

## Chapter 7 River Channels

### 7.1 Overview of River Channels

#### (1) Sai Gon-Vung Tau River Channel

##### (a) General

Vessels calling ports of HCMC area shall pass through Vung Tau Cape, Ganh Rai Gulf, Nga Bay, Long Tau, Nha Be, and Sai Gon Rivers from the South China Sea. The length of this channel is 45 nautical miles from Buoy No.0 to Sai Gon port area. This river channel is not wide but the depth is rather deep and stable against siltation. Therefore this channel has been used in its natural state for a long time. In recent years the following issues have arisen; the transport demand in this channel has been increasing, the size of vessels has become larger, the navigational speed has increased and a need for reducing the waiting time of vessels has emerged. As a result, the channel should be improved and upgraded to meet the demand timely.

Aids to navigation, such as lighthouse, light beacon and light buoy, have been arranged along the channel since 1920. But the system was very simple. Since the south part of Vietnam has been liberated, the Government and Vietnam Maritime Sector have made many efforts to improve and assemble aids to navigation. But night navigation was not permitted. Maintenance works of the whole channel were implemented in 1992. Since that time the depth of the channel has been increased from -8.0m to -8.5m (above the Chart Datum Line).

In recent years, projects to increase vessel traffic capacity of the Sai Gon-Vung Tau channel have been implemented and the whole channel had more accurate dimensions. As a result, the depth of the whole route has become up to -8.5m and the width is now 150 m at minimum. Navigational Aid system has been installed along the fairways adequately for the vessels of 20,000 – 25,000 DWT in both directions.

However, the existing channel is still narrow and quite long (45 nautical miles = 83.3 km) with a lot of curves and their radius is small ( $R=450-750\text{m}$ ). And the air clearance is 55m above HWL in the Long Tau river and 45m in the Sai Gon River.

##### (b) Volume of Cargo and Fleets

According to statistics from over the past 40 years, the cargo throughput and the number of vessels through ports of HCMC have increased year by year.

Phase 1954-1974: 1956 is the year of the lowest cargo throughput (1,903,000 tons/year). In that year, the number of vessels was 1,161 units / year.

Phase 1975-1995: In the first year after the liberation, cargo volume fell sharply but after that it increased gradually from the level of 1.5 million tons to 2.5 million tons (1987). In recent years, particularly since 1988, with the economic development of the country, the regional economy has developed strongly, and the cargo volume and the number of vessels entering ports of HCMC have

increased.

Table 7.1. Cargo Throughput Volume and Number of Vessels at Ports in HCMC  
(Vessel of more than 1,000 DWT)

Year	Cargo volume ( x 1,000 tons /year )				Number of Vessels	
	Total	Out of which			Total (Unit/year)	Month (Unit/month)
		Container	General	Petroleum		
1988	4,791	110	3,250	1,450	2,436	203
1990	6,875	420	4,700	1,750	3,682	307
1992	8,640	1,150	5,300	2,200	4,512	376
1993	11,900	2,100	7,100	2,700	5,710	476
1994	14,700	3,450	7,750	3,500	6,250	530
1995	16,700	5,250	7,350	4,100	6,840	570
1996	18,750	7,350	6,900	4,500	7,220	602
1998	22,558	5,868	10,772	5,918	6,908	576
2000	32,020	8,701	16,898	6,421	8,156	680

Source: VINAMARINE

Note: Transit cargo in 1998 and 2000 was included in the above "General".

#### (c) Channel Sections

The width of the channel is insufficient, particularly in the section belonging to Sai Gon River (350-450m), and in the section of Long Tau River (350-650m from Da Han to Dan Xay river mouth). The channel width of the whole route is 150m at minimum.

In the Sai Gon River, there are 4 turning basins between Mui Den Do and Tan Cang. These turning basins have small turning radius (Radius 185m to 220m), necessitating the use of tugboats.

