000	85,000	40,000	115,500	85,500	30,000			
6.Recapitalization of amortization									
7.Other sources	4,000	3,900		2,350	2,350				
<b>CAPITAL INVESTMENT IN CONSTRUCTION</b>									
1.Hai Phong Port Project	136,000	57,853	62,000	113,244	53,596	44,744	83%	92%	71%
- Domestic capital	16,000	9,833		13,913	9,094				
- Foreign capital	120,000	48,000	62,000	99,330	44,502	44,744			
(In which budget capital)	(58,000)	(48,000)		(44,502)	(44,502)				
2.Saigon Port Project	150,649	95,649	55,000	130,159	95,000	35,159	86%	95%	70%
- Domestic capital	25,000	20,000		19,998	19,998				
- Foreign capital	125,649	75,649	50,000	106,524	71,365	35,159			
- Other capital				3,636	3,636				
3.Tan Thuan Project (domestic capital)	12,000	11,500		16,431	15,931		136%	138%	
4 Danang Port Project (domestic capital)	12,000	11,700		16,725	16,425		139%	140%	
5.Additional capital	125,000	85,000	40,000	115,500	85,500	30,000	92%	100%	75%
6.Others	2,000	2,000		2,350	2,340		117%	115%	
7.Capital construction funding	600			600			100%		

Source: VINALINES – Annual Report in 1999

**Table 3.5.3**  
**Estimated Business Results in 1998**

Subsidiary Enterprise	Turnover (VND mil.)				Profit, Loss (VND mil.)			Contribution to State Budget (VND mil.)					
	Plan 1998	Actual 1997	Esti- mated 1998	Compare %		Actual 1997	Esti- mated 1998	Com- pare 1997	Plan 1998	Actual 1997	Esti- mated 1998	Compare %	
				1997	1998							1997	1998
<sup>1</sup> VN shipping Co.	440,000	463,398	462,500	100%	105%	3,426	8,000	234%	10,000	8,874	12,000	135%	120%
<sup>2</sup> Maritime shipping Co. No. III	90,000	76,020	98,784	130%	110%	1,423	3,300	232%	3,500	2,695	4,300	160%	123%
<sup>3</sup> VN Oil Transport Co.	150,000	122,647	156,404	128%	104%	4,593	520	11%	7,500	7,960	7,266	91%	97%
<sup>4</sup> VITRANSCART	250,000	241,080	264,878	110%	106%	2,199	1,202	55%	9,000	9,149	9,589	105%	107%
<sup>5</sup> Ocean-River going Corp.	35,000	30,215	35,989	119%	103%	-4,746	0		700	74	734	109%	105%
<sup>6</sup> Northern Shipping Co.	17,000	21,689	16,511	76%	97%	30	33	110%	500	633	417	66%	83%
<sup>7</sup> VINALINES fleet	151,300	103,849	178,479	172%	118%	1,017	1,000	98%	3,000	2,783	4,453	160%	148%
<b>TRANSPORTATION SECTOR TOTAL</b>	<b>1,133,300</b>	<b>1,058,898</b>	<b>1,213,545</b>	<b>115%</b>	<b>107%</b>	<b>7,942</b>	<b>14,055</b>	<b>177%</b>	<b>34,200</b>	<b>32,768</b>	<b>38,759</b>	<b>118%</b>	<b>113%</b>
<sup>8</sup> Hai Phong Port	280,000	263,963	284,500	108%	102%	42,575	49,974	117%	34,000	34,048	34,263	101%	101%
<sup>9</sup> Quang Ninh Port	20,200	14,251	19,918	140%	99%	813	870	107%	2,000	1,347	1,603	119%	80%
<sup>10</sup> Saigon Port	380,000	378,831	380,000	100%	100%	57,541	57,532	100%	40,000	39,622	40,000	101%	100%
<sup>11</sup> Danang Port	44,200	45,461	50,000	110%	113%	4,102	4,500	110%	3,200	3,757	4,000	106%	125%
<sup>12</sup> Can Tho Port	7,300	5,869	8,600	147%	118%	665	1,200	180%	680	679	947	139%	139%
<b>PORT SECTOR TOTAL</b>	<b>731,700</b>	<b>708,375</b>	<b>743,018</b>	<b>105%</b>	<b>102%</b>	<b>105,696</b>	<b>114,076</b>	<b>108%</b>	<b>79,880</b>	<b>79,453</b>	<b>80,813</b>	<b>102%</b>	<b>101%</b>
<sup>13</sup> VOSCO	100,000	109,597	109,718	100%	110%	19,872	19,099	96%	26,400	27,224	29,570	109%	112%
<sup>14</sup> Northern container Co.	28,000	24,420	32,000	131%	114%	2,483	2,800	113%	2,400	2,355	2,500	106%	104%
<sup>15</sup> Southern Container Co.	36,000	34,961	41,550	119%	115%	7,701	11,300	147%	7,000	9,761	7,000	72%	100%
<sup>16</sup> Shipping supply Co. No. I	6,000	2,369	6,823	288%	114%	-38	-765		500	521	345	66%	69%
<sup>17</sup> Southern Shipping Co.	4,000	2,885	3,795	132%	95%	0	116		20	515	334	65%	64%
<sup>18</sup> Southern Petrol Supply Co.	7,100	4,469	8,000	179%	113%	246	106	43%	850	671	850	127%	100%
<sup>19</sup> INLACO	15,000	14,549	15,250	105%	102%	150	850	567%	750	565	764	135%	102%
<sup>20</sup> Southern INLACO	57,000	46,931	58,160	124%	102%	10,719	11,530	108%	10,000	8,690	13,300	153%	133%
<sup>21</sup> Shipping Development Co.	21,000	19,992	21,300	107%	101%	2,496	2,800	112%	3,100	2,496	3,300	132%	106%
<sup>22</sup> Maritime Informatics & Techno. Co	2,000	1,450	1,600	110%	80%	2	5	250%	45	41	52	127%	116%
<sup>23</sup> HP Shipping supplies & Exp.-Imp co.	5,000	4,407	5,020	114%	100%	201	200	100%	760	793	833	105%	110%
<sup>24</sup> Southern Shipping Supplies & Exp.-Imp	600	562	315	56%	53%	38	60	158%	85	84	58	69%	68%
<sup>25</sup> Maritime Trade Center I	1,500	1,476	1,318	89%	88%	30	22	73%	60	47	32	68%	53%
<sup>26</sup> Maritime Trade Center II	1,800	1,608	3,833	238%	213%	-216	-361		240	227	251	111%	105%
<sup>27</sup> Maritime Industrial Service Co.	6,000	5,789	6,000	104%	100%	20	50	250%	111	67	115	172%	104%
<b>SERVICE SECTOR TOTAL</b>	<b>291,000</b>	<b>275,465</b>	<b>314,682</b>	<b>114%</b>	<b>108%</b>	<b>43,704</b>	<b>47,812</b>	<b>109%</b>	<b>52,821</b>	<b>54,057</b>	<b>59,304</b>	<b>110%</b>	<b>112%</b>
<b>VINALINES GRAND TOTAL</b>	<b>2,156,000</b>	<b>2,042,738</b>	<b>2,271,245</b>	<b>111%</b>	<b>105%</b>	<b>157,342</b>	<b>175,943</b>	<b>112%</b>	<b>166,901</b>	<b>166,278</b>	<b>178,876</b>	<b>108%</b>	<b>107%</b>

Source: VINALINES – Annual Report in 1999

Note: Data collected through interviews with enterprises from 20 December to 26 December 1998.

## **4 DISCUSSIONS ON KEY PLANNING ISSUES**

### **4.1 Assessment of Existing Port Capacity**

Several types of ports are handling general cargo. Ports managed by the MOT usually handle public cargo while private ports serve limited users. In this section the capacity of the 89 ports is analyzed.

The total capacity of general ports in 1998 is 36.2 million tons – 6.6 million tons in northern ports, 7.2 million tons in central ports and 21.2 million tons in southern ports. In the same year, general cargo volume handled by these ports is estimated at 28.1 million tons – 6.6 million tons in northern ports, 3.4 million tons in central ports and 18.0 million tons in southern ports.

Compared with neighboring countries, Vietnam's general ports are comparatively small. The eight major general ports have shallow water depth ranging from five to 11 m. Their combined length of berth of 8,267 m is, for example, roughly equal to that of Tanjung Priok Port (8,911 m), Port Klang (8,648 m) and Manila Port (7,592 m). But this is to be expected of gateway ports; modern berths for exclusive containers and 30,000 DWT vessels or larger are necessary to accommodate international transport chains.

Besides port capacity, the following weaknesses of Vietnamese ports must be pointed out:

- Port operation is unreliable. There are several factors which contribute to this bad reputation: limited navigable time, non-availability or lack of well-maintained cargo-handling equipment, lack of trained port labor, inadequate supervision and management, and lack of incentives and unclear port charges<sup>1</sup>. Foreign operators face difficulty in giving “dispatch money” to port labor and management to achieve faster results.
- Ships must sail with insufficient ATNs and SAR services. In fact, there is still a “black sea” on Vietnamese waters where no visual aid is available. Meanwhile, the Vietnam Maritime SAR Coordination Center does not possess any SAR fleet and oil spill protection equipment.
- Proper attention has not been given to policy setting in port development, allowing implementation to go unguided by an overall policy on the subsector. Port construction randomly done wastes precious funding sources. Major ports cannot expand facilities by self-financing from port charges or relying on external resource and technology alone.

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<sup>1</sup> One state-owned operator reported that in 1998 they suffered from demurrage of 1,122 days from operating 21 general cargo vessels, mainly due to wasteful waiting time for high tide and poor cargo-handling services.

**Table 4.1.1**  
**Port Throughput and Capacity**

1. Port Throughput in 1998 by Port Group

Port	Total	General Port	Solid Bulk Port	Liquid Bulk Port
North	13,094	6,637	4,900	1,557
Quang Ninh	5,753	1,011	3,600	1,142
Hai Phong	7,341	5,626	1,300	415
Central	5,010	3,421	100	1,489
Thanh Hoa	128	128	0	0
Nghe An	524	336	0	188
Danang	1,907	1,047	0	860
Binh Dinh	1,288	1,075	0	213
Khanh Hoa	1,163	835	100	228
South	37,256	18,018	365	18,873
HCMC	21,051	14,769	365	5,917
Ba Ria-Vung Tau	14,938	1,982	0	12,956
Mekong	1,267	1,267	0	0
Total	55,360	28,076	5,365	21,919

2. Port Capacity in 1998 by Port Group

Port	Total	General Port	Solid Bulk Port	Liquid Bulk Port
North	15,060	6,610	6,500	1,950
Quang Ninh	6,800	300	5,000	1,500
Hai Phong	8,260	6,310	1,500	450
Central	9,250	7,150	500	1,600
Thanh Hoa	350	350	0	0
Nghe An	1,800	1,600	0	200
Danang	3,800	2,900	0	900
Binh Dinh	1,600	1,350	0	250
Khanh Hoa	1,700	950	500	250
South	45,870	22,570	2,150	21,150
HCMC	24,520	16,370	1,100	7,050
Ba Ria-Vung Tau	16,250	2,100	50	14,100
Mekong	5,100	4,100	1,000	0
Total	70,180	36,330	9,150	24,700

## 4.2 Future Development Requirements

### Port Traffic in 2020

A high case and a low case are analyzed as an economic model for future port traffic. The ratio of total cargo volume of foreign trade in the low case is 0.80 of the high case. The difference is not large, and therefore the long-term development strategy is examined for the high case only.

Table 4.2.1  
 High Case and Low Case in 2020

Case	Foreign Trade		Domestic Trade
	Cargo Volume (million ton)	Comparison	Cargo Volume (million ton)
High	119.3	1.00	82.9
Low	95.5	0.80	

#### 1) International Trade Volume

International trade cargo is projected by commodity in 2020 in the following table:

Table 4.2.2  
 Foreign Trade Cargo in 2020

		(000 ton)			
		Total	North	Central	South
Rice and Other Food Crops		6,000	400	0	5,600
Sugarcane		0	0	0	0
Sugar		36	0	36	0
Forestry goods		0	0	0	0
Steel		-4,066	-1,600	-466	-2,000
Construction Materials		0	0	0	0
Asphalt		0	0	0	0
Cement		6,027	3,027	3,000	0
Clinkers		0	0	0	0
Fertilizers		-4,599	-230	-1,610	-2,759
Coal		4,500	4,500	0	0
Other Mining Products		800	800	0	0
Crude Oil		3,470	0	0	3,470
Petroleum		-1,1024	-1,100	0	-9,924
Industrial Crops		4,430	0	2,220	2,210
Manufacturing Goods 1		13,440	4,032	2,688	6,720
Manufacturing Goods 2		-13,987	-4,896	-2,798	-6,298
Fishery Products		970	0	194	776
Animal Meat and Others		61	61	0	0
Other Miscellaneous Export		8,342	2,920	1,668	3,754
Other Miscellaneous Import		-13,833	-3,458	-2,075	-8,300
Transit/Transshipment		9,304	1,564	2,062	5,678
Total	Export	50,054	16,186	10,350	23,516
	Import	59,944	13,697	7,943	38,304
	Total	119,302	31,449	20,355	67,498

Note: Negative figures indicate imports. Transit/Transshipment is divided into export and import on a 50/50 basis.

2) Foreign Container

(1) Containerization Factor

Containerization factors are set by commodity as follows:

Table 4.2.3  
 Containerization Factors in 2020

Commodity	0 : Bulk Cargo 1 : General Cargo	Factor
Rice and Other Food Crops	1	0.3
Sugarcane	0	0.0
Sugar	0	0.0
Forestry goods	1	0.2
Steel	1	0.2
Construction Material	0	0.0
Asphalt	0	0.0
Cement	0	0.0
Clinker	0	0.0
Fertilizer	1	0.0
Coal	0	0.0
Other Mining	0	0.0
Crude Oil	0	0.0
Petroleum	0	0.0
Industrial Crops	1	0.8
Manufacturing Good 1	1	0.8
Manufacturing Good 2	1	0.8
Fishery products	1	1.0
Animal Meat and Others	1	1.0
Other Miscellaneous Export	1	0.8
Other Miscellaneous Import	1	0.8
Transit/Transshipment	1	0.9

(2) Domestic Feeder Transport of Foreign Cargo

Hai Phong Port statistics indicate that the ratio of domestic container to international container was 10% in 1998, including both domestic container cargoes and domestic feeder container of foreign cargoes. In case of Hong Kong Port, this ratio was 15% in 1996 and 20% in 1998, and is estimated to reach 30% in 2016 with a lot of transshipment cargo. Therefore, transshipment ratio from major ports to secondary ports in Vietnam is expected to be 10% at Hai Phong, Danang and Ho Chi Minh City ports and 20% at Cai Lan and Vung Tau ports.

### (3) Empty Container Ratio

According to statistics of New Saigon Port, the ratio of empty to loaded containers was 15% in 1996 and 30% in 1998. In Saigon and Danang ports, this ratio was around 37% in 1996 and 1997. But in the case of Hai Phong port, the ratio in 1998 was 14% for import and 72% for export due to the disproportionately large volume of imports. In this study, 10% is adopted as the surplus of empty container to the larger number between export and import due to plural owners of container box. However, despite the imbalance in imports and exports, the number of handled container by TEU is the same for both.

### 3) Foreign Trade Volume by Cargo Type

Foreign trade volume is computed by type of cargo such as container, solid bulk, liquid bulk, and break bulk as shown in the following table:

Table 4.2.4  
 Foreign Trade Volume by Cargo Type, 2020

	Total	North	Central	South
Foreign trade (000t)	119,302	31,449	20,355	67,498
Export (000t)	54,706	16,970	11,381	26,355
Import (000t)	64,596	14,479	8,974	41,143
Container total (000t)	58,822	15,206	12,137	31,479
Export (000t)	29,736	6,828	6,918	15,990
Import (000t)	29,086	8,377	5,219	15,490
Break bulk (000t)	28,139	6,163	5,470	16,506
Export (000t)	10,452	1,842	1,715	6,895
Import (000t)	17,687	4,322	3,755	9,610
Solid bulk (000t)	11,048	8,300	2,748	0
Export (000t)	11,048	8,300	2,748	0
Import (000t)	0	0	0	0
Liquid bulk (000t)	21,293	1,780	0	19,513
Export (000t)	3,470	0	0	3,470
Import (000t)	17,823	1,780	0	16,043
Container (000TEU)	6,565	1,786	1,327	3,451

### 4) Domestic Trade Volume by Cargo Type

The total domestic cargo volume in 2020 is computed at 82.9 million tons per annum.

Table 4.2.5  
 Domestic Trade Volume by Cargo Type, 2020

Port Traffic	Total	North	Central	South
Domestic trade (000t)	82,858	23,040	26,775	33,043
Break Bulk (000t)	28,429	9,799	7,308	11,322
Bulk Solid (000t)	22,879	7,253	8,237	7,389
Bulk Liquid (000t)	26,533	4,258	9,940	12,334
Container (000t)	5,017	1,729	1,290	1,998
Container (000TEU)	474	168	116	191

5) Total Port Traffic in 2020

Total port traffic is computed at 202 million tons. Container volume is estimated at 64 million tons and 7.0 million TEUs. Break bulk, solid bulk and liquid bulk are estimated at 56, 34 and 47 million tons, respectively.

Table 4.2.6  
 Total Trade Volume by Cargo Type, 2020

Port Traffic	Total	North	Central	South
Total (000t)	202,160	54,489	47,130	100,541
Break Bulk (000t)	56,334	15,962	12,543	27,828
Bulk Solid (000t)	34,397	15,553	11,455	7,389
Bulk Liquid (000t)	47,826	6,038	9,940	31,847
Container (000t)	63,604	16,935	13,192	33,477
Container (000TEU)	7,004	1,954	1,409	3,642

**Port Facility in 2020**

1) Port Development up to 2020

The required facilities to handle cargo in 2020 are roughly estimated based on future volume and current capacity. The necessary capacity to be prepared is estimated at 135.0 million tons in Vietnam. Container terminal shall be developed to handle 5.9 million TEU: 1.7 million TEU in the north, 1.4 million TEU in the center and 2.8 million TEU in the south.