#### (2) Soai Rap River Channel

Before 1862, the Soai Rap River was used as the transport channel from South China Sea to Ports in HCMC. The channel has a wide riverbed and has a small curve radius, particularly in the section of Nha Be Cape (R=690m). But a lot of shoals exist in the river mouth, the riverbed is shallow, minimum depth at the river mouth is approximately -5m above CDL according to the survey in 1994 and it is only available for the navigation of small vessels. After Ports in HCMC were developed, the number of vessels calling in and out of the ports increased and then deeper channel was required. As a result, Long Tau Channel became the main channel for the route from South China Sea to Sai Gon Ports.

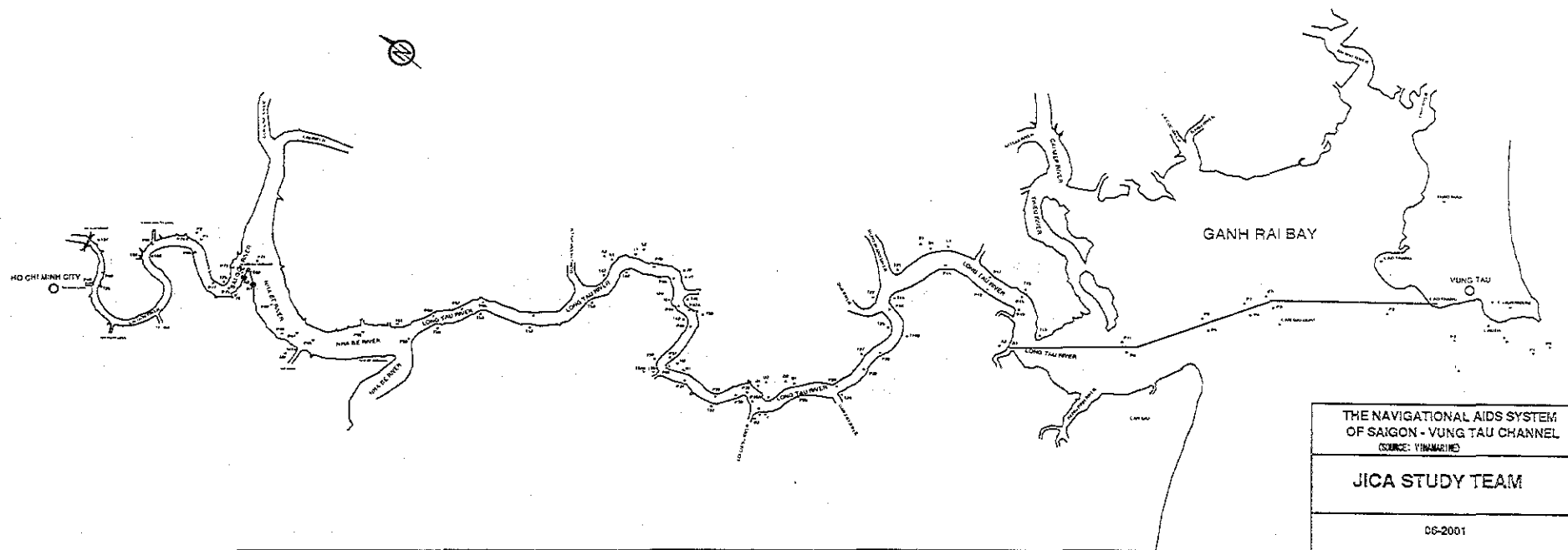
In order to receive vessels of 10,000-20,000 DWT through Long Tau-Soai Rap Channel, the high-tension cable at the curve from Long Tau River to Soai Rap River needs to be lifted. At present the cable across the river has an air clearance of 33m, which allows only vessels of 3,000-5,000 DWT. The air clearance should be improved up to 55m in order to receive the same vessel size as in Long Tau Channel.

### (3) Thi Vai River Channel

There are three (3) shallow sections on the route to access Ports in the Thi Vai River through Ganh Rai Bay. The shallowest one which has a minimum depth of -9.1m is situated around 10°27' N, 107°00 E in the entrance of the Thi Vai River. And others are the section 5km from the mouth of Ganh Rai Bay where the minimum depth is -10.6m and the sandbar at the mouth of Cai Mep River with a length of 4km and a minimum depth of -10.6m.