Break bulk in the north and south and liquid bulk in all three regions will exceed 5 million tons corresponding to Dung Quat Oil Project. Mechanized, efficient handling systems shall be introduced to handle the above commodity.



Table 4.2.7  
 Port Capacity by Cargo Type, 1998

Port Traffic	Total	North	Central	South
Total (000t)	70,180	15,060	9,250	45,870
Break Bulk (000t)	27,698	4,904	6,844	15,951
Bulk Solid (000t)	9,150	6,500	500	2,150
Bulk Liquid (000t)	24,700	1,950	1,600	21,150
Container (000t)	8,632	1,706	306	6,619
Container (000TEU)	1,114	214	33	867

Table 4.2.8  
 Required Capacity for Increased Cargo up to 2020 by Cargo Type

Port Traffic	Total	North	Central	South
Total (000t)	134,870	39,429	37,880	57,562
Break Bulk (000t)	28,635	11,058	5,700	11,877
Bulk Solid (000t)	25,247	9,053	10,955	5,239
Bulk Liquid (000t)	26,016	4,088	8,340	13,588
Container (000t)	54,972	15,229	12,885	26,858
Container (000TEU)	5,890	1,740	1,376	2,775

### 4.3 Port Development Strategies Toward Year 2020

#### General Ports

- The central maritime administration should concentrate its public investment in nine major general ports, namely, Quang Ninh deep-sea port, Hai Phong, Cua Lo (Vung Ang), Danang, Qui Nhon, Nha Trang, Saigon, a deep-sea port in the Vung Tau-Thi Vai area, and Can Tho. A major general port is located every 350 km along the coastline on average.
- As a result of road improvement and road transport modernization, nine ports will be accessible to shippers within one day. Such a concentrated investment will also benefit shippers from many ship calls by larger vessels and modern cargo-handling services.
- Cua Lo will be expanded to serve northern central provinces, such as Nghe An, Ha Tinh and Quang Binh. However, when further expansion would be prohibitive due to the high costs of anti-siltation and dredging works, Vung Ang will become its alternative after the year 2010.

#### Gateway Ports

- Three gateway ports will be developed in the northern, central and southern regions taking account of Vietnam's long latitude. Present gateway ports of Hai Phong and Saigon suffer from a limited port area and shallow water and thus deep ports will be necessary in Quang Ninh and Vung Tau-Thi Vai areas.

The gateway function will be gradually transferred to these new ports. In the central region, the gateway function is served by Danang port. To ease the demand here, Tien Sa Port will be expanded and then Lien Chiu Port will be constructed. Since gateway ports connect Vietnamese economy with international markets, the progress of port construction very much affects economic development. Government should take full responsibility in port infrastructure development.

- To enjoy the merit of deep seaport development, modern port operation and an efficient intermodal connection must be provided to port users by way of:
  - Contracting out some port services to internationally competent operators such as container terminal operators,
  - Simplifying port procedures and introducing port EDI, and
  - Developing high-speed access transports such as road and rail in association with full-scale ICDs at both Hanoi and HCM City ports

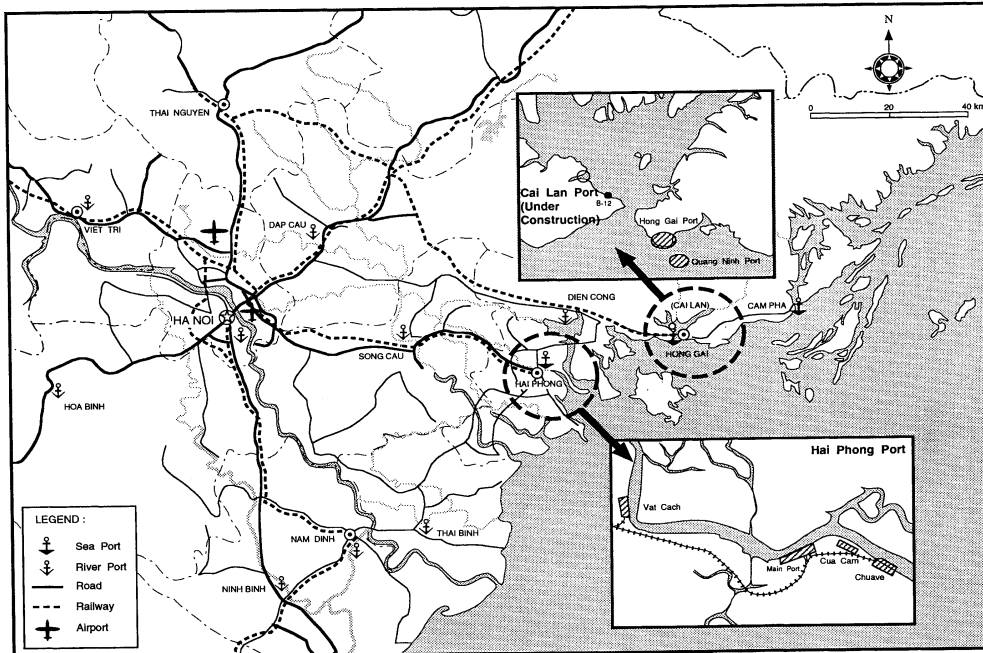
### **Specialized Ports**

- Specialized ports in association with specialized vessels, such as oil tankers, cement tankers, coal carriers, etc., are potent tools to enable mass haulage at cheap transport costs. Besides general ports and common carriers, however, the beneficiaries of specialized port development are limited. Therefore maritime administration should set an adequate policy package to promote various specialized maritime transport systems and undertake only maritime safety and environmental protection.

### **Local Ports**

- From national/regional viewpoint, local coastal port development will be less significant than land transport development. Provincial governments will maintain their operation as long as salient local traffic remains. Therefore the central maritime administration is responsible only for maritime safety and environmental aspects around local coastal ports.
- With regard to local inland ports, provincial governments should be responsible for their development and operation under the supervision of VIWA.

Figure 4.3.1  
 Location of Hai Phong and Cai Lan Ports



Source: JICA Report on Transport Study in 1994

Figure 4.3.2  
 Danang Bay Port System

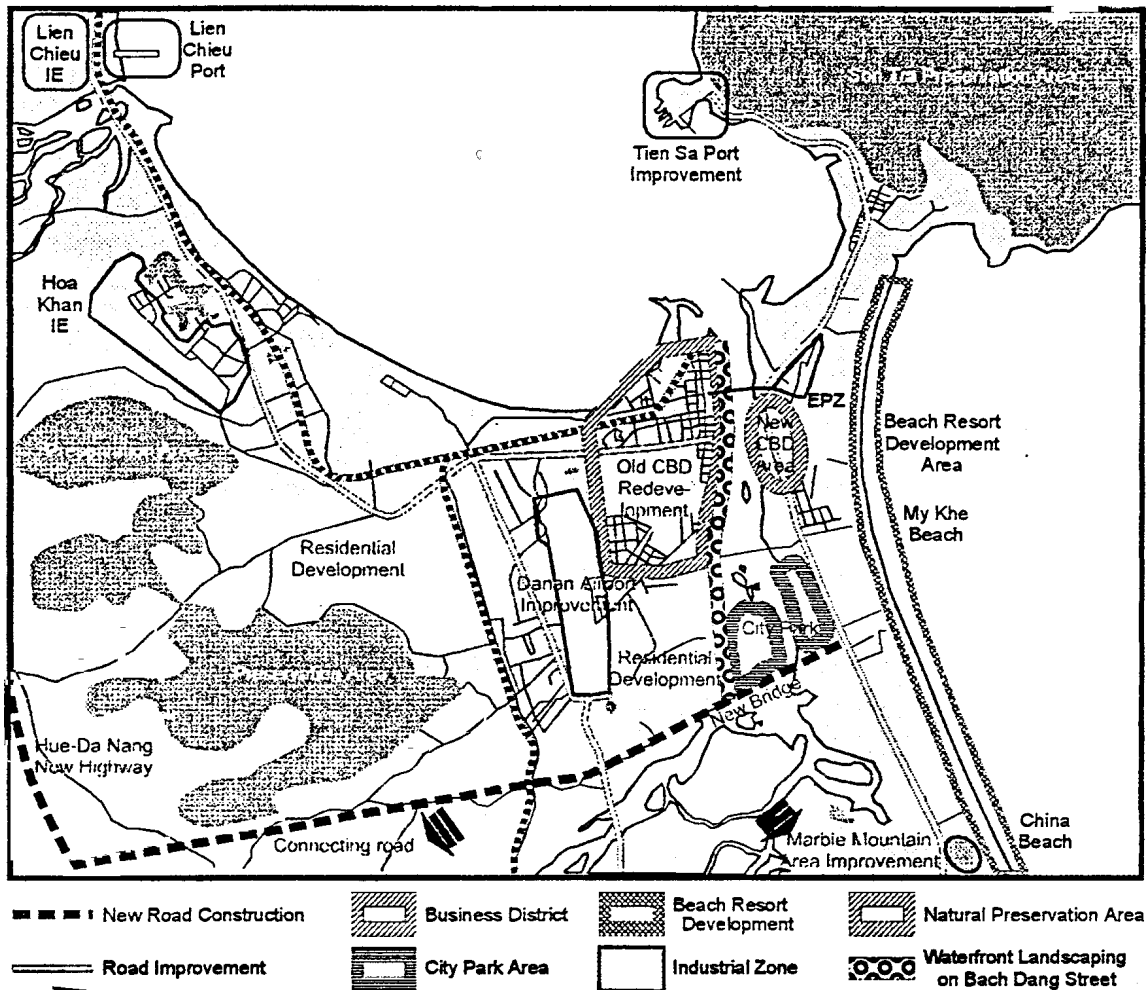
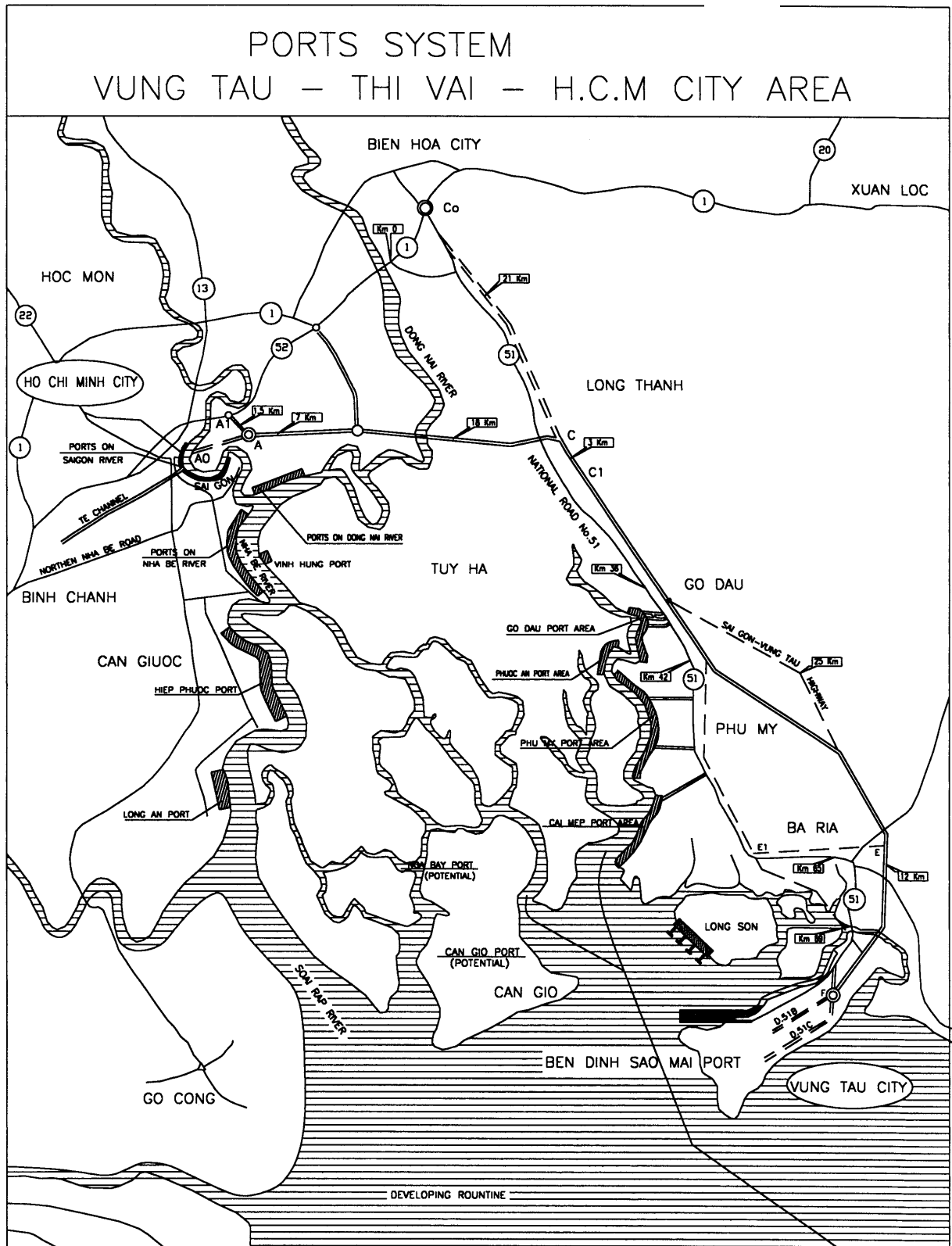


Figure 4.3.3  
 Port Development Plan in Vung Tau and HCM



#### 4.4 Other Key Issues

##### 1) Port Hierarchy

In this study, public ports are classified according to their functions, namely, international container cargo handling, conventional cargo handling and passenger transportation. The role of port facilities, which is based on the scale of their influence in the hinterland, is the main standard criteria in classifying them.

Table 4.4.1  
 Strategic Classification of Seaports

Classification	Status	Expected role	Indicators for Classification
International Port	Key port for international trade	Center for international maritime trade	<ul style="list-style-type: none"> <li>• Commodity type</li> <li>• Cargo volume</li> <li>• GRDP of hinterland</li> <li>• Population of hinterland</li> <li>• Management</li> </ul>
Regional Port	Key port for regional socio-economic development and national safety	Center for regional distribution of goods	
Local Port	Key port for local socio-economic development		
Special Port	Special port for development of industry or national economy	Basic infrastructure for special goods	
Private Port	Special port for private purposes	Profitable operation of private business	

Table 4.4.2  
 Typical Classification of Seaports (Example)

	Northern	Central	Southern
International Port	Hai Phong Quang Ninh	Danang	Vung Tau Sai Gon
Regional Port		Qui Nhon Nha Trang	Ben Nghe Tang Cang Can Tho My Thoi My Tho
Local Port	Other Ports		
Special Port	Oil, Gas, Cement, Coal, Sand, Foodstuff, etc.		
Private Port (BOT, JV)		Chang May Van Phong	Phu My VICT

International ports are selected based on existing and future potential. In Vung Tau area, there are several ports which have similar potential and selection will be done in the future. Also, in Quang Ninh area, Cai Lan port has a potential to become an international port but present activity is small.

## 2) Port Management

### (1) Private Participation

Generally, port management is classified into three types (“Service Port”, “Landlord Port” and “Private Port”) by ownership (see Table 4.4.3). The respective names derive from the financial share of the public sector.

Public investment naturally decreases as private participation increases. Therefore, the selection of management type should be seriously discussed from the financial point of view.

In the management of Vietnamese general ports, the service port type is applied to public ports and private port type to ports resulting from joint ventures or BOT investment schemes. The landlord port type is popular in port management but not yet allowed in Vietnam.

Table 4.4.3  
 Type of Port Management and Operation

Management Type		Port Type		
		Service Port	Land-Lord Port	Private Port
Ownership		Public	Lease	Private (Lease)*
Planning and Supervision		Public	Public	Private
Construction	Channel Dredging	Public	Public	Private
	Site Development	Public	Public	Private
	Terminal Facility	Public	Public	Private
Cargo Handling Operation		Public	Public	Private
Cargo Handling		Public	Public	Private
Examples		Singapore, Bangkok, Vietnamese Public Port	New York/New Jersey, Hamburg, Laem Chabang	Felixstowe, Klang Vietnamese Private Port

### (2) Port Management Policy

In the case of Vietnamese ports, mainly three different bodies are responsible for the management of public ports: VINAMARINE, VINALINES and provincial governments. In case of provincial port a management policy can easily reflect local transport and trade conditions.

But in other cases, governmental opinion may not coincide with local conditions, therefore the establishment of a management committee composed of local transport officers and users is recommended as an advisory organization.

### (3) VINAMARINE Port

Based on the separate functions of the “Regulator (government)” and “Operator (Port Management Body)”, VINAMARINE should operate unprofitable but socially important ports only, since it would be difficult for the regulator to direct it (VINAMARINE) with the same strictness as would a private company.

### 3) Port Operation

The productivity of port operation shall be improved to meet increasing port traffic in the future. Speedy handling, clean operation and safe transport are common in a modern terminal. If a tariff system reflects improved productivity or a port contract provides incentives, for example, discounts, a port user can accept it. At present, the discount rate in Vietnamese ports is set at a maximum of 10%, but double this would still be reasonable. In the case of Singapore port, its discount rate ranges up to 30% depending on container handling volume.

### 4) Containerization

Containerization of maritime cargo commenced in 1966 and reached its level of saturation in developed countries 25 years later.

In Vietnam, containerization started in the late 1980s. Its containerization level is projected to match that of developed countries, at 7.0 million TEU under the high case in 2020. Compared with world container statistics, this figure is almost the same as that of Japan in 1988 and the UK in 1997. Usually container cargo volume begins at a low level, increasing rapidly after five years. After 25 years and nearing the maximum capacity, the increase rate tapers off. The necessary period of containerization development in Vietnam before it reaches the same level as that of its trading partners is estimated at 25 years.

There seems to be two inverse conditions observed in Vietnam. The longer the route distance, the less direct shipping services available. The more there are volumes on a route, the more there are direct shipping services.

On a long sea route, a larger container vessel has less unit container transport cost compared with a smaller vessel. Therefore, shipping lines generally tend to use larger vessels and collect more containers for a long

sea route. If the volume of collected containers is enough to justify using a larger container vessel, a shipping line tends to avoid costly transshipment services. On the other hand, if the volume of containers is not enough to justify direct shipping between specific ports on a long sea route, a shipping line tends to choose transshipment services. In case of a short sea route, there is no significant difference between an economical main-line vessel and a feeder vessel. Hence, on a short sea route, a shipping line tends to choose multiple calling services using moderate-size main-line vessels to avoid costly transshipment, regardless of transport volume.

Hong Kong, Jebel Ali, Colombo, Mediterranean ports, etc. are major transshipment ports on the Asian-European container route. An increasing trend in container cargo in Hong Kong is rather different from that of Singapore because of the developments of ports in Shenzhen City. Jebel Ali and Colombo ports are competing with Khor Fakkan and Fujaila for container cargoes to/from India-Pakistan feeder ports. In the Mediterranean Sea, Damietta, Malta, Gioia Tauro, and Algeciras are major transshipment ports, where transshipment ratios are higher than 50%. Generally, maritime transport business is fiercely competitive, hence shipping liners are used to changing port calls based on contract conditions. If a port has a disadvantage such as deviation from international container route, it provides compensation to port users for their additional time and energy. Therefore, the decision to invest in a transshipment port must be made carefully.

Figure 4.4.1  
 Transshipment Trend by Distance and Volume

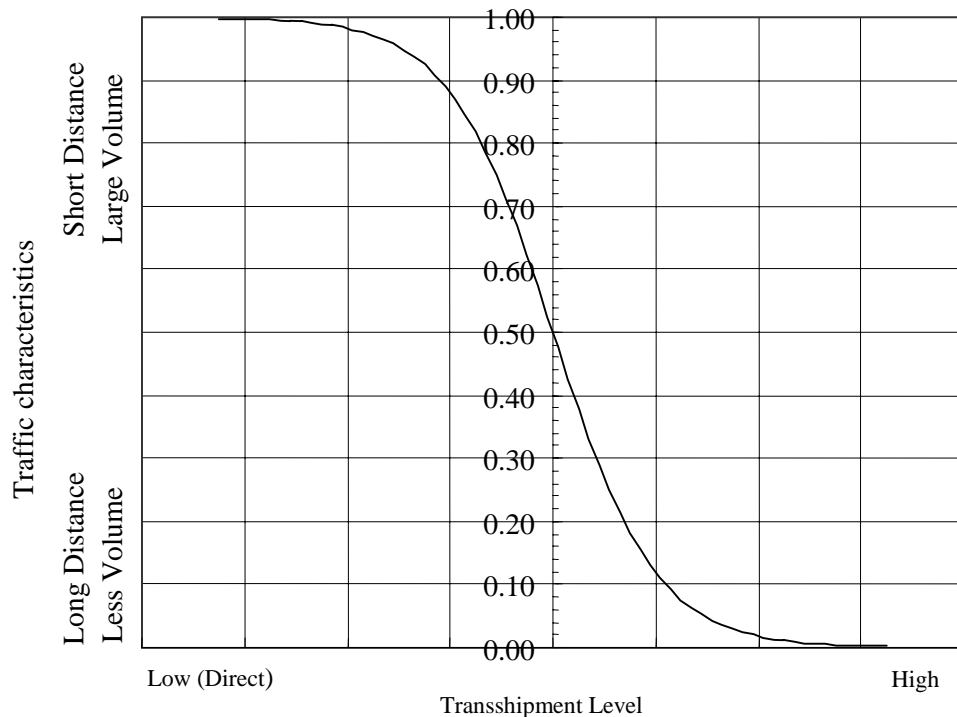




Table 4.4.4  
 Weekly Loading Plan for Container Vessel (Example)

	TOTAL		EUROPE-ASIA (TOTAL)		MEDITERRANEAN-ASIA	
	Loading	Discharging	Loading	Discharging	Loading	Discharging
NorthEurope	13,350	14,150	13,350	14,150		
Mediterranean	3,000	3,200	700	800	2,300	2,400
MiddleEast-EB	1,150	1,550	1,150	1,550		
MiddleEast-WB	900	1,300	900	1,300		
SouthAsia	1,550	1,450	1,400	1,400	150	50
AsiaHub"a-EB"	2,900	5,550	2,750	4,900	150	650
AsiaHub"b-EB"	700	2,000	450	1,500	250	500
AsiaHub"c-EB"	250	1,200	250	1,200		
AsiaHub"a-WB"	5,200	3,150	4,850	3,000	350	150
AsiaHub"b-WB"	3,650	2,150	2,950	1,900	700	250
AsiaHub"c-WB"	1,300	350	1,300	350		
FarEast	8,150	7,750	7,050	6,500	1,100	1,250

Note: EB (eastbound), WB (westbound)

### 5) Port Information System

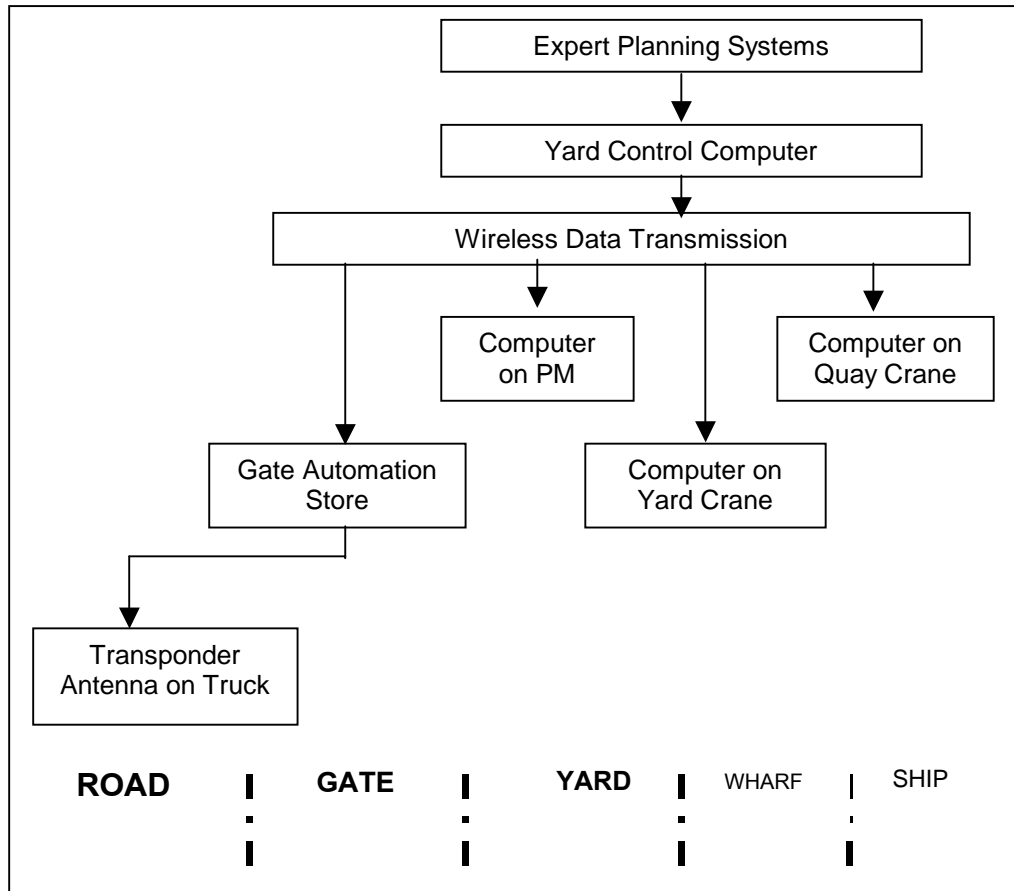
A port information system shall be established for greater utilization of port facilities, timely access to port information, collection of expanded trade information, speedy transaction of port-related jobs, etc. The main function of this system is the provision of a port database, online real-time access, direct data retrieval, and data exchange with other systems. Handling container cargo would be difficult to control without a computer system. A computer system in a container yard has three functions, namely, container inventory control system, container delivery/receiving control system and loading/unloading operation control system.

To improve the efficiency of cargo handling operation, it is essential for operators and the supervisor at the control center to exchange information and communicate effectively usually through a radio-telephone system, mobile radio terminal on vehicles or mobile telephone system and global positioning system.

Figure 4.4.2 shows the Computer Integrated Terminal Operation System (CITOS) of the Port of Singapore Authority. A similar system is installed at the Vietnam International Container Terminal (VICT).

Not only a container terminal but also a control system such as the Radar Screen Network System is necessary for navigational safety and port control. Therefore a Canadian system, that has a range of 40 miles, will be installed in Vung Tau Port in the near future.

Figure 4.4.2  
 Concept of CITOS



Source: APEC Congestion Points Study, February 1997

## 5 PROPOSED PORT DEVELOPMENT (2001-2010)

### 5.1 Port Traffic in 2010

High case and low case are analyzed as an economic model for future port traffic. The ratio of total cargo volume of foreign trade in the low case is 0.94 of the high case. Although the difference is not large, only the high case is adopted for the master plan.

Table 5.1.1  
 High Case and Low Case, 2010

Case	Foreign Trade		Domestic Trade
	Cargo Volume (000,000 ton)	Comparison	Cargo Volume (000,000 ton)
High	58.6	1.00	40.1
Low	55.0	0.94	

#### 1) International Trade Volume

International trade cargo is projected by commodity in 2010 in the following table:

Table 5.1.2  
 Foreign Trade Cargo, 2010 (High Case)

(000 tons)					
	Total	North	Central	South	
Rice and Other Food Crops	5,000	300	0	4,700	
Sugarcane	0	0	0	0	
Sugar	0	0	0	0	
Forestry goods	0	0	0	0	
Steel	-1,751	-851	0	-900	
Construction Material	0	0	0	0	
Asphalt	0	0	0	0	
Cement	3,139	2,100	1,039	0	
Clinker	0	0	0	0	
Fertilizer	-4,655	-230	-1,630	-2,795	
Coal	4,500	4,500	0	0	
Other Mining	500	500	0	0	
Crude Oil	3,470	0	0	3,470	
Petroleum	-2,951	0	0	-2,951	
Industrial Crops	2,130	0	1,070	1,060	
Manufacturing Good 1	8,157	2,451	1,220	4,486	
Manufacturing Good 2	-8,489	-2,971	-1,273	-4,245	
Fishery products	860	0	172	688	
Animal Meat and Others	62	62	0	0	
Other Miscellaneous Export	2,782	974	417	1,391	
Other Miscellaneous Import	-4,462	-1,115	-669	-2,677	
Transit/Transshipment	5,767	16,972	1,100	3,749	
Total	Export	30,600	10,887	3,918	15,795
	Import	22,308	5,167	3,572	13,568
	Total	58,674	16,972	8,590	33,112

Note: Negative figures indicate imports. Transit/Transshipment is divided into export and import on a 50/50 basis.

2) Foreign Container

- (1) Containerization Factor: Containerization factors are the same as those in 2020.
- (2) Domestic Feeder Transport of Foreign Cargo: Transshipment ratios from major ports to secondary ports are the same as those in 2020.
- (3) Empty Container Ratio: The surplus ratio of empty container to the larger number between export and import is the same as that in 2020.

3) Foreign Trade Volume by Cargo Type

Foreign trade volume is computed by cargo type such as container, break bulk, solid bulk and liquid bulk. The results are shown in the table below.

Table 5.1.3  
 Foreign Trade Volume by Cargo Type, 2010 (High Case)

	Total	North	Central	South
Foreign trade (000t)	58,674	16,972	8,590	33,112
Export (000t)	33,484	11,346	4,468	17,670
Import (000t)	25,191	5,625	4,122	15,443
Container total (000t)	28,778	7,157	4,881	16,739
Export (000t)	15,472	3,305	2,833	9,335
Import (000t)	13,305	3,852	2,049	7,405
Break bulk (000t)	15,338	2,715	2,670	9,952
Export (000t)	6,402	941	596	4,865
Import (000t)	8,934	1,774	2,073	5,087
Solid bulk (000t)	8,139	7,100	1,039	0
Export (000t)	8,139	7,100	1,039	0
Import (000t)	0	0	0	0
Liquid bulk (000t)	6,421	0	0	6,421
Export (000t)	3,470	0	0	3,470
Import (000t)	2,951	0	0	2,951
Container (000TEU)	3,223	810	541	1,871

4) Domestic Traffic Volumes

The hinterland is divided into 10 port areas (see Table 5.1.4) for domestic cargo, while domestic trade volume by region is tentatively assumed in Table 5.1.5.

Table 5.1.4  
Port Hinterland by Province for Domestic Cargo

Region	Zone	Province Name	Port Group in 2010
1 Red River Delta	1	Ha Noi	Hai Phong
	2	Hai Phong	
	3	Hai Duong	
	4	Hung Yen	
	5	Thai Binh	
	6	Nam Dinh	
	7	Ninh Binh	
	8	Ha Nam	
	9	Ha Tay	
2 Northeast	10	Cao Bang	Quang Ninh
	11	Lang Son	
	12	Quang Ninh	
	13	Thai Nguyen	
	14	Bac Can	Hai Phong
	15	Bac Ninh	
	16	Bac Giang	
	17	Phu Tho	
	18	Vinh Phuc	
	19	Lao Cai	
	20	Yen Bai	
	21	Tuyen Quang	
3 Northwest	22	Ha Giang	Hai Phong
	23	Son La	
	24	Lai Chau	
4 North Central Coast	25	Hoa Binh	Thanh Hoa
	26	Thanh Hoa	
	27	Nghe An	
	28	Ha Tinh	
	29	Quang Binh	
5 South Central Coast	30	Quang Tri	Danang
	31	Thua Thien - Hue	
	32	Quang Nam	
	33	Danang	
	34	Quang Ngai	
	35	Binh Dinh	Binh Dinh
36	Phu Yen	Khanh Hoa	
37	Khanh Hoa		
6 Central Highlands	38	Kon Tum	Binh Dinh
	39	Gia Lai	Khanh Hoa
	40	Dac Lac	
7 Southeast	41	Ho Chi Minh	Ho Chi Minh
	42	Lam Dong	Khanh Hoa
	43	Ninh Thuan	Ba Ria – Vung Tau
	44	Binh Phuoc	
	45	Tay Ninh	
	46	Binh Duong	Ho Chi Minh
	47	Dong Nai	Ba Ria - Vung Tau
	48	Binh Thuan	
	49	Ba Ria – Vung Tau	
8 Mekong River Delta	50	Long An	Mekong
	51	Dong Thap	
	52	An Giang	
	53	Tien Giang	
	54	Vinh Long	
	55	Ben Tre	
	56	Kien Giang	
	57	Can Tho	
	58	Tra Vinh	
	59	Soc Trang	
	60	Bac Lieu	
61	Ca Mau		

Table 5.1.5  
 Domestic Trade Volume by Cargo Type, 2010

Port Traffic	Total	North	Central	South
Domestic trade (000t)	40,107	12,826	10,033	17,248
Break Bulk (000t)	12,323	4,753	2,363	5,206
Bulk Solid (000t)	13,888	5,417	3,007	5,464
Bulk Liquid (000t)	12,216	2,008	4,340	5,868
Container (000t)	1,680	648	322	710
Container (000TEU)	187	76	34	76

5) Port Traffic in 2010 and Port Capacity in 1998

Total port traffic is computed at 99 million tons. Container volume is estimated at 30 million tons and 3.4 million TEUs. Break bulk, solid bulk and liquid bulk are estimated at 27.7, 22.0 and 18.6 million tons, respectively. Port traffic by port and cargo type is computed in Tables 5.1.6 - 5.1.9.

Table 5.1.6  
 Port Traffic by Cargo Type, 2010

Port Traffic	Total	North	Central	South
Total (000t)	98,781	29,798	18,623	50,360
Break Bulk (000t)	27,659	7,468	5,033	15,158
Bulk Solid (000t)	22,027	12,517	4,046	5,464
Bulk Liquid (000t)	18,637	2,008	4,340	12,289
Container (000t)	30,458	7,805	5,203	17,449
Container (000TEU)	3,409	887	575	1,948

Table 5.1.7  
 Port Traffic in Northern Vietnam by Cargo Type, 2010

Port Traffic	North Total	Hai Phong	Quang Ninh
Total (000t)	29,798	11,436	18,362
Break Bulk (000t)	7,468	4,758	2,710
Bulk Solid (000t)	12,517	3,102	9,415
Bulk Liquid (000t)	2,008	767	1,241
Container (000t)	7,805	2,809	4,996
Container (000TEU)	887	302	585

Table 5.1.8  
 Port Traffic in Central Vietnam by Cargo Type, 2010

Port Traffic	Center Total	Thanh Hoa	Nghe An	Danang	Binh Dinh	Khanh Hoa
Total (000t)	18,623	2,079	2,272	9,304	2,466	2,502
Break Bulk (000t)	5,033	201	1,024	1,826	943	1,039
Bulk Solid (000t)	4,046	1,776	365	1,032	505	368
Bulk Liquid (000t)	4,340	73	166	3,790	171	139
Container (000t)	5,203	27	717	2,656	847	956
Container (000TEU)	575	3	71	262	100	140

Table 5.1.9  
 Port Traffic in Southern Vietnam by Cargo Type, 2010

Port Traffic	South	HCMC	Ba Ria-Vung Tau	CanTho
Total (000t)	50,360	26,035	18,526	5,799
Break Bulk (000t)	15,158	10,324	1,822	3,012
Bulk Solid (000t)	5,464	883	3,480	1,102
Bulk Liquid (000t)	12,289	4,010	7,428	850
Container (000t)	17,449	10,818	5,796	835
Container (000TEU)	1,948	1,240	602	106

Traffic volume of the Quang Ninh Port Group is estimated at 18 million tons or 19% of the whole, from 10% in 1998. That of the Hai Phong Port Group is 11 million tons or 12% of the whole, from 13% in 1998. The latter's decrease is due to the shallow approach to Hai Phong Port Group which as at 9 m compared to 12 m of Cai Lan Port of the Quang Ninh Port Group.