Vessels up to 15,000DWT can navigate the channel in its natural depth. Vessels of 30,000DWT can enter and leave the port by taking advantage of the tide. Pursuant to maritime announcement No.11/94/KT dated February 24<sup>th</sup>, 1994, VINAMARINE temporarily announced that the navigation channel in the Thi Vai River allows ships of 20,000DWT to access to Phu My Port and ships of 5,000DWT to Go Dau Port. And vessels of 20,000DWT are allowed to enter until Phuoc An Port, 3km upstream Phu My Port (Ba Ria Serece Port) by the Decision No.387 /QD-PCHH on September 3<sup>rd</sup>, 1996.

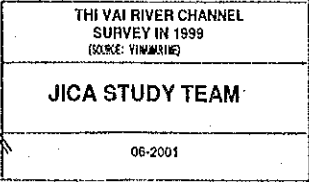
FIGURE 7.1.1 THE NAVIGATIONAL AIDS SYSTEM  
OF SAIGON - VUNGTAU CHANNEL



**FIGURE 7.1.2 SOAI RAP RIVER CHANNEL**

SOAI RAP RIVER CHANNEL SURVEY IN 1994 (SOURCE: VINHARINE)	
<b>JICA STUDY TEAM</b>	
05-2001	

Figure 1. Schematic diagram of the experimental setup.



## 7.2 Channel Operations

There are four (4) river channels toward SFEA and Cambodian ports from Vung Tau Pilot station according to Vungtau Pilot Enterprise.

1. To Ports in HCMC through Long Tau River
2. To Don Nai, Phu My and Cai Mep Ports through Thi Vai River, and Vung Tau Ports
3. To Hiep Phuoc Ports through Soai Rap River
4. To Cambodian Ports through Tieu Entrance

Among these entrances, Soai Rap Entrance cannot be currently used due to no bathymetric survey for long time and no maintenance of aids to navigation.

Therefore, vessels bound for Hiep Phuoc Ports have to pass through the confluence of the Nha Be and Long Tau River at present.

According to Pilot Corporation of the First Zone and Vungtau Pilot Enterprise, present available Depth and Air Draft (Clearance) for each channel are as follows;

1. Channel between HCMC Ports and Vung Tau: Minimum depth is -8.5m above the Chart Datum Line (CDL), and Air Draft 55m (+safety clearance 12m) above High Water Level through Long Tau River and 45m (+Safety clearance 4.5m) above through Sai Gon River. Otherwise minimum channel width is 150m.
2. Channel through Thi Vai River: Minimum depth is -9.1m and Air Draft 55m.
3. \* Channel through the Entrance of Soai Rap: Minimum depth is approximately -5.0m.  
\* Channel through the confluence of Long Tau and Soai Rap River to Hiep Phuoc : Minimum depth is -8.0m and Air Draft 33m (+Safety clearance 2m).
4. Channel through the Entrance of Tieu: Minimum depth is -2.2m and Air Draft 32m.

The above 1., 2. and 3. are studied in this section.

### 7.2.1 Regulations concerning Channel Operations

The waters including ports in SFEA are under the jurisdiction of three (3) port authorities; Sai Gon, Dong Nai and Ba Ria Vung Tau Port Authorities.

There are two (2) pilot organizations in the waters. One (1) is Pilot Corporation of the First Zone and another is Vungtau Pilot Enterprise. Each organization is in charge of each water area assigned by Port Authority concerned. The following studies are executed according to the interview of competent authorities concerned, and the regulations of Sai Gon Ports, Vung Tau Sea Ports and Dong Nai Sea Ports.