The share of general cargo including container fell from 64% in 1998 to 56% due to the big increase of the Danang Port Group including Hue and Quang Ngai. Ba Ria-Vung Tau and Can Tho have increased their share, while HCMC's share has decreased. Based on a demand forecast, the HCMC Port Group will maintain a share of 36% in 2010 for general cargo, handling 21.1 million tons per annum. Increasing volumes at HCMC and Ba Ria-Vung Tau ports are expected to reach 7 and 6 million tons, respectively, including a 400,000 and 600,000 TEU increase in containers in HCMC and Ba Ria-Vung Tau, respectively.

## 5.2 Regional Level of Investment

Required facilities to handle cargo in 2010 are roughly estimated based on future volume and current capacity. The additional port capacity is estimated at 42.4 million tons in Vietnam. Container terminals shall be developed for handling 2.3 million TEUs: 0.7 million TEUs in the north, 0.5 million TEUs in the center and 1.1 million TEUs in the south. Break bulk in the north, solid bulk in the three regions and liquid bulk in the center will exceed 2 million tons.

Required costs to port development are roughly estimated at US\$ 1,148 million for container terminals and US\$233 million for break bulk terminals. Cost estimation is based on the standard construction cost table (refer to Appendix B). The cost of bulk terminals shall be estimated by case. The construction cost by project is mentioned in a later section.

Table 5.2.1  
 Total Port Capacity by Cargo Type, 1988

Port Traffic	Total	North	Central	South
Total (000t)	70,180	15,060	9,250	45,870
Break Bulk (000t)	27,698	4,904	6,844	15,951
Bulk Solid (000t)	9,150	6,500	500	2,150
Bulk Liquid (000t)	24,700	1,950	1,600	21,150
Container (000t)	8,632	1,706	306	6,619
Container (000TEU)	1,114	214	33	867

Table 5.2.2  
 Port Capacity of the North by Cargo Type, 1988

Port Capacity	North	Hai Phong	Quang Ninh
Total (000t)	15,060	8,260	6,800
Break Bulk (000t)	4,904	4,604	300
Bulk Solid (000t)	6,500	1,500	5,000
Bulk Liquid (000t)	1,950	450	1,500
Container (000t)	1,706	1,706	0
Container (000TEU)	214	214	0

Table 5.2.3  
 Port Capacity of the Center by Cargo Type, 1988

Port Capacity	Center	Thanh Hoa	Nghe An	Danang	Binh Dinh	Khanh Hoa
Total (000t)	9,250	350	1,800	3,800	1,600	1,700
Break Bulk (000t)	6,844	345	1,540	2,817	1,277	864
Bulk Solid (000t)	500	0	0	0	0	500
Bulk Liquid (000t)	1,600	0	200	900	250	250
Container (000t)	306	5	60	83	73	86
Container (000TEU)	33	1	6	10	7	10

Table 5.2.4  
 Port Capacity of the South by Cargo Type, 1988

Port Capacity	South	HCMC	Ba Ria – Vung Tau	CanTho
Total (000t)	45,870	24,520	16,250	5,100
Break Bulk (000t)	15,951	9,894	2,100	3,957
Bulk Solid (000t)	2,150	1,100	50	1,000
Bulk Liquid (000t)	21,150	7,050	14,100	0
Container (000t)	6,619	6,476	0	143
Container (000TEU)	867	847	0	20



Table 5.2.5  
 Required Capacity up to 2010

Port Traffic	Total	North	Central	South
Total (000t)	42,353	14,997	11,714	15,642
Break Bulk (000t)	3,169	2,564	175	431
Bulk Solid (000t)	13,227	6,017	3,678	3,531
Bulk Liquid (000t)	4,130	317	2,963	850
Container (000t)	21,826	6,099	4,897	10,830
Container (000TEU)	2,295	673	542	1,080

Table 5.2.6  
 Estimated Development Cost of Ports up to 2010

(US\$ mil.)

Port Traffic	Total	North	Central	South
Break Bulk (000,000 US\$)	233	188	13	32
Container (000,000 US\$)	1,148	337	271	540

Table 5.2.7  
 Required Capacity in the North up to 2010

Port Capacity	North	Hai Phong	Quang Ninh
Total (000t)	14,997	3,176	11,821
Break Bulk (000t)	2,564	154	2,410
Bulk Solid (000t)	6,017	1,602	4,415
Bulk Liquid (000t)	317	317	-259
Container (000t)	6,099	1,103	4,996
Container (000TEU)	673	88	585

Note: Negative figure means surplus capacity

Table 5.2.8  
 Estimated Development Cost of Northern Ports up to 2010

Port Capacity	North	Hai Phong	Quang Ninh
Break Bulk (US\$ 000,000)	188	11	177
Container (US\$ 000,000)	337	44	292

Table 5.2.9  
 Required Capacity in the Center up to 2010

Port Capacity	Center	Thanh Hoa	Nghe An	Danang	Binh Dinh	Khanh Hoa
Total (000t)	11,714	1,873	1,022	6,495	1,279	1,045
Break Bulk (000t)	175	-144	-516	0	0	175
Bulk Solid (000t)	3,678	1,776	365	1,032	505	-132
Bulk Liquid (000t)	2,963	73	-34	2,890	-79	-111
Container (000t)	4,897	23	657	2,573	775	870
Container (000TEU)	542	2	65	252	93	130

Note: Negative figures mean surplus capacity

Table 5.2.10  
 Estimated Development Cost of Central Ports up to 2010

Port Capacity	Center	Thanh Hoa	Nghe An	Danang	Binh Dinh	Khanh Hoa
Break Bulk (US\$ 000,000)	13	0	0	0	0	13
Container (US\$ 000,000)	271	1	32	126	47	65

Table 5.2.11  
 Required Capacity in the South up to 2010

Port Capacity	South	HCMC	Ba Ria – Vung Tau	Can Tho
Total (000t)	15,642	4,773	9,226	1,644
Break Bulk (000t)	431	431	-278	-945
Bulk Solid (000t)	3,531	-217	3,430	102
Bulk Liquid (000t)	850	-3,040	-6,672	850
Container (000t)	10,830	4,342	5,796	692
Container (000TEU)	1,080	393	602	86

Note : Negative figures mean surplus capacity

Table 5.2.12  
 Estimated Development Cost of Southern Ports up to 2010

Port Capacity	South	HCMC	Ba Ria – Vung Tau	Can Tho
Break Bulk (000,000 US\$)	32	32	0	0
Container (000,000 US\$)	540	196	301	43

### 5.3 Identified Projects for the Master Plan Period

#### 1) General

On the basis of the existing port master plan of MOT and estimated future traffic volume and characteristics, candidate projects for the VITRANSS master plan have been worked out.

#### 2) Port Development in Northern Vietnam

Port traffic in the Quang Ninh Port Group exceeds 18 million tons, which is around 19% of the total in Vietnam, while estimated container volume is 585,000 TEUs, or around 17% of the total. However in the case of Hai Phong, port traffic has decreased, representing only 12% of the total and only 9% of the container traffic. It is necessary to construct a bulk terminal and a container terminal in the Quang Ninh Port Group to handle the projected 9.4 million tons of solid bulk and 585,000 TEUs of container. Container vessels prefer to call at Cai Lan Port instead of Hai Phong Port because the former has a 12 m-depth berth compared to the latter's 9 m-berth. Therefore in 2010, mother vessels plying the Asian container route will call at Cai Lan and a large portion of feeder container from Hong Kong and domestic ports are expected to call at Hai Phong Port because it is easily accessible to cargo users.

##### (1) Cai Lan Port Expansion Project

The Hai Phong Port has been and will continue to play a key role for sustaining economic activities in northern Vietnam. However, since its physical nature as a river port does not allow large vessels, it is expected that such vessels (of 40,000 DWT) will call at Cai Lan Port which it can accommodate after capital dredging works are conducted. This port has big potential to be an international port (see Figure 5.3.1).

Up to 2004 (Stage 1): Construction project is under bidding. The project is aiming at an expansion of Phase 1 of the Cai Lan Port to meet traffic demand in the immediate future up to the year 2004. Its capacity will be 2.3 million tons and investment capital of US\$ 108.4 million is required. It consists of the following conditions:

- Construction of new berths: One berth for 40,000 DWT and two (container and general cargo) berths for 30,000 DWT. Length is 700 m and depth is –13 m.
- Dredging works of inner channel
- Construction will be completed within 28 months.

Mid 2000s: A coastal space management study will be conducted between Mon Cai (Chinese border) and Thanh Hoa province to determine

the best gateway port site in relation to tourism and industry development. To meet additional traffic volume, several berths (probably four large berths) will be constructed at the identified port site by year 2010 and further expansion during the 2010s.

## (2) Hai Phong Port General Port Project (Phase II)

The Urgent Rehabilitation Project of Hai Phong Port (Phase I) commenced in August 1996 and is scheduled to be completed in the beginning of 2000. The rehabilitation program concentrates on upgrading Chua Ve Port into a container terminal. Upon completion, the port's installed capacity for cargo handling is planned at 6.2 millions tons per annum. The objective of this project (Phase II) is to achieve an increased container throughput capacity of 250,000 TEU per annum. The container traffic has been continuously increasing. Therefore, in addition to the access channel improvement, Phase II will continue the Chua Ve Port expansion by constructing two other container berths in the adjacent downstream area (see Figure 5.3.2)

Up to 2005: A detailed design will decide not only facilities but also channel dredging plan. A 170-m berth for 10,000 DWT vessels and the first stage of channel dredging will be completed. It is estimated that capacity will increase to 0.8 million tons/year for Chua Ve container terminal. Investment cost is US\$ 99 million.

Up to 2010: A 220-m berth for 10,000 DWT vessels will be constructed at the downstream and the second stage of channel dredging will be conducted. An increase of 0.9 million tons/year in the capacity of Chua Ve container terminal is expected. Investment capital is US\$ 42 million including dredging

## 2) Port Development in Central Vietnam

Danang and Dung Quat are the major projects in the region. The cost of the oil terminal in the Dung Quat project is US\$ 150 million but as this is a national project it will not come out of the MOT budget. The Danang improvement project, which includes new port development at Lien Chieu, is estimated to cost US\$ 158 million.

Cua Lo, Qui Nhon and Nha Trang ports plan to accommodate medium-size vessels.

### (1) Cua Lo Port Project

Cua Lo Port shall be improved to meet the demand of export and import of the region. When the east-west corridors are established, this port will be in charge of exporting and importing cargoes from Laos and

northeastern Thailand. The capacity of the existing port is 0.3 million tons (see Figure 5.3.3).

Up to 2005: The construction of a 330-m berth is planned with an investment capital of US\$ 22.8 million (infrastructure at US\$ 18.8 million and equipment at US\$ 4.0 million). Capacity will increase to about 1.2 million tons.

Up to 2010: The construction of a 330-m berth to the sea is planned with an investment capital of US\$ 29.5 million (infrastructure at US\$ 9.5 million, anti-siltation dike at US\$ 18.0 million and equipment at US\$ 2.0 million). Capacity will increase to about 2.6 million tons.

## (2) Lien Chieu Port Development

To encourage the development of the central region and to improve the transport infrastructure for the east-west transport corridor, the Lien Chieu Port development project was proposed in the coastal area of the central region.

Lien Chieu Port is located 15 km west of Danang city center and 24 km from Tien Sa Port. Road No.1 and the railway track are found behind the possible port area while a part of the backyard has already been urbanized. Although development site is located in Danang Bay, the waterside is exposed to waves from the northeast, so that the construction of a new port requires a breakwater. A stratum of fine sand was identified at the depth of -12 to -20 m. The adjacent hinterland is being developed as the Lien Chieu-Hoa Khanh industrial zone.

Up to 2010 (Initial stage): Taking into consideration that container throughput is not large enough to attract mother container vessels, the maximum size of calling container vessel is considered at about 30,000 DWT in the initial stage. One berth is designed as a multipurpose berth with alongside depth of -12 m to cater to 30,000 DWT container vessels, 40,000 GT car carriers, 20,000 DWT general cargo trampers, and others. Two conventional cargo berths are included with a provisional alongside depth of -8.0 m.

## (3) Tien Sa Port Rehabilitation

Tien Sa Port has two piers, each is 183 m long and 27.4 m wide. The water depth is 11 m in normal conditions. A third pier is now under construction to accommodate 15,000 DWT container vessels. To increase port capability, a rehabilitation of the port and improvement of access road shall be conducted (see Figure 5.3.5). The expansion of Tien Sa Port is necessary prior to the development of Lien Chieu Port

Up to 2003: Phase I includes breakwater construction, collective repair works of the existing two piers, container terminal development, equipment procurement, and dredging. Access road and Tuyen Son Bridge should be completed. Capacity will be 2.2 million tons/year and total investment capital is US\$ 100 million.

Up to 2010 (Phase II): The terminal layout will be modernized and efficiency will be increased. The total capacity will increase to 3.6 million tons/year. The investment capital required is US\$ 75 million.

#### (4) Specialized Port for Dung Quat Industrial Zone

Government decided to locate Oil Refinery No. 1 at Dung Quat and plans projects of industrial zones including steel, agricultural, forestry, fishery, and light industry. The oil refinery will be completed in 2003 with a capacity of 6.5 million tons. Dung Quat Port is newly constructed as a general transport infrastructure directly serving Dung Quat industrial zone with a mass cargo transported by vessels of 30,000-200,000 DWT. The detailed design has not been completed. The attached drawing does not correspond to description and indicates the available area for cargo handling (see Figure 5.3.6).

Up to 2000: Two general cargo berths with a length of 410 m and n oil berth are to be built. Total investment cost is US\$ 15 million.

Up to 2010: Four general cargo berths with a length of 820 m in the general port, two berths for discharging crude oil and other berths for loading domestic oil will be constructed. The capacity of the general port is 3.5 million tons and that of the oil port is 13-14 million tons per year. Total investment cost for berths is US\$ 135 million, US\$ 63 million of which is the cost of the breakwater.

#### (5) Qui Nhon Port Development

Qui Nhon Port transports foreign and domestic cargoes to Binh Dinh, Phu Yen, Gia Lai, Kon Tum, and some transit cargo to Cambodia, Thailand and Laos. To meet increasing cargo and accommodate larger vessels, expanded berth and deeper quay are necessary (see Figure 5.3.7).

Up to 2005: Two berths will be built for 10,000 DWT vessels, of which one is a container berth. Capacity will be 2 million tons/year. Investment capital is US\$ 14 million.

Up to 2010: One pier with two berths (total length of 440 m) will be built for 15,000-20,000 DWT vessels. Capacity will be 3.5 million tons/year. Investment capital is US\$ 22 million.

## (6) Nha Trang Port Development

Nha Trang Port transports foreign and domestic cargoes to Khanh Hoa, Phu Yen and a part of Dac Lac, Lam Dong and Ninh Thuan. To meet increasing cargo volume and accommodate larger vessels, expanded berth and deeper quay are necessary (see Figure 5.3.8).

Up to 2001: A pier (berth: 160mx2) will be built to the south. The outer berth will accommodate 10,000 DWT vessels and the inner berth is for 3,000-5,000 DWT vessels. Capacity will be 0.6 million tons/year and required investment capital is US\$ 6 million.

Up to 2005: The expansion of the storage area and extension of berth for 15,000 DWT container vessels will be completed. Capacity will be 1.0 million tons/year. Investment capital required is US\$ 9 million.

Up to 2010: Expansion of storage area to increase port capacity up to 2 million tons/year will be completed. Estimated investment cost is US\$ 45 million.

## 3) Port Development in Southern Vietnam

One-third of containers in the south will be handled at Ba Ria-Vung Tau area, while two thirds will be handled at HCMC and only a small volume will be handled at Mekong delta. Six hundred thousand TEU shall be handled at the new container terminal in Ba Ria-Vung Tau and 1.2 million TEU in HCMC in 2010 (but this is an increase of only around 400 thousand TEU from 1998). The center of container traffic will be shifting from HCMC to Ba Ria-Vung Tau. In Mekong delta, there are many small ports to be improved. The average size of vessel is estimated at 5,000-7,000 DWT, therefore a big container terminal is not suitable and mobile crane would seem the standard style of operation.

### (1) Ba Ria – Vung Tau General Ports

The urban area between HCMC and Vung Tau via Bien Hoa is the most dynamic economic zone where various investments in industry, commerce, tourism, and other services are located. These establishments considerably rely on ports along Saigon River. To further promote industrialization, around 15 ports are planned along Thi Vai River and Vung Tau Peninsula. Only a few ports have so far been developed such as Go Dau and Ba Ria Serece.

The necessity of a large general port in this area is due to its potential for economic development and its deep water depth (Thi Vai River: 9-12 meters) and Vung Tau Peninsula: more than 15 meters). Saigon River

ports cannot receive vessels more than 20,000 DWT although intraregional trunk shipping services are mainly provided by vessels of 30,000-50,000 DWT. Therefore a large general port here is expected to be a gateway seaport in southern Vietnam.

So far, there are three port candidates, namely, Phu My (Thi Vai), Cai Mep, Ben Dinh-Sao Mai (Vung Tau). The first two ports will not be enough to meet port demand in 2020, although they may be the fast and economical solutions to meet port demand in 2010.

Table 5.3.1  
 Candidates for Ba Ria-Vung Tau Gateway Port

	Phu My (Thi Vai)	Cai Mep	Ben Dinh Sao Mai (Vung Tau)
Promoting Organization	VINAMARINE	Belgium	Formerly Evergreen
Water Depth along Access Channel	9 - 12 meters	9 - 12 meters	15 – 16 meters
Vessel Traffic Management	Difficult due to narrow waterway	Slightly difficult due to river entrance	Easy
Ultimate Port Capacity	14 million tons/year with a berth length of 2,000m	4 million tons/year with a berth length of 900m	No limitation because of possible reclamation
Construction Cost	Economical due to riverside	Economical due to riverside	Expensive due to protection facilities against waves

In developing a gateway seaport, the following should be duly considered:

- Allocation of enough capacity on water and on land,
- Provision of sufficient and efficient access transport with HCMC, and
- Concentrated investment on the best site from the long-term and subregional (including Cambodia) viewpoint.

Therefore the proposed development scenario is as follows:

Up to 2005: The Master Plan Study on the South Vietnam Port System will be conducted with technical assistance from JICA to identify the best port site among the Vung Tau-Thi Vai port candidate sites. A detailed port engineering design will be determined for the selected site.

Up to 2010: Several berths will be constructed to handle 10 million tons of cargo, mostly containerized.

Up to 2020: A full-scale general port will be in operation consisting of exclusive container berths, specialized and general cargo berths to handle 30 million tons of cargo and to accommodate large inter-regional liner vessels.



(2) Ho Chi Minh City General Ports

Saigon Port has been the most important port of Vietnam since 1860. It is 49 nautical miles away from Buoy No. 1 positioned at the river mouth. The navigational water depth of 8.5 meters on average is less affected by the season and not badly affected by typhoon. The route can receive 20,000 DWT vessels during high tide. The other three major general ports are located near Saigon Port. New Saigon Port and VICT mostly handle container cargo.

These four ports have different port operators under different agencies, thus promoting competition. Although port traffic is increasing, there is little space for physical expansion and thus the ports should instead improve operations. Except for VICT, the ports use old-fashioned cargo-handing systems. Congested road and water traffic around the ports should also be mitigated by infrastructure development and traffic management.

Table 5.3.2  
 Four General Ports along Saigon River

		Saigon	New Saigon	Ben Nghe	VICT	Total
Management Body		VINALINES	Ministry of Defense	HCM City	Private (JV Company)	-
Present Facilities		Berth length:	Berth length:	Berth length:	Berth length: 1 CY	
Future Expansion		Handling Eqpmt	Transfer to Cat Lai	Handling Eqpmt	1 More CY	
Port Capacity (mil. tons/year)	1998	8.5	3.5	1.5	1.3	14.8
	2005	9.0	4.0	4.0	5.0	22.0
	2010	10.0	4.0	5.0	6.0	25.0

The proposed development scenario is as follows:

Up to 2005: VICT will add one container berth/terminal. The other three ports will improve their cargo-handing operation. The Trans-HCMC Road with Thu Thiem Tunnel will be constructed. Within the project, the construction of the tunnel and its access road to the Saigon River Port Group will be prioritized. Vessel traffic service (VTS), a traffic control measure, will commence along the congested navigational ways with Canadian ODA.

Up to 2010: New Saigon Port will be transferred to Cat Lai. The other three ports will improve port productivity with increasing ship calls.

Up to 2020: No capacity expansion is expected at the four ports. Some private ports will be constructed downstream such as Nha Be, Hiep Phuoc and Long An to complement new industrial estates.

### (3) Can Tho Port Development

The port system of the Mekong delta region consists of eight existing ports, located mainly on Tien River, Hau River and some sea-mouth areas, whose key center is Can Tho port. Being a key, multifunctional port in the region, it supports the region's economy. Can Tho port (see Figure 5.3.10) can accommodate general and container ships of 10,000 DWT.

Up to 2005: Improving, upgrading and widening berths, warehouse and yards to establish a 320-m berth for 2x10,000 DWT vessels. The capacity will be 1.6 million tons/year. Investment capital is US\$ 22million.

Up to 2010: A new port zone at Cai Sau, including 610 m pier and 2 berths for 7,000 DWT vessels and 2 berths for 10,000 DWT container vessels, will be built. Capacity will be 3 million tons/year. Investment capital is US\$ 20 million.

Access channel from river mouth requires a total US\$ 22 million including US\$ 4 million (up to 2005) and US\$ 18 million (up to 2010).

### 4) Industrial Port

For bulk cargoes, such as cement, coal and petroleum, port facilities shall be improved to handle increasing volumes in line with industrial development.

Table 5.3.3  
 Industrial Port Projects

Project	Capacity, 2010 (million tons)	Investment up to 2010 (VND bil.)
(Cement)		
Hoan Bo Cement Port	2.5	180
Cat Lai Cement Port	1.5	60
Ching Fong Cement Port	2.0	150
Binh Tri Cement Port	1.6	100
(Coal)		
Cam Pha Coal Port	5.0	200
Hon Gai Coal Port (replacing)	1.3	100
(Petroleum)		
B-12 Oil Port (replacing)	2.0	30
Nha Be Petroleum Port	5.0	120
<b>TOTAL</b>	<b>20.9</b>	<b>940</b>