#### (1) Compulsory Pilotage

All foreign ships and Vietnamese sea-going ships, that their tonnage is more than 2,000 GRT (revised from 1,000 GRT), are obliged to have guidance of Vietnamese pilot when coming in or out, or moving on port waters or other forced pilotage area in SFEA, unless the ship has special permission from the Port Authority concerned.

( Regulation on Management of Maritime Shipping Activities on ports and maritime shipping areas

of Vietnam with Decree No. 13/CP of Government dated Feb. 25, 1994)

(2) Navigation restrictions (1) (Ports and waters in between Vung Tau and HCMC)

1) The scale of sea port waters of HCMC is limited as follows;

It is bounded on the Vung Tau port waters by Longitude  $106^{\circ} - 57'$  E (Westside is controlled by Sai Gon Port Authority and Eastside by Vung Tau Port Authority).

There are seven (7) channels in the waters.

- ① Ganh Rai Gulf Channel,
- ② Nga Bay River Channel,
- ③ Long Tau River Channel,
- ④ Nha Be River Channel,
- ⑤ Rap River Channel,
- ⑥ Sai Gon River Channel and
- ⑦ Dong Nai River Channel

2) Only ships or boats with LOA and draft less than 230m and 9.5m respectively are permitted to come in and out the HCMC ports, though depending on natural conditions, such as tide, wind and visibility, and size of berth, except the permission of Port Authority in specific cases. Nowadays such specific cases are seen for large ships such as passenger boats in this area.

3) Ships and boats with LOA less than 160m are permitted to navigate 24 hours a day, but these with LOA more than 160m are not permitted to navigate at nighttime (from sunset to sunrise). These larger ships and boats must wait at anchorage in Vung Tau or Ports until daytime.

4) Ships and boats navigating along channel have to maintain a safe speed.

- ① From Den Do Cape (the Entrance of Sai Gon River) to downstream Ben Nghe Port, speed must be less than 6 knots.
- ② From Ben Nghe Port to turning area upstream of Tan Cang, speed must be less than 5 knots.

5) Ships and boats are not allowed to pass or come in turning area, when on this water other ships are turning around, and if this action affects the turning around process of that ship. The following areas are determined as turning area for ships and boats.

- ① Ken Te confluence turning area is reserved for ships coming in and out port of Tan Thuan, Ben Nghe, VICT and on the downstream of VICT.
- ② My Canh turning area - for Sai Gon Port and the ports downstream of Sai Gon Port (Turning radius: 220m)
- ③ Downstream Tan Cang turning area - for ports of Ba Son and Tan Cang (Turning radius: 185m)
- ④ Upstream Tan Cang turning area - for Tan Cang Port (Turning radius: 200m)

6) Foreign and Vietnamese ships or boats with tonnage more than 150 GRT navigating from Vung Tau to Sai Gon and in the contrary direction must run along the surveyed



access channel, including a part of Ganh Rai Bay, rivers to Nga Bay, Long Tau, Nha Be, and Sai Gon (up to Sai Gon Bridge) and Dong Nai River (Up to Dong Nai Bridge). Ships or boats are strictly forbidden from short voyage or deviating from access channel mentioned the above.

- 7) Ships and boats navigating along access channel, if practical conditions are satisfied and safety conditions are ensured, have to keep to the right edge of the channel as close as possible. On the bends, ships and boats are not permitted to shortly voyage crossing the channel. On the narrow channel sections and sudden bends, ships and boats are not allowed to pass each other.
- 8) Even navigating separately or commonly in fleet in the channel, ships and boats (excluding small boats, tugs or lighters) on same way, are forbidden to go closely or parallel with each other, but may go in single line and keep a safe distance to one another.
- 9) Ships and boats with their LOA more than 70m are obliged to use tug boats for supporting of turning, shifting, berthing or leaving wharf, buoy or other vessel.