Figure 5.3.1  
Development Plan of Cai Lan Port

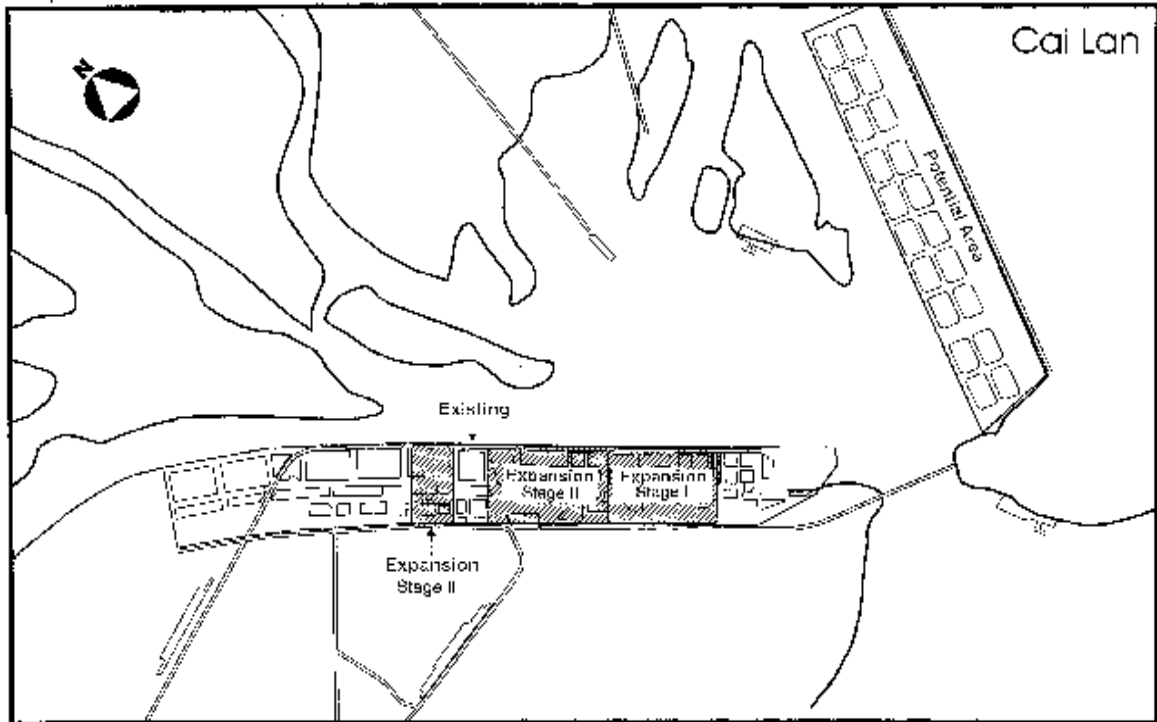


Figure 5.3.2  
Development Plan of Chua Ve Port

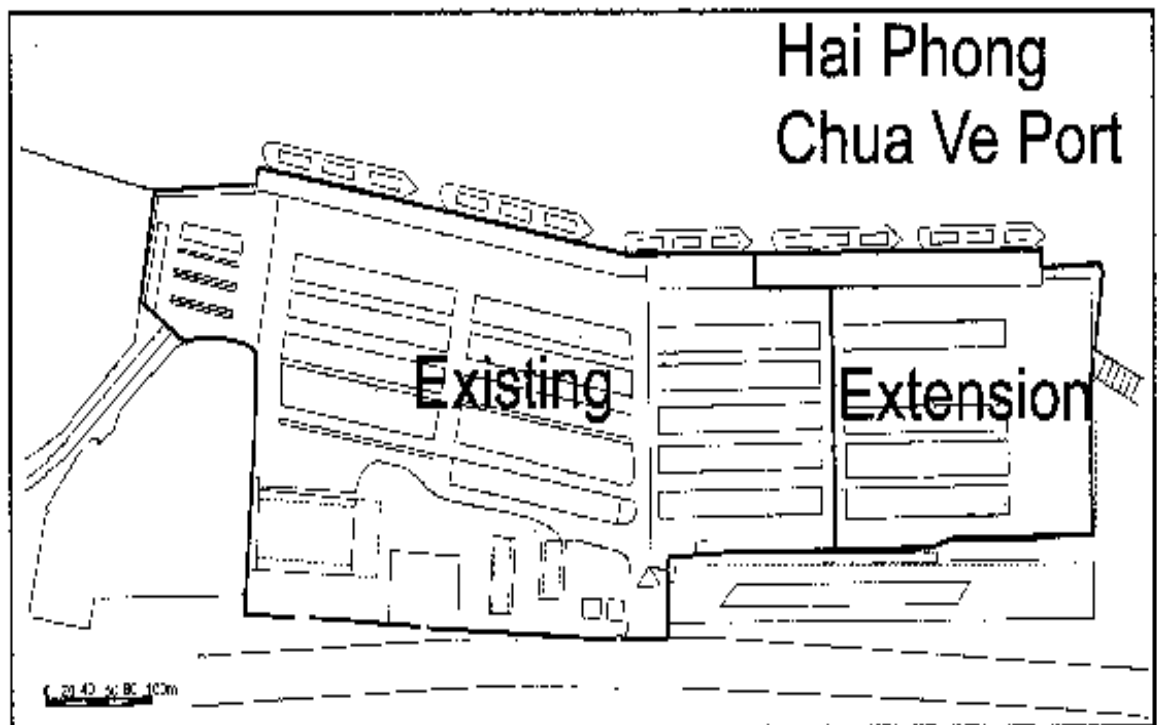


Figure 5.3.3  
Development Plan of Cua Lo Port

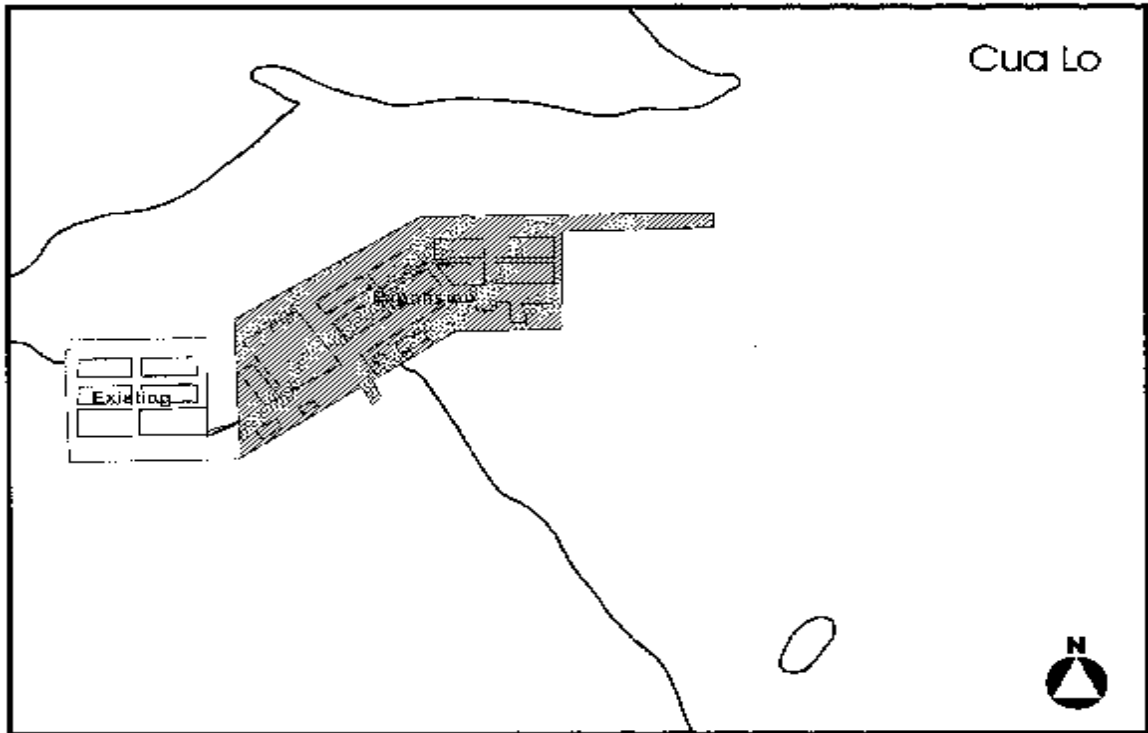


Figure 5.3.4  
Development Plan of Lien Chieu Port

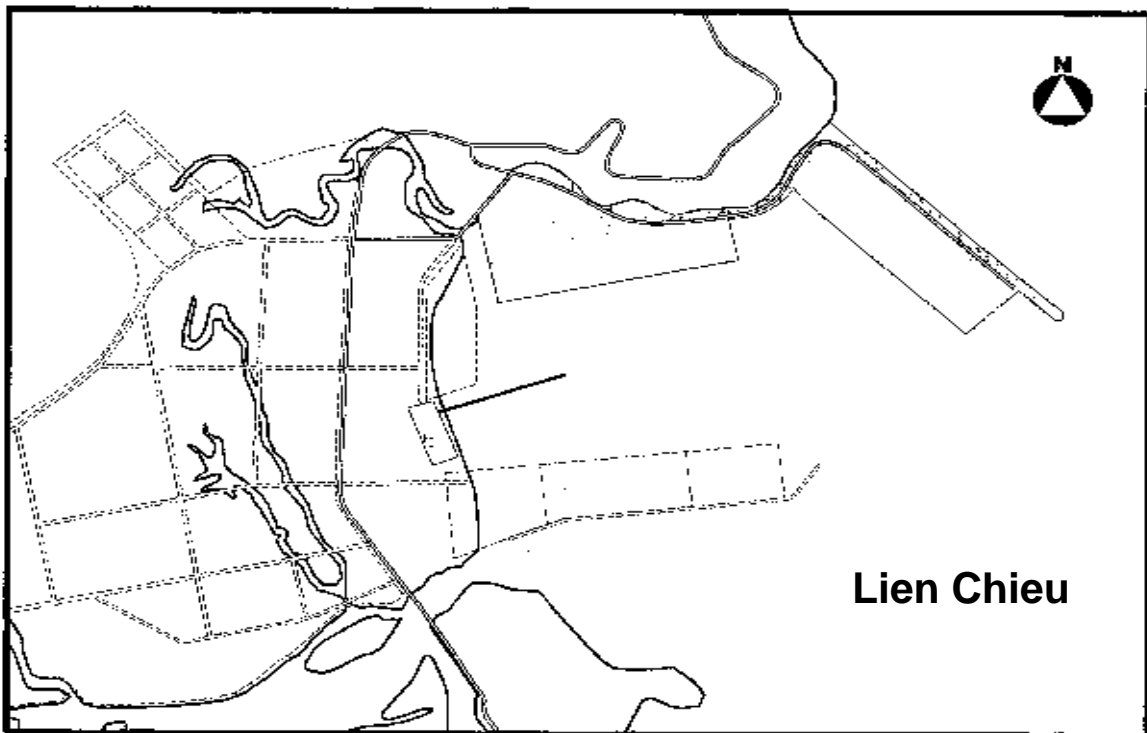


Figure 5.3.5  
Development Plan of Danang Port

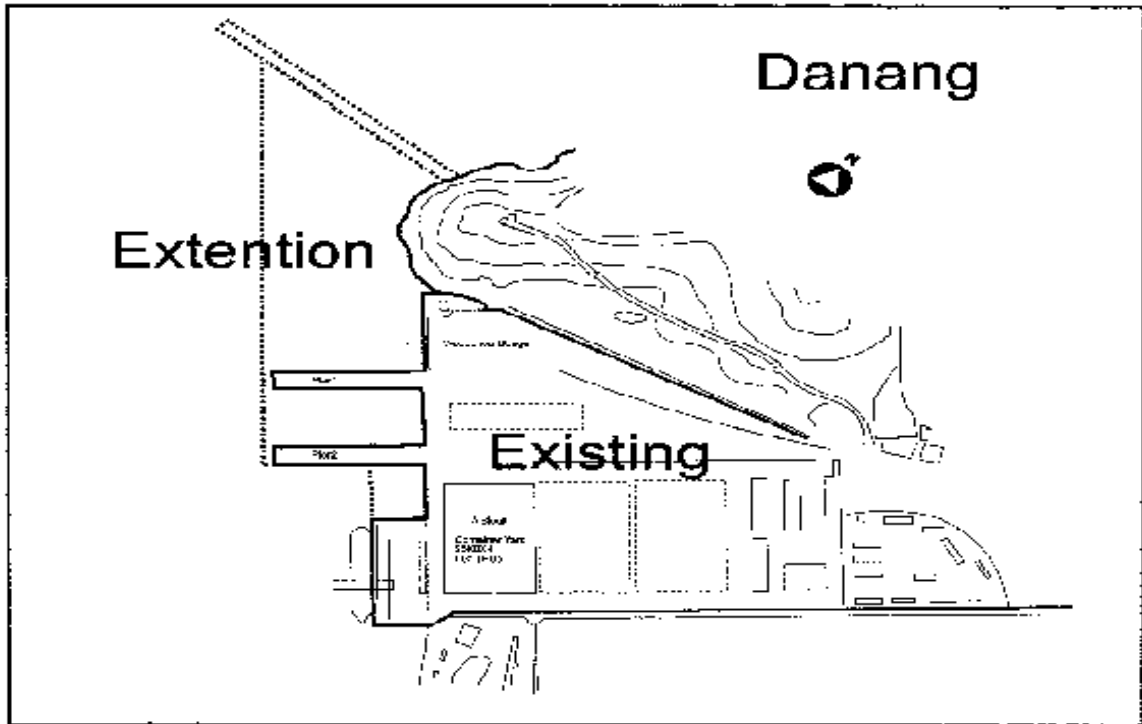


Figure 5.3.6  
Development Plan of Dung Quat Port

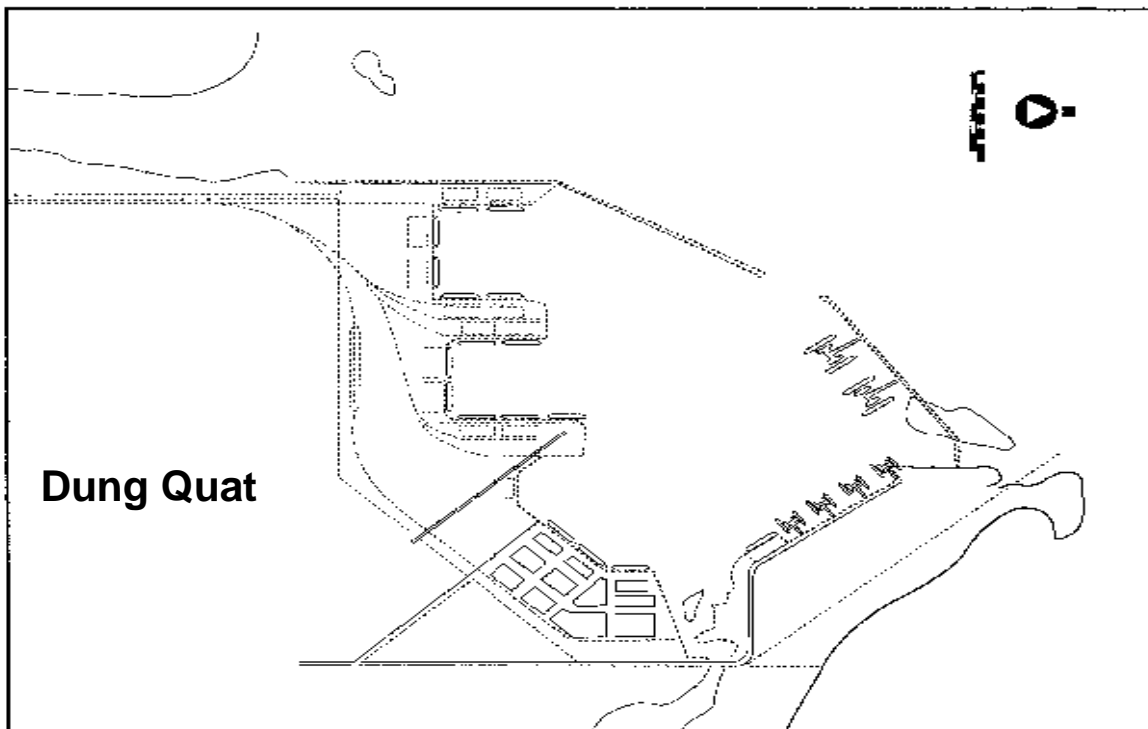


Figure 5.3.7  
Development Plan of Quy Nhon Port

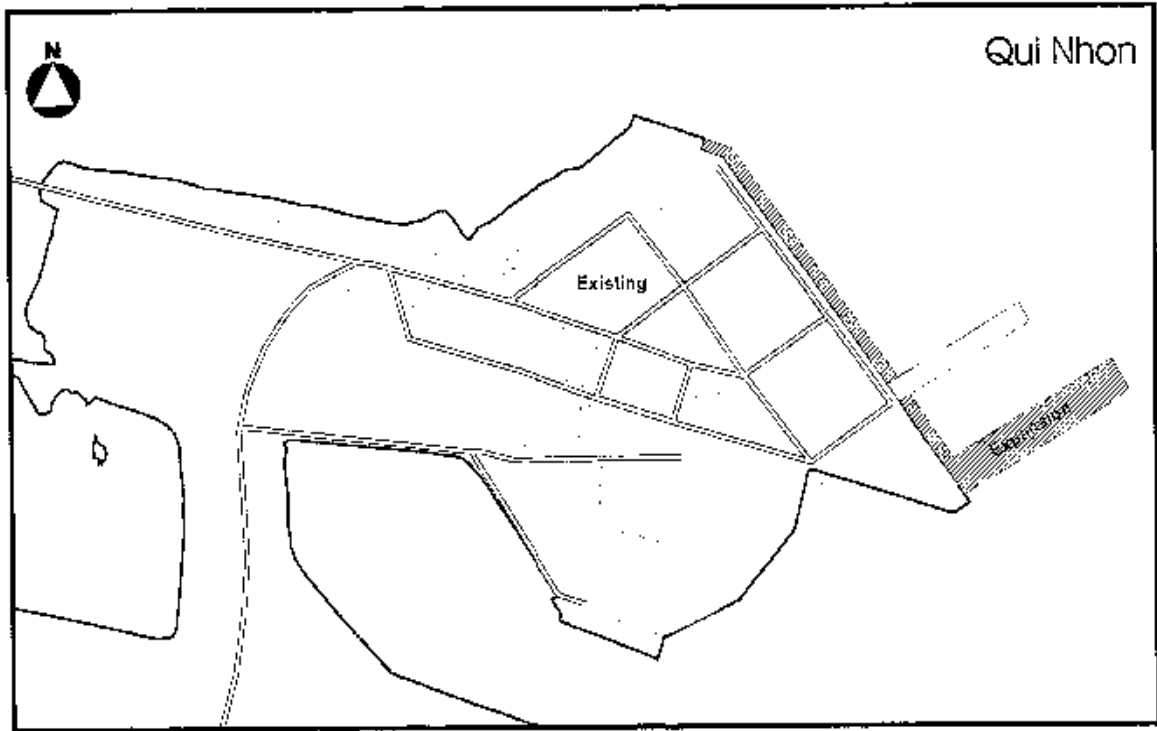


Figure 5.3.8  
Development Plan of Nha Trang Port

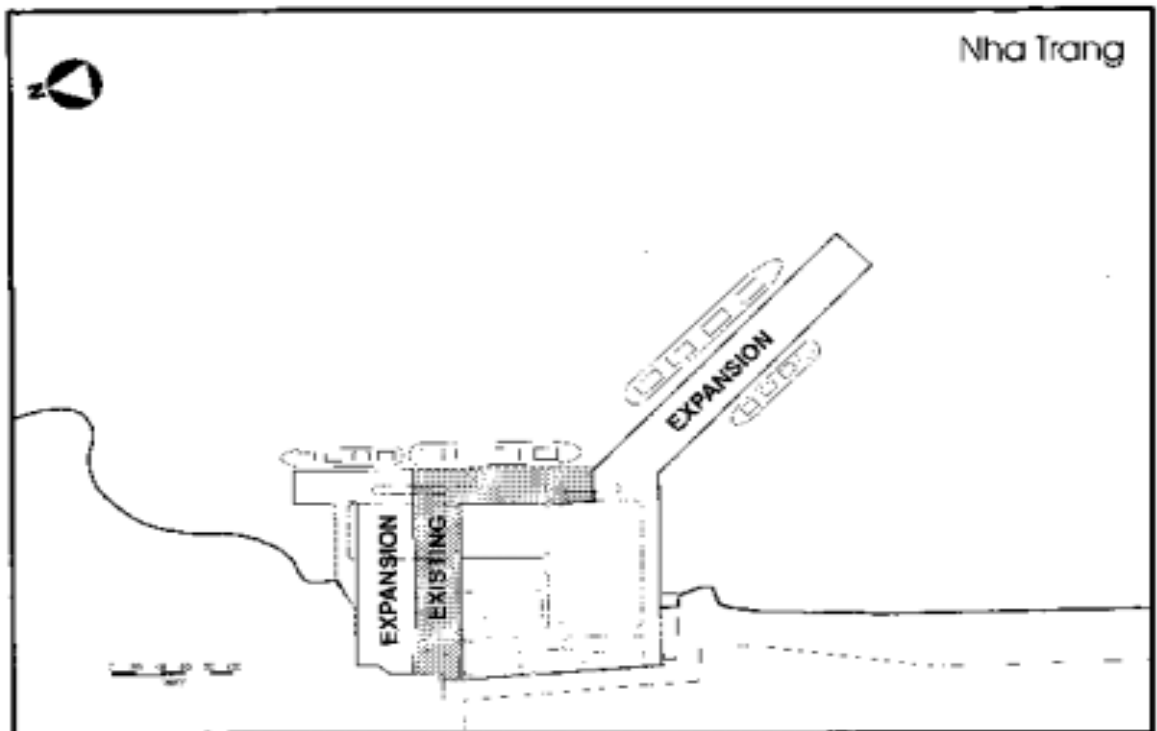


Figure 5.3.9  
 Development Plan of Ports in HCMC

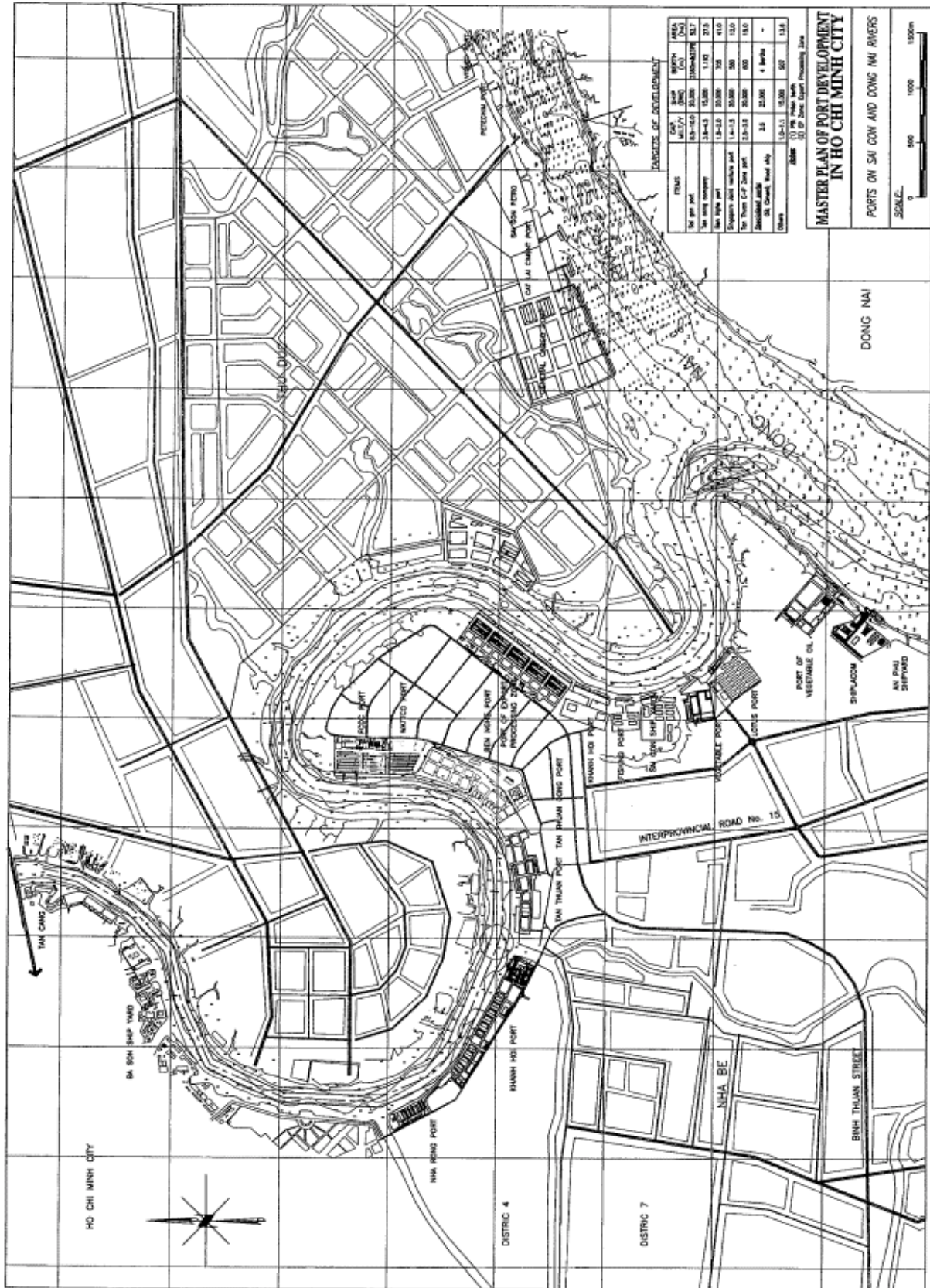
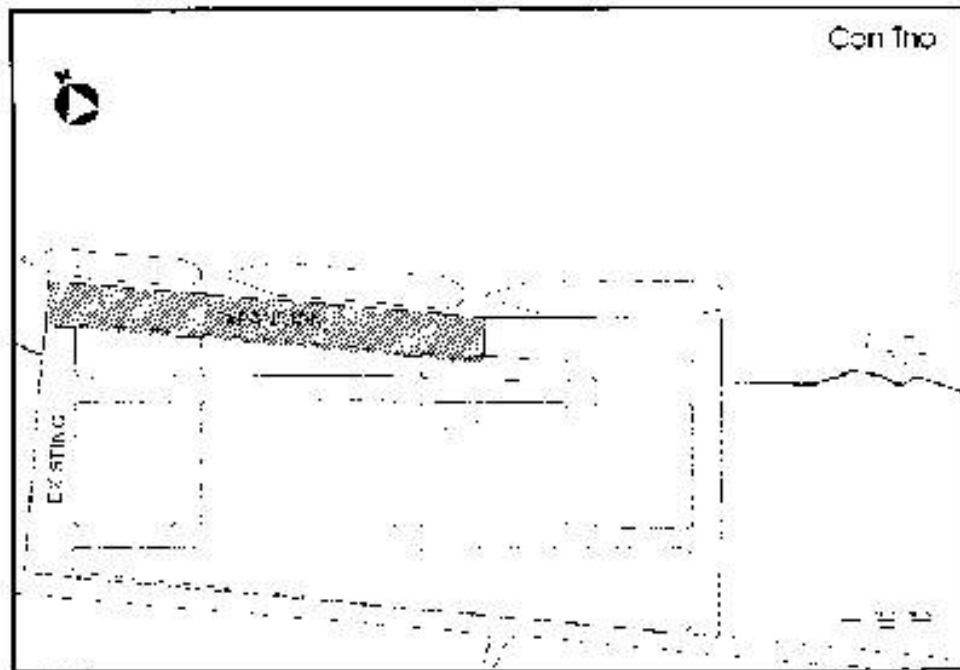


Figure 5.3.10  
 Development Plan of Can Tho Port



6) Local Port Development

In anticipation of bigger vessels, the infrastructure and handling system of local ports would be improved, since even small improvements and minor maintenance would contribute to a more efficient port operation.

Table 5.3.4  
 Local Port Projects

Project		Capacity in 2010 (million tons)	Investment up to 2010 (VND billion)
North	Bai Tho Port (Quang Ninh)	0.3	15
	Cua Cam Port (Hai Phong)	0.5	10
	Diem Dien Port (Thai Binh)	0.3	20
	Hai Thinh Port (Nam Dinh)	0.45	20
Center	Le Mon Port (Thanh Hoa)	0.6	45
	Ben Thuy Port (Nghe An)	0.25	8
	Xuan Hai Port (Ha Tinh)	0.3	20
	Gianh Port (Quang Binh)	0.4	20
	Cua Viet Port (Quang Tri)	0.25	20
	Thuan An Port (Thua Thien Hue)	0.4	30
	Song Han Port (Danang)	0.6	40
	Thi Nai Port (Binh Dinh)	0.4	25
	Ba Ngoi Port (Khanh Hoa)	0.6	45
TOTAL		5.35	318



7) Port EDI Development

The EDI system allows the exchange of basic information and schedule about cargoes and vessels. Individual companies, such as ocean liners and trading firms, have urged the adoption of this system, but stronger efforts will be required to promote its use by all industries involved in international trading. To facilitate this target, at the 1993 general meeting of the Transportation Working Group of the APEC, commercial activities of international transportation service agencies for the spread of and promotion of the EDI system in the APEC region were approved.

Phase I up to 2005: Planning and evaluation shall be conducted on the EDI system. The pilot program will be installed and a simulation will be applied on all stages of trading activities to clarify necessary rearrangement of relevant systems. Investment cost is US\$ 2 million.

Phase II up to 2010: The EDI system shall be established and will be made compatible with all related international maritime systems. VINAMARINE, port authorities and international general ports will be connected through EDI links. Investment cost is US\$ 8 million.

**5.4 Investment Plan**

The port development plan includes the construction of a new berth and rehabilitation of the existing one. The required number of berths by project is listed in Table 5.4.1. Without an available feasibility study, the exact number cannot be determined. The investment cost is estimated at approximately US\$ 1.4 billion (see Table 5.4.2).

Table 5.4.1  
 Required Number of Berths by Project up to 2010

No.	Project	General Cargo Berth	Container Berth	Total Berth
3-1	Cai Lan Port Expansion	5	3	8
3-2	Hai Phong Port	0	2	2
3-3	Cua Lo Port Expansion	4	0	4
3-4	Lien Chieu Port	2	1	3
3-5	Danang Tiensa Port	Restructuring		
3-6	Dung Quat Specialized Port	Before DD		
3-7	Qui Nhon Port Expansion	3	1	4
3-8	Nha Trang Port Expansion	3 – 4	0	3 – 4
3-9	Ba Ria Vung Tau Port	5 – 7	3 – 5	8 – 12
3-10	HCMC Port Development	11 – 12	3	13 – 16
3-11	Can Tho Port Development	4	2	6

Note: The number includes new and rehabilitated berths.

Table 5.4.2  
 Investment Cost, 2001 – 2010

	Project	Cost (US\$ million)
3-1	Cai Lan Port Expansion	128.1
3-2	Hai Phong Port	138.0
3-3	Cua Lo Port Expansion	49.3
3-4	Lien Chieu Port	158.0
3-5	Danang Tien Sa Port	172.0
3-6	Dung Quat Specialized Port	130.0
3-7	Qui Nhon Port Expansion	36.0
3-8	Nha Trang Port Expansion	57.0
3-9	Ba Ria-Vung Tau Port	206.0
3-10	HCMC Port Development	200.0
3-11	Can Tho Port Development	64.0
3-12	Industrial port Development	67.0
3-13	Other Local and Private Ports	22.7
	TOTAL	1,428.1

The tentative investment schedule is shown below.