In normal conditions, the towage is regulated as below:

- One (1) tugboat with capacity from 500 HP upward for vessels from 1,000 to under 3,000 DWT
- Two (2) tugboats with 500HP upward – for vessels from 3,000 DWT to under 5,000 DWT
- Two (2) tugboats with 500HP upward, of which at least one (1) with 1,000HP upward – for vessels from 5,000 to under 10,000 DWT
- Three (3) tugboats with 500 HP upward, of which at least two (2) ones with 1,000HP upward – for vessels of over 15,000 DWT

It is permitted to substitute higher capacity tugboat by lower ones but total capacity must not be less than the regulated capacity of tugboat power.

### (3) Navigation restrictions (2) (Thi Vai River /Vung Tau waters and Ports)

With the exception of local regulations, Thi Vai River and Vung Tau waters, and their ports are subject to the same regulations as Saigon Sea Ports.

#### 1) Maximum size of vessel

Maximum size of vessel is not mentioned in the Regulation of Vung Tau Sea Ports.

It is different for each port. Due to deeper depth of Thi Vai River channel than Sai Gon / Vung Tau river channel, Panamax type of vessel (60,000 DWT, Draft 12m) can be accommodated at Phu My Port. In addition, records indicate that a passenger boat of LOA 245.1m and 70,285 GRT called this port in October, 2000 with the permission of Port Authority.

- 2) Ships and boats can navigate for 24 hours up to Phu My Ports, but only during the day time for Go Dau Ports because no enough light is available in these ports according to Vungtau Pilot Enterprise.
- 3) The towage is regulated as follows:
  - Ships and boats with their LOA longer than 70m, when coming in and out of port or

turning on narrow channels, are obliged to use supporting tugboat with minimum capacity of 600 HP.

- Except service tugboats, all other ships coming in and out of platforms or crude oil containing stations, or for purposes of construction, explorations, study, exploitation of wealth of sea off shore are forced to use supporting tugboat with minimum capacity of 4,000 HP (multi-propeller).
  - When arriving and leaving the crude oil containing stations, oil carriers must be supported by at least two (2) multi-propeller tugboats (minimum capacity of 4,000 HP). In particular, the tugboat in charge of keeping the bow cable of oil import carrier, must be at least 8,000 HP one.
- 4) Large ship with LOA greater than 200m or 30,000 GRT, or towing boat with more than 200m must hang a regularly flashing light with 180-200 times per minute at night and two black 600mm x 200mm cylinder shaped signals in daytime, during the course of navigating on waters of rivers, Ganh Rai Bay and Buoy 0 area of Vung Tau.
- Large ship and towing boat with more than 200m must get permission when they come in the waters and conform all guidelines by the Director of Vung Tau Port Authority.
- 5) Maximum draft through Thi Vai River basically calculated as follows:  

$$\text{Maximum Draft} = (9.1\text{m} + \text{height of tide}) - (9.1\text{m} + \text{height of tide}) \times 0.1$$
(9.1m in depth above CDL is used for Thi Vai River Channel)
- 6) Pilots in SFEA waters are referring to the following tidal information for their operations.

Table 7.2.1 Tidal Information

Area	Location		Heights in meters above datum			
	Latitude (North)	Longitude (East)	High Water		Low Water	
			MHHW	MLHW	MHLW	MLLW
Vung Tau	10°-20'	107°-04'	3.5	3.3	2.2	0.9
Can Gio	10°-25'	106°-59'	3.8	3.3	2.2	0.9
Les Quatre Bras	10°-32'	106°-55'	3.8	3.3	2.2	0.8
Banc De Corail	10°-37'	106°-52'	3.9	3.3	2.2	1.4
Mui Nha Be	10°-40'	106°-46'	3.8	3.3	2.2	1.2
Saigon	10°-46'	106°-41'	3.3	3.2	1.7	0.7

Source: Vungtau Pilot Enterprise

#### 7) Access Channels (Vung Tau /Ganh Rai Bay)

- ① Vung Tau Access Channel (From Buoy No.0 to No.5 of Vung Tau)
  - Length: 11.50km
  - Width: 200m
  - Minimum Depth: -12.0m above CDL
- ② Sai Gon Access Channel (From Buoy No.5 to Bai Yen)

Length: 13.50km  
 Width: 200m  
 Minimum Depth: -8.50m CDL

③ Thi Vai Access Channel

Width: 200m  
 Minimum Depth: -9.10m (Between Buoy No.1 and No.3 of Thi Vai Fairway)  
 - The length from Channel buoy to Phouc Thai Port : 42.00Km  
 - Section from Channel Buoy to Cai Mep :  
   Width 150m and minimum depth -10.5m  
 - Section from Cai Mep to Phu Mi :  
   Width 150m and minimum depth -9.5m  
 - Section from Phu Mi to Go Dau Port Group :  
   Width 80m and minimum depth -7.0m  
 - Section from Go Dau Group to Phuc Thai Port :  
   Width 80m and minimum depth -5.6m

④ Dinh River Access Channel

- Section from Buoy No.5 of Vung Tau to Vietsovpetro Port :  
   Width 50m and minimum depth -7.0m  
 - Cu Lao Channel -5.7m and Cat Lo Channel -3.9m

(The above figures are from the Regulation of Vung Tau Sea Ports with Decision No.4/PC of the Director of Vung Tau Port Authority, 1996 and the information of Vungtau Pilot Enterprise in July, 2001.)

## 7.2.2 Pilot Organization

### (1) Pilot Corporations

Pilot Corporations were established in 1993 according to the Decision No. 1524/QD/ TCCB-LD signed by MOT. Each corporation is a state-owned enterprise under the control of VINAMARINE -MOT and has close relations with the Port Authority concerned.

#### 1) Pilot Corporations in Vietnamese Waters

①First Zone: Ho Chi Minh City, ②Second Zone: Hai Phone, ③Third Zone: Quang Ninh Province, ④Forth Zone: Central Parts of Vietnam (Da Nang, Qui Nhon, Nha Trang), ⑤Fifth Zone: Cantho and Kien Giang

#### 2) Pilot Qualification

Pilot Organization has a ranking system by the size of vessel to be handled.

- ① 1<sup>ST</sup> Class Pilot for GRT less than 4,000 T
- ② 2<sup>nd</sup> Class Pilot for GRT less than 10,000 T
- ③ 1<sup>st</sup> Class Pilot for GRT less than 20,000 T
- ④ Extra Class Pilot for any vessel

Candidates for pilot must have at least one-year experience as captain or three-year experience as navigation officer of overseas vessel after graduating from Maritime University. VINAMARINE qualifies pilots for the class of pilot over examination.

## **(2) Pilot Corporation of the First Zone**

The First Zone is the biggest one in the whole country and covers the area between Vung Tau Pilot Station and HCMC, and Crude Oil stations offshore Vung Tau.

- 1) The corporation has 70 pilots consisting of 15 Extra Class, 10 1<sup>st</sup> Class, 15 2<sup>nd</sup> Class and 30 3<sup>rd</sup> Class (as of June, 2001).

Forty five (45) pilots have been added in the past 3 years. About 150 persons are engaged in this corporation including pilots, administration staff and pilot boat crew.

- 2) Pilot station offices are located in Sai Gon Port and Vung Tau City.
- 3) About 70 tugboats with capacity of 500 to 2,500 HP are available in this area.

There are four (4) tugboat service companies that are subsidiary companies of big ports such as Sai Gon Port and Tang Can.

## **(3) Vungtau Pilot Enterprise**

This enterprise belongs to Vung Tau Shipping and Service Co. (VUNG TAU SHIP), and is under the control of MOT as well as having close relations with Ba Ria Vung Tau Port and Dong Nai Port Authorities under VINAMARINE.

- 1) The enterprise has 22 pilots including 5 first and extra classes. They are divided into two parties and each attends pilotage work for 24 hours in a week.
- 2) They also have a service to guide small ships up to the Cambodian border through Mekong Delta. According to the enterprise, maximum draft of the vessel is determined to be 4.2m, but it is recorded that ship with draft of 5.0m was guided in rainy season. 25 vessels to and from Cambodia per month are currently attended by the enterprise.
- 3) Sixteen tugboats with capacity of 600 to 1,600 HP are available in the area covered by the enterprise. There are four (4) tugboat service companies (Minh Hoang, Binh An, Polaris and Sunny Company) and the boats lie in the most necessary ports.