Figure 5.4.1  
 Project Implementation Schedule, 2001 – 2010

No.	Project	01	02	03	04	05	06	07	08	09	10	
3-1	Cai Lan Port Expansion Stage 1 Stage 2	█				█						
3-2	Hai Phong Port 1 <sup>st</sup> Berth 2 <sup>nd</sup> Berth Channel Dredging	█				█						
3-3	Cua Lo Port Expansion Stage 1 Stage 2	█		█								
3-4	Lien Chieu Port			█								
3-5	Danang-Tien Sa Port Rehabilitation Expansion	█		█								
3-6	Dung Quat Specialized Port	█										
3-7	Qui Nhon Port Expansion Rehabilitation Expansion	█					█					
3-8	Nha Trang Port Expansion	█										
3-9	Ba Ria-Vung Tau Port Domestic General Port International Container P.	█			█							
3-10	HCMC Port Development	█										
3-11	Can Tho Port Development Can Tho Cui Sao	█				█						

# **APPENDICES**

**APPENDIX A**  
**DETAILED PORT DEVELOPMENT PLAN AND INVESTMENT PLAN**  
**BY THE GOVERNMENT OF VIETNAM**

Table A.1  
List of Major Ports up to 2010

No.	Name	Present status		Development Planning			
		Operating	Vessels Size (DWT)	Classification		Investment form	
				General Port	Specialized Port	Upgrade Improve-ment	New Construction
<b>Total</b>	<b>Whole Vietnam</b>						
<b>I</b>	<b>PORT GROUP IN NORTH</b>						
1 CL	Cai Lan	x		THC			X
2 HP	Hai Phong	x		THC		X	
3 CP	Cam Pha coal port	x			x	X	
4 CS	The port of Campha steel Factory						X
5 HG	Hon Gai & Cau Trang coal ports	x	15000		x		
6 HB	Hoanh Bo – Quang Ninh cement ports				x		X
7 B12	B12 Quang Ninh specialized port for oil	x	30000		x		
8 MC	Mui Chua port			x			X
9 DC	Dien Cong coal port	x	5000		x		
10 CC	Cua Cam port (Hai Phong)	x	5000				
11 NC	Northern Container Co. port			x			X
12 DVI	Port in Dinh Vu industrial zone			x			X
13 DVG	Dinh Vu General port			x			X
14 BD	Bach Dang General port			x			X
15 TL	Thuong Ly oil port	x	3000		x	x	
16 HP	HP gaz & oil port						X
17 CAL	Caltex Joint Venture port (S.Gia-HP)						X
18 OIL	Oil product port serving for Dinh Vu Industrial petrol chemical				x		X
19 CC	Chinfon cement & HP cement port				x		X
20 TV	Transvina Joint Venture port			x		x	
21 HD	128 Hai Doan port	x	3000	x		x	
22 DH	Port in Dong Hai industrial zone (HP)			x			x
23 DD	Diem Dien port (Thai Binh)	x	600	x			x
24 HT	Hai Tinh port (Nam Ha)	x	1000	x			x
25 NP	Ninh Phuc port (Ninh Binh)	x	1000	x		x	
	Potential ports						
	+ Bach Dang River port						
	+ Oild river port in Chanh downstream						
<b>II</b>	<b>PORT GROUP IN NORTH – CENTRAL</b>						
26 CL	Cua Lo - Ben Thuy port	x	10000	THC		x	
27 VA	Vung Anh port			THC			X
28 LM	Le Mon port	x	1000	x		x	
29 NS	Nghi Son port (general & specialized)			THC	x		X
30 NH	Nghi Huong oil port	x	3-5000		x	x	
31 XH	Xuan Hai port	x	2000	x		x	
32 TK	Thach Khe - Ha Tinh port				x		X
33 HH	Hung Hoa oil port	x	1000		x		
	<i>Potential ports: Nghi Son port</i>						
<b>III</b>	<b>PORT GROUP IN MIDDLE- CENTRAL</b>						
34 DN	Danang port	x		THC			
	+ Tien Sa - Han river		15000			x	
	+ Lien Chieu						X
35 CM	Chan May port			THC			X
36 DQ	Dung Quat port			THC	x		X
	+ Petrol chemical refinery zone						
	+ General cargo zone						
	+ Bulk cargo zone						
	+ oil service						
37 GN	Gianh port	x	1000	x		x	
38 OIL	Oil port in Gianh river (Quang Binh)				x		X
39 CV	Cua Viet port (Quang Tri)			x		x	
40 TA	Thuan An port (Thua Thien Hue)	x	600	x		x	
41 OIL	Thuan An oil port				x		X
42 234	234 port (Danang)	x	2-3000	x		x	

(Table A.1 continued)

No.	Development Planning								Note
	Up to 2003				Up to 2010				
	Length of Berth (m)	Low Capacity (million tons)	High Capacity (million tons)	Vessels Size (DWT)	Length of Berth (m)	Low Capacity (million tons)	High Capacity (million tons)	Vessels Size (DWT)	
<b>Total</b>		<b>89.8</b>	<b>101.9</b>			<b>230.8</b>	<b>266.1</b>		
<b>I</b>		<b>20.5</b>	<b>23.5</b>			<b>56.2</b>	<b>68.9</b>		
1 CL	1711	1.8	2.8	40000	5236	16	17	50000	Belongs to Central Govern.
2 HP	2858	6.2	6.2	10000	3180	8	8.5	10000	Belongs to Central Govern.
3 CP	569	4	4.1	30000	753	5	5.2	50000	Belongs to Coal General Co.
4 CS						4	5	30-50000	
5 HG	280	1	1.2	20000	190	1.8	2	5000	After 2000, moves to Cau Trang
6 HB	480	1.2	1.4	20000	640	3.5	3.8	20000	
7 B12		1.5	2	30000	1 port	3	3.5	30000	After 2000, moves to other place
8 MC	1 port	0.1	0.2	1000	1 port	0.2	0.2	2-3000	Provincial management
9 DC	200	0.3	0.3	5000	200	0.3	0.4	5000	
10 CC	265	0.4	0.4	3000	350	0.8	0.8	3000	
11 NC	160	0.5	0.6	10000	2 x 160	1	1	10000	
12 DVI					500-1500	2	6.5	10000	Serving for Dinh Vu industrial zone
13 DVG					2000	2.5	6	10000	Develops HP port to Dinh Vu
14 BD					1200	2.5	2.5	10000	Develops HP port to Bach Dang river
15 TL	2 ports	0.3	0.3	3000	2 ports	0.3	0.3	3000	
16 HP	3 ports	0.3	0.4	5-10000	3 ports	0.4	0.5	5-10000	(Dai Hai, JV Total, Petec)
17 CAL	1 port			5000	1 port			5000	
18 OIL					1000			10000	
19 CC	540	1.2	1.4	5000	540	2.4	2.4	5000	Serving for cement factory
20 TV	120	0.3	0.4	10000	120	0.3	0.4	10000	
21 HD	605			3-5000	905			3-5000	Belongs to National Defense Ministry
22 DH	150			10000	300			10000	Provincial management
23 DD	74	0.1	0.2	600	148	0.2	0.3	600	Provincial management
24 HT	280	0.3	0.4	1000	494	0.5	0.6	2000	Provincial management
25 NP	339	1	1.2	1000	339	1.5	2	1000	Belongs to Central Govern.
					4 ports				Developing general port
									Serving for petrol
<b>II</b>		<b>3.7</b>	<b>5.3</b>			<b>19.1</b>	<b>21.3</b>		
26 CL	1036	1.4	2	10000	1561	2.9	3.5	10000	Belongs to Central Govern.
27 VA	285	0.6	1.1	10000	1320	2.6	3.9	30000	Belongs to Central Govern.
28 LM	219	0.3	0.4	1000	219	0.6	0.7	1000	Provincial management
29 NS	790	1.2	1.5	30000	1240	2.5	2.5	30000	Will build general port after 2000
30 NH	2 ports								After 2000 will be moved
31 XH	163	0.1	0.2	1000		0.3	0.5	1000	Provincial management
32 TK						10	10	50000	Serving for Thach Khe ore
33 HH	1 port	0.1	0.1	1200	1 port	0.2	0.2	1200	
<b>III</b>		<b>19.1</b>	<b>20.6</b>			<b>43.1</b>	<b>46.1</b>		
34 DN									Belongs to Central Govt.
	1850	2.2	2.3	10-40000	1220-1510	3	3.5	50000	
	700	1.8	1.9	30-50000	2910	8.5	8.9	50000	
35 CM	200	0.3	0.4	30000	600	2.2	2.3	40000	Provincial management
36 DQ									Serving for refinery factory No. 1
	7 ports	13	13.5	80000	7 ports	25	26	200000	
	200	0.2	0.3	10000	2000	2	2.5	30000	
					4 ports			50000	
					730			10000	
37 GN	133	0.2	0.3	1000	133	0.3	0.4	1000	Provincial management
38 OIL	1 port	0.1	0.1	1000		0.1	0.1	1000	
39 CV	110	0.1	0.2	1000	110	0.1	0.2	1000	Provincial management
40 TA	280	0.2	0.2	1000	280	0.2	0.2	2000	Provincial management
41 OIL	1 port	0.1	0.2	1000	1 port	0.2	0.3	2000	
42 234	275	0.2	0.3	2-3000	275	0.3	0.4	2-3000	Belongs to National Defense Ministry

(Table A.1 continued)

No.	Name	Present status		Development Planning			
		Operating	Vessels Size (DWT)	Classification		Investment form	
				General Port	Specialized Port	Upgrade Improvement	New Construction
43 DN	Oil port in Danang region	x	30000				
	+ My Khe						
	+ Nai Hien	x	1-3000				
	+ Lien Chieu	x	7000				
44 HV	Hai Van import Klinke port				X		x
45 SH9	No. 9 port (belong to Danang sea transport Co.)	x	3000	x		X	
46 KH	Ky Ha, Tam Ky ports (Quang Nam)			x			x
47 SK	Sa Ky port (Quang Ngai)	x	1000	x		X	
	<i>Potential ports</i>						
	+ Nam O Port						
<b>IV</b>	<b>PORT GROUP IN SOUTH-CENTRAL</b>						
48 QN	Qui Nhon port						
	+ Qui Nhon existing port	x	10000	THC		X	
	+ Nhon Hoi port (Qui Nhon - Binh Dinh)						x
49 NT	Nha Trang	x	10000	THC		X	
50 OIL	Qui Nhon oil port	x	3000		X	X	
51 TN	Thi Nai	x	5000	x			
52 VR	Vung Ro port			x			x
53 BN	Ba Ngoi port	x				X	
54 HK	Hon Khoi port (Khanh Hoa)	x	600		X		
55 DM	Dam Mon specialized port exporting sand	x	30000		X		
56 MC	Mui Chut oil port (Khanh Hoa)	x	3-5000		X	X	
57 PQ	Phu Qui port (sea food & serving for island district)			x			x
	<i>Potential ports</i>						
	+ Van Phong-Cam Ranh-Khanh Hoa port						
	+ Mui Ne port						
<b>V</b>	<b>PORT GROUP IN HCMC - VUNG TAU - THI VAI</b>						
	HCMC						
58 SG	Sai Gon port	x	15000	THC		X	
59 NB	Sai Gon port widening to Nha Be			x			x
60 BN	Ben Nghe port	x	15000	THC		X	
61 TC	Tan Cang (Tan Cang & Cat Lai)	x	10000	THC		X	
62 VI	Singapore Joint Venture port (VICT)			x			
63 SW	Southern waterway general Co. port	x		x		X	
64 TT	Tan Thuan process industrial zone						x
65 VG	Vegetable port	x	10000	x		X	
66 LT	Lotus port			x			x
67 OIL	Plant oil port	x	10000		X	X	
68 GS	Sai Gon Gas port	x					
69 OIL	Nha Be oil port	x	25000		X	X	
70 PE	Sai Gon oil port	x	25000		X	X	
71 PC	Petchim oil port						
72 PT	Petec port	x	25000		X	X	
73 VT	VITAICO port	x	20000		X	X	
74 VH	Vinh Hung wood port (Dong Nai)				X		x
75 CM	Cat Lai cement port	x	10000		X		x
76 HP	Hiep Phuoc zone ports				X		x
	- Oil port of Power Station						
	- Nghi Son cement port						
	- General port						
	<i>Potential ports</i>						
	+ Hiep Phuoc port						
	+ Phuoc Luong port (Dong Nai)						
	+ Nga Bay - Can Gio river port						

(Table A.1 continued)

No.	Development Planning								Note
	Up to 2003				Up to 2010				
	Length of berth (m)	Low Capacity (million tons)	High Capacity (million tons)	Vessels size (DWT)	Length of berth (m)	Low Capacity (million tons)	High Capacity (million tons)	Vessels size (DWT)	
43 DN	3 ports	0.5	0.6	30000		1	1	30000	After 2000 move My Khe to Thanh Khe
								3000	Will be moved after 2000
								7000	Belongs to National Defense Ministry
44 HV	2 ports			5000	2 ports			5-10000	
45 SH9	1 port			3000	1 port			3000	Provincial management
46 KH	1 port	0.2	0.3	3000	2 ports	0.2	0.3	3000	Provincial management
47 SK	1 port			1000	1 port			1000	Provincial management
<b>IV</b>		<b>2.8</b>	<b>3.4</b>			<b>7</b>	<b>8.2</b>		
48 QN									
	700	1.1	1.2	10000	700	2.4	2.5	15-20000	Belongs to Central Govern.
					800	2	2.5	30000	Serving for Nhon Hoi-Binh Dinh economic zone
49 NT	600	0.6	0.7	20000	600	0.6	0.8	20000	Belongs to Central Govern.
50 OIL	1 port	0.2	0.2	10000		0.3	0.3	10000	
51 TN	1 port	0.2	0.3	5000	1 port	0.4	0.5	5000	Provincial management
52 VR	100	(0.2-0.3)		5000	150	(0.3-0.4)		10000	Provincial management
53 BN	84	0.2	0.3	15000	180	0.4	0.5	20000	Provincial management
54 HK	60	0.1	0.1	600		0.1	0.1	600	Import salt - provincial management
55 DM	1 port	0.2	0.3	30000		0.4	0.5	30000	Import salt - provincial management
56 MC	1 port	0.2	0.3	10000		0.4	0.5	10000	
57 PQ				1000				1-2000	Aquatic base combined with general port - provincial management
									Transshipment port
<b>V</b>		<b>38.2</b>	<b>42.8</b>			<b>96.8</b>	<b>111.3</b>		
		24.9	27.9			32.6	35.9		
58 SG	2360	8.5	9.5	20000	2604	9	10	25000	Belongs to Central Govern.
59 NB	340			20000	673	2.5	3.5	20000	Belongs to Central Govern.
60 BN	672	1.5	1.6	20000	697	2.1	2.3	2000	Provincial management
61 TC	1072	3.6	4.3	10-15000	1192	3	3.5	10-15000	Belongs to National Defense Ministry
62 VI	290	0.6	0.8	20000	580	1.4	1.5	20000	
63 SW	300			10000				10000	May be joint venture with VICT
64 TT	420	1	1	20000	600	2	2	20000	Serving for Tan Thuan process industrial zone
65 VG	225	0.4	0.5	15000	225	0.4	0.5	15000	Belongs to Vegetable General Co.
66 LT	140	0.2	0.3	10000	140	0.2	0.3	10000	
67 OIL	170+ 1tru	0.5	0.6	15000	275 & ...	1	1.2	20000	Serving for land oil vessels & general cargo
68 GS	1 port			5000	1 port			10000	Provincial management
69 OIL	10 ports	3	3	25000	13 ports	4.5	4.5	25000	
70 PE	2 ports	0.6	0.6	25000	2 ports	1	1	25000	Provincial management
71 PC		0.5	0.6	25000		4.5	4.5	25000	
72 PT	1 port	0.4	0.4	25000	1 port	1	1	25000	
73 VT	1 port	0.2	0.3	25000	1 port	0.3	0.4	25000	
74 VH	1 port	0.2	0.2	25000	1 port	0.5	0.5	25000	
75 CM	280	1.7	1.7	15000	280	2.2	2.2	15000	
76 HP	790	2	2.5	20000	2000	6	7	25000	Serving for Hiep Phuoc Industrial zone
						(35-40)			
						(4-5)			



(Table A.1 continued)

No.	Name	Present status		Development Planning			
		Operating	Vessels Size (DWT)	Classification		Investment Form	
				General Port	Specialized Port	Upgrade Improvement	New Construction
77 TV	Thi Vai general port			THC			x
78 DN	Dong Nai port	X	1000-	x			
79 VD	Vedan port	X	5000		x	x	
80 GD	Go Dau A port	X	3000	THC		x	
81 LT	Long Thanh supe port	X	3000		x	x	
82 GDG	Go Dau gas port (Dong Nai)	X	7000		x	x	
83 GD	Go Dau B port			THC			x
84 PM	Phu My general + container port			x			x
85 OIL	Oil seaport of Phu My Power Station				x		x
86 GP	General, joint venture port (VSC + V.Tau ship + Koei + other joint venture ports)			x			x
87 BS	Ba Ria Serece (general & bulk cargo)	X	30000	x			x
88 GP	General & bulk cargo ports						x
89 CM	Cement port (Chinfon - Hai Phong...)				x		x
	<i>* Cai Mep River</i>						
90/91 FD	Food & foodstuff port (included Vinaflour & Vinafood)				x		x
92 CP	Container port (joint venture with Belgium)			x			x
93 OIL	Oil port (LGP, Saigon Petrol)						x
94 LS	Long Son port (specialized port for oil, gas, oil product & exploiting oil base)				x		x
	<i>* Vung Tau Region</i>						
95 VT	Vung Tau International port			x			x
96 CL	Cat Lo general port (Vung Tau)	X	5000	x		x	
97 OIL	Oil service port (PTSC)	X	10000		x	x	
98 VP	VietsoPetrol port	X	5-10000		x	x	
99 K2	K2 oil port	X	3000		x	x	
	<i>Potential ports</i>						
	+ Go Dau C general port						
	+ Phuoc An Port						
	+ Cai Mep river mouth ports						
VI	<b>PORT GROUP IN MEKONG DELTA</b>						
100 TN	Can Tho port (included Hoang Dieu, existing Tra Noc & newly built Cai Cui)	X	3-5000	THC		x	....
101 OIL	Can Tho oil & gas port						
102 CL	Cao Lanh (Dong Thap)	X	2000	x		x	
103 VT	Vinh Thai (Vinh Long)	X	2500	x		x	
104 MTI	My Thoi (Long Xuyen)	X	3000	x		x	
105 MT	My Tho (Tien Giang)	X	2500	x		x	
106 VN	Viet Nguyen (My Tho)			x			x
107 HC	Hon Chong (Kien Giang)	X	1000	x		x	
108 NC	Nam Can	X	<2000	x		x	
109 LA	Long An			x			x
110 DN	Dai Ngai			x			x
111 TC	Tra Cu			x			x
112 CM	Binh Dinh cement				x		x
VII	<b>PORT GROUP IN WEST-SOUTHERN ISLANDS</b>						
113 AT	An Thoi & Duong Dong floating port						
VIII	<b>PORT GROUP IN CON DAO</b>						
114 BD	Ben Dam port			x			x
	<i>Potential ports</i>						
	+ Hon Thom port						
	+ Con Dao port						