### **7.2.3 Vietnam Maritime Safety Agency (VMS)**

VMS is under the jurisdiction of VINAMARINE and functions to support maritime safety in Vietnamese Waters.

#### **(1) Functions**

- 1) Maintenance, installation and operation of aids to navigation
- 2) Design and survey of aids to navigation in cooperation with other organizations (MOT, VINAMARINE, Pilot Corporation and so on)
- 3) Search and rescue in the event of maritime accidents
- 4) Environmental Protection in Vietnamese waters

#### **(2) Organization**

- 1) Head Office: Hai Phong
- 2) Branch Office: HCMC that covers the South Area from Qui Nhon

### (3) Enterprises under VMS

There are 12 enterprises in the whole country that are operated under the control of VMS.

- 1) Five (5) Maritime Safety Enterprises
- 2) Two (2) Mechanical Enterprises (Hai Phong, HCMC – Qui Nhon, Vung Tau)
- 3) Two (2) Survey Enterprises (Hai Phong, HCMC)
- 4) One (1) Construction Enterprise (Hai Phong)
- 5) One (1) Equipment Enterprise ( Hai Phong)
- 6) One (1) Service Enterprise (Hai Phong)

### (4) Depth Maintenance in the main channels in SFEA

- 1) A sounding depth survey is carried out every year in the area between Vung Tau and Sai Gon River by Survey Enterprise at the request of VMS.  
In the Thi Vai River Channel the survey is carried out every three years because the depth of the area is stable, according to Vungtau Pilot Enterprise.
- 2) The Survey Enterprise implements the survey by means of GPS. It may take less than half a month from commencement of bathymetric survey to completion to prepare sounding maps to date.
- 3) When a shallow spot is found as a result of the survey, State Dredging Company dredges the spot up to the required depth by the order of VMS/VINAMARINE. After the dredging work is completed, VMS checks and approves it.

### (5) Notices to Mariners

VMS broadcasts ‘ Notices to Mariners’ in English by means of VHF Channel 16 and / or wireless to give to all mariners navigation warning relating to abnormal condition such as about unlit buoy, shallow spot, etc.

### (6) Maritime Casualties (Accidents and Incidents)

According to the reports made by the seaport authorities, maritime accidents and incidents occurring in Vietnamese Waters in the year 2000 were as follows:

- 1) There were 49 collisions, 16 fender-benders, 12 aground cases and one (1) fire case in Vietnamese waters.
- 2) Compared with 1999, there was an increase of 3 cases (120 in 2000 and 117 in 1999), but the proportion for number of accidents and incidents against number of ship-calls decreased (117/30,543 or 3.83/1000 ships in 1999, and 120/38,139 or 3.15/1000 ships).
- 3) There were 14 serious accidents in the whole country of which eight (8) cases were caused in SEFA waters. Followed are the accidents in the waters in 2000.
  - In February, collided with a tugboat in Saigon channel, which caused the tugboat to sink, two (2) persons failed to escape
  - In April, in Vung Tau Sea, a gas vessel collided with a fishing boat, where the latter was damaged
  - In May, a vessel on her voyage from Sai Gon to Vung Tau suddenly got out of control due to an engine failure and ran into number of lighters and Buoy B31 in

#### Saigon Port

- In June, a container vessel from Tang Can berth C2 to Singapore came into a train of lighters and tugboats being tied at Buoy 31 and 33. Consequently, one (1) seafarer of tugboats was killed, and a tugboat and a wooden canoe sank
- In July, in Vung Tau Sea, a fishing boat was dumped by a strange vessel
- In August, in Vung Tau Sea, a ship collided with a fishing boat, causing the boat to sink
- In September, in Vung Tau Sea, a ship collided with a fishing boat
- In October, a ship on the way to Cat Lo Port bumped into nine (9) berths of Vietsovpetro Port and a passenger ship.