(Table A.1 continued)

No.	Development Planning								Note
	Up to 2003				Up to 2010				
	Length of Berth (m)	Low Capacity (million tons)	High Capacity (million tons)	Vessels Size (DWT)	Length of Berth (m)	Low Capacity (million tons)	High Capacity (million tons)	Vessels Size (DWT)	
77 TV	200	0.5	0.6	30000	2000	6.5	10	30000	Belongs to Central Govern.
78 DN	1 port			1-2000	1 port			1-2000	Provincial management
79 VD	100	0.4	0.4	5-10000	100 & 1 ...	1	1.5	10-15000	
80 GD	100	0.2	0.3	5-10000	350	0.8	1	10-15000	Provincial management
81 LT	100	0.2	0.3	3-5000	180	0.3	0.3	3-5000	
82 GDG	1 port			5-10000	1 port			10000	
83 GD	100			5-10000	1000	3	4	10-15000	Provincial management
84 PM	350	0.5	0.6	30000	1960	9	9.5	30000	
85 OIL	200	0.2	0.2	30000	1 port	1	1.2	30000	
86 GP	1960	0.5	0.6	30000		9	9.5	30000	
87 BS	130	0.3	0.4	30000	700	2	3	30000	
88 GP	460			30000	460	(3.5-4)		30000	Serving for Power St. & Factories
89 CM	400	1	1.2	20000	400 (2 ports)	3.5	4	20000	
90/91 FD	450 (2 ports)	0.3	0.3	30000	500 (2 ports)	1	1.5	30000	
92 CP				30-50000		3.5	4	30-5000	
93 OIL	500	0.8	1	30-50000	1300	3.5	4.5	50000	
94 LS						(10-11)		30000	
95 VT	1600	8	8.5	55000	2400	22	24	55000	
96 CL	250	0.2	0.3	5000	250	0.8	1	10000	
97 OIL	400	-	-	10000	800	-		10000	
98 VP	1500	-	-	10000	1500	-		10000	
99 K2	1 port	0.2	0.2	3000	1 port	0.3	0.4	7000	
					30 ports			15-55000	
VI		<b>5.5</b>	<b>6.3</b>			<b>8.6</b>	<b>10.3</b>		
100 TN	440 ...	2	2.5	5-10000	880	3.5	4.5	10000	Belongs to Central Govern.
101 OIL	1 port			5000	1 seaport	(0.5-1)		5000	
102 CL	150	0.3	0.3	3000	150	0.3	0.4	5000	Provincial management
103 VT	80	0.2	0.3	2000	160	0.4	0.5	2000	Provincial management
104 MTI	122	0.3	0.3	5000	200	0.5	0.6	5000	Provincial management
105 MT	124	0.3	0.4	3000	224	0.6	0.7	5000	Provincial management
106 VN				5000				5000	Provincial management
107 HC	65	0.1	0.2	1000	130	0.3	0.3	2000	Provincial management
108 NC	65	0.1	0.1	1000	130	0.2		2000	Provincial management
109 LA	150	0.3	0.3	5000	350	0.4	0.5	5000	Provincial management
110 DN	150	0.2	0.2	5000	200	0.4	0.5	5000	Provincial management
111 TC					100	0.2	0.3	5000	
112 CM	2 x 150	1.7	1.7	10000	2 x 150	1.8	2	10000	
VII									
113 AT				60000GR T				60000GR T	Serving for passenger vessels
VIII									
114 BD				2000				2000	Aquatic base combined with general port
						(50-55)		20-30000	
						(55-60)		55000	

- Notes: 1. At the end of 1997 Vietnam had 70 operating ports with 22 km of berth. Cargo volume throughput is as follows: 1995 - 34,000,000 tons; 1996 - 39,800,000 tons; 1997 - 45,763,000 tons (not included are offshore ports used in exploiting & exporting oil). The cargo volume increased 15.95% annually.
2. In the development planning of Vietnam's seaport system up to 2010, there are plans for offshore ports where cargo can be loaded/unloaded and will service Vietnamese industrial shipping industry, specifically- floating ports used in exploiting and exporting oil.
3. At column "General Port" is written THC, referring to main general port of a port group.

Table A.2  
Investment Capital for Ports up to 2020

(unit: VND billion)

	Year2000	Year2010	Year2020	Total
<b>1.1 Major Sea Ports in the North:</b>				
(1) Hai Phong Port	330	810	900	2,040
(2) Cai Lan Port:	300	1,100	3,500	4,900
(3) Hoanh Bo Cement Port:	170	180	10	360
(4) Bai Tho Port (Quang Ninh)	5	15	45	65
(5) Cua Cam Port (Hai Phong)	8	10	65	83
(6) Diem Dien Port (Thai Binh)	10	20	45	75
(7) Hai Thinh Port (Nam Dinh)	15	20	50	85
(8) B-12 Oil and Petrol Port (Quang Ninh)	5	30	200	235
(9) Cam Pha Coal Exporting Port (Quang Ninh)	30	200	300	530
(10) Hon Gai Coal Exporting Port (Quang Ninh)	5	100	300	405
(11) Dinh Vu Port (Hai Phong)	-	700	900	1,600
Sub Total	878	3,185	6,315	10,378
<b>1.2 Major Sea Ports in the Central Region:</b>				
(12) Le Mon Port (Thanh Hoa)	25	45	40	110
(13) Nghi Son Port (Thanh Hoa)	-	400	560	960
(14) Cua Lo Port (Nghe An)	80	400	200	680
(15) Ben Thuy Port (Nghe An)	5	8	30	43
(16) Xuan Hai Port (Ha Tinh)	8	20	35	63
(17) Vung Ang Port (Ha Tinh)	70	350	460	880
(18) Gianh Port (Quang Binh)	35	20	40	95
(19) Cua Viet Port (Quang Tri)	18	20	45	83
(20) Thuan An port (Thua Thien Hue)	18	30	60	108
(21) Chan May Port (Thua Thien Hue)	-	350	600	950
(22) Lien Chieu Port (Da Nang)	-	700	800	1,500
(23) Tien Sa Port (Da Nang)	100	400	550	1,050
(24) Song Han Port (Da Nang)	10	40	40	90
(25) Dung Quat Port (Quang Ngai)	200	1,000	800	2,000
(26) Qui Nhon Port (Binh Dinh)	130	380	300	810
(27) Thi Nai Port (Binh Dinh)	20	25	65	110
(28) Nha Trang Port (Khanh Hoa)	80	120	60	260
(29) Ba Ngoi Port (Khanh Hoa)	20	45	25	90
(30) Van Phong Port (Khanh Hoa)	-	-	-	-
Sub Total	819	4,353	4,710	9,882
<b>1.3 Main Ports in the Southern Area</b>				
(31) Saigon port	600	400	300	1,300
(32) New Saigon Port:	-	600	400	1,000
(33) Ben Nghe Port	100	120	250	470
(34) Singapore-Tan Thuan Joint Vecture Port.	170	280	150	600
(35) Go Dau Port.	50	100	160	310
(36) Phu My Port	300	1,500	1,300	3,100
(37) Ben Dinh - Sao Mai Port	1,800	2,800	2,200	6,800
(38) Cat Lo Port (Vung Tau)	60	80	170	310
(39) Nha Be Petroleum Port (HCM City)	70	120	150	340
(40) Cat Lai Cement Port (HCM City)	170	60	150	380
(41) Ching Fong Cement Port (Ba Ria-Vung Tau)	180	150	70	400
(42) Can Tho Port	300	280	300	880
(43) My Tho Port (Tien Giang)	90	50	65	205
(44) My Thoi Port (An Giang)	100	35	75	210
(45) Vinh Thai Port (Vinh Long)	65	80	100	245
(46) Dai Ngai Port (Soc Trang)	40	75	120	235
(47) Cao Lanh Port (Dong Thap)	80	45	120	245
(48) Binh Tri Cement Port (Kien Giang)	220	100	125	445
Sub Total	4,395	6,875	6,205	17,475
<b>Total</b>	<b>6,092</b>	<b>14,413</b>	<b>17,230</b>	<b>37,735</b>

## APPENDIX B CONSTRUCTION COST AND PRODUCTIVITY IN PORT DEVELOPMENT

### Cost Estimation for Standardized Facilities

The unit prices of the construction and the procurement of standardized facilities are estimated using past construction projects and cost estimations of other feasibility studies. The construction costs of each standardized facility per unit berth length (m) or unit wharf are summarized in the following tables:

Table B.1  
Transshipment Type Port Terminal (-16 m Deep)

Facilities		Unit	Dimension	US\$
I. Infrastructure				30,500,000
Berth	Length	m	350	17,500,000
	Depth	m	16	
Terminal Area	Marshalling Yard	m <sup>2</sup>	60,000	
	CFS	m <sup>2</sup>		4,000,000
	Others	m <sup>2</sup>	40,000	
Earth Works	Dredging	m <sup>3</sup>	1,000,000	
	Reclamation	m <sup>3</sup>	100,000	9,000,000
	Slope Protection	m <sup>2</sup>	20,000	
II. Equipment				28,760,000
Quay Crane	40t	units	3	
Transfer Crane	40t	units	12	
Side Lifter	40t	units	4	
Tractor Head		units	20	
Chassis		units	40	
Forklift	5t	units	8	
III. Management				4,090,000
Office		m <sup>2</sup>	1,000	
Gate		units	8	
Utilities		LS	1	
IV. Related Facilities				5,000,000
Access Road		LS	1	
Pilotage		LS	1	
Electric and Water Supply		LS	1	
V. Total				68,350,000

Table B.2  
Intra-Asia Container Port Terminal (-12 m Deep)

Facilities		Unit	Dimension	US\$
I. Infrastructure				21,900,000
Berth	Length	m	280	9,800,000
	Depth	m	14	
Terminal Area	Marshalling Yard	m <sup>2</sup>	65,000	
	CFS	m <sup>2</sup>	5,000	4,450,000
	Others	m <sup>2</sup>	21,250	
Earth Works	Dredging	m <sup>3</sup>	800,000	
	Reclamation	m <sup>2</sup>	90,000	7,650,000
	Slope Protection	m <sup>2</sup>	15,000	
II. Equipment				16,680,000
Quay Crane	40t	units	2	
Transfer Crane	40t	units	8	
Side Lifter	40t	units	2	
Tractor Head		units	12	
Chassis		units	24	
Forklift	5t	units	3	
III. Management				3,385,000
Office		m <sup>2</sup>	800	
Gate		units	5	
Utilities		LS	1	
IV. Related Facilities				5,000,000
Access Road		LS	1	
Pilotage		LS	1	
Electric and Water Supply		LS	1	
V. Total				46,965,000

Table B.3  
Domestic Container Port Terminal (-10 m Deep)

Facilities		Unit	Dimension	US\$
I. Infrastructure				15,910,000
Berth	Length	m	250	7,500,000
	Depth	m	12	
Terminal Area	Marshalling Yard	m <sup>2</sup>	43,000	
	CFS	m <sup>2</sup>	3,500	3,160,000
	Others	m <sup>2</sup>	18,500	
Earth Works	Dredging	m <sup>3</sup>	500,000	
	Reclamation	m <sup>2</sup>	65,000	5,250,000
	Slope Protection	m <sup>2</sup>	10,000	
II. Equipment				15,680,000
Quay Crane	40t	units	2	
Transfer Crane	40t	units	8	
Side Lifter	40t	units	2	
Tractor Head		units	12	
Chassis		units	24	
Forklift	5t	units	3	
III. Management				2,250,000
Office		m <sup>2</sup>	500	
Gate		units	5	
Utilities		LS	1	
IV. Related Facilities				500,000
Access Road		LS	1	
Pilotage		LS	1	
Electric and Water Supply		LS	1	
V. Total				34,340,000

Table B.4  
Multipurpose Wharf for Conventional Use (-10 m Deep)

Facilities		Unit	Dimension	US\$
I. Infrastructure				7,642,500
Berth	Length	m	170	3,400,000
	Depth	m	10	
Terminal Area	Marshalling Yard	m <sup>2</sup>	20,000	
	Others	m <sup>2</sup>	12,000	1,260,000
	Shed	m <sup>2</sup>	2,000	
Earth Works	Dredging	m <sup>3</sup>	300,000	
	Reclamation	m <sup>3</sup>	34,000	2,982,500
	Slope Protection	m <sup>2</sup>	5,000	
II. Equipment				980,000
Mobile Crane	45t	units	2	
Forklift	5t	units	4	
III. Management				525,000
Office		m <sup>2</sup>	500	
Gate		Ls		
Utilities		LS	1	
IV. Related Facilities				400,000
Access Road		LS	1	
Pilotage		LS	1	
Electric & Water Supply		LS	1	
V. Total				9,547,500

Table B.5  
Conventional Wharf

Facilities		Unit	Dimension	US\$
I. Infrastructure				2,469,500
Berth	Length	m	130	1,950,000
	Depth	m	7.5	
Storage	Open	m <sup>2</sup>	5,000	
	Others	m <sup>2</sup>	2,000	290,000
	Shed	m <sup>2</sup>	1,000	
Earth Works	Dredging	m <sup>3</sup>		
	Reclamation	m <sup>3</sup>		
	Slope Protection	m <sup>2</sup>	3,000	229,500
II. Equipment				440,000
Mobile Crane	25t	units	2	
Forklift	5t	units	2	
III. Management				416,000
Office		m <sup>2</sup>	300	
Gate		LS	1	
Utilities		LS	1	
IV. Related Facilities				500,000
Access Road		LS	1	
Pilotage		LS	1	
Electric & Water Supply		LS	1	
V. Total				3,825,500

Table B.6  
Small Port (-5 m Deep)

Facilities		Unit	Dimension	US\$
I. Infrastructure				1,025,000
Berth	Pile-Deck	m	80	480,000
		m <sup>2</sup>	480	
Access Way	Trestles	m	50	270,000
	Courseway	m	100	
Storage	Open	m <sup>2</sup>	2,000	275,000
	Shed	m <sup>2</sup>	500	
II. Equipment				0
III. Management				75,000
Office		LS	1	
Gate		LS	1	
Utilities		LS	1	
IV. Related Facilities				100,000
Access Road		LS	1	
Pilotage		LS	1	
Electric and Water Supply		LS	1	
V. Total				1,200,000

Table B.7  
Dry Bulk Wharf (12 m Deep)

Facilities		Unit	Dimension	US\$
I. Infrastructure				5,750,000
Berth	Pier	m	300	4,500,000
	Depth	m	12	
Access Way	Trestles	m	100	750,000
	Courseway	m <sup>2</sup>	300	
Earth Works	Dredging	m <sup>3</sup>	100,000	500,000
	Reclamation	m <sup>3</sup>		
	Slope Protection	m <sup>2</sup>		
II. Equipment				2,000,000
Loading/Unloading		Ls	1	
III. Management				100,000
Office		LS	1	
Gate		LS	1	
Utilities		LS	1	
IV. Related Facilities				1,000,000
Access Road		LS	1	
Pilotage		LS	1	
Electric and Water Supply		LS	1	
V. Total				8,850,000



Table B.8  
Liquid Bulk Wharf (-10 m Deep)

Facilities		Unit	Dimension	US\$
I. Infrastructure				3,390,000
Berth	Platform	m	50	
	Breast Dolphin	units	6	1,540,000
	Mooring Dolphin	units	2	
Access Way	Trestles	m	200	1,350,000
	Courseway	m	300	
Earth Works	Dredging	m <sup>3</sup>	100,000	500,000
	Reclamation	m <sup>3</sup>		
	Slope Protection	m <sup>2</sup>		
II. Equipment				0
III. Management				100,000
Office		LS	1	
Gate		LS	1	
Utilities		LS	1	
IV. Related Facilities				500,000
Access Road		LS	1	
Pilotage		LS	1	
Electric & Water Supply		LS	1	
V. Total				3,990,000

### Required Investment for the Development of Public Port

Based on the required quantity of facilities and estimated costs, the total investment for the development of public ports is calculated by using productivity. Estimated port handling productivity by port type is assumed in the following table:

Table B.9  
Standard Productivity by Port Type

Type	Berth Size (Length/Depth: m)	Planned Capacity for Standard Operation (TEU or Ton/Year)		Planned Capacity for Initial Operation (TEU or Ton/Year)
I	350/16	TEU	360,000	144,000
		Ton	4,320,000	1,728,000
II	280/12	TEU	240,000	96,000
		Ton	2,880,000	1,152,000
III	250/10	TEU	192,000	76,800
		Ton	2,304,000	921,600
IV	170/10	Ton	340,000	136,000
V	130/7.5	Ton	130,000	52,000
VI	80/5	Ton	80,000	32,000
VII	-/12	Ton	3,000,000	1,200,000
VIII	-/10	Ton	1,500,000	600,000

Notes: Planning base year is 2020. 1 TEU = 12 tons.