#### (7) Counter-measures against Marine Casualties

VINAMARINE has worked the following key tasks to reduce maritime accidents and incidents.

- To efficiently realize the Prime Minister's Directive No.33/1999/CT-TTg dated December 27,1999 strengthening State management over traffic safety
- To make use of achievements in the Month of Traffic Safety (September, 2000), and to maintain regular actions to ensure traffic safety so as to minimize the number of maritime accidents and incidents
- To strengthen inspection and patrol in order to improve traffic safety of the ships in channels
- To check the readiness of tools and facilities in the event of leaking oil at oil Port
- To timely make public notices of maritime safety, to receive and send SOS signals, maritime safety regulations as provided by the law and to ensure most efficient maritime search and rescue
- To strengthen inspection of maritime safety of the fender system as well as other necessary facilities for ship anchorage and safe handling
- To effectively coordinate with local functional bodies in order to ensure maritime safety on sea channels with obstructive fishing facilities
- To timely investigate and find out causes of maritime accidents and incidents in order to avoid similar cases
- To strictly handle violators of maritime safety regulations and to prevent environmental pollution
- To carry out other active measures to monitor implementation regulations stated in 'Regulations for management of maritime activities in seaports and maritime areas of Vietnam', which was attached to the Government Decree 13/CP dated February 25, 1994, and other relevant legal regulations in order to enhance maritime safety, and to minimize the risks of environmental pollution due to maritime activities

#### (8) Review of the Counter-measures

The above key tasks would be effective in reducing maritime accidents and incidents, provided they could be strictly implemented, but there are presently some bottlenecks to achieve them.

Some of them are as follows:

- 1) The port regulations, which stipulate local maritime safety, are stated only in Vietnamese language. Foreign captains of vessels to call port concerned cannot understand them. They

should be published in English.

- 2) Though Vietnamese maritime organization duly prepares and maintains aids to navigation and sounding charts to date for necessary ship traffic waters in Vietnam, these are not open to the public. Foreign captains of ship calling Vietnamese ports cannot get the information. Therefore the masters cannot help using foreign charts in which no detailed information is mentioned. This indispensable information for safe navigation must be open to the public.

#### 7.2.4 Report of Embarkation on Container Ship

The Study Team took a short voyage from Vung Tau Pilot Station to HCMC Port (VICT) by container ship. The following data are the voyage record embarked on a Container Ship in Liner Service.

##### (1) Record of Embarkation on Container Ship

- 1) Date and time: 0430-0840, May 2, 2001
- 2) Ship's particular:
  - (a) LOA: 151.20m, (b) LPP: 141.20m, (c) Breadth molded: 25.00m, (d) Depth molded: 13.60m, (e) Max. draft : 10.03m (summer), (f) GRT: 13,188T, (g) DWT: 18,196T (summer), (h) Displacement: 24,428 T, (i) Speed: 19knots, (j) Max. loadable number of containers: 1,228 TEUs
- 3) Ship actual draft during this voyage:  
Fore: 9.10m and After 9.8m
- 4) Navigation area:  
From Vung Tau Pilot boarding position (10°-22'N, 107°-03'E) to Vietnam International Container Terminal (VICT) : 42 miles (78km)
- 5) Weather condition:  
Fine, no shower or on prevailing wind, and river condition was calm.
- 6) Tidal condition:
  - (a) Vung Tau (10°-20'N, 107°-04'E) : L.W. 02:08 0.9m, H.W. 10:21 3.3m, L.W. 16:00 2.6m, H.W. 20:00 2.8m and Mean Sea Level 2.59m
  - (b) Sai Gon (10°-46'N, 106°-42'E) : L.W. 06:01 1.4m, H.W. 13:11 3.5m, L.W. 19:23 2.5m, H.W. 23:58 3.0m and Mean Sea Level 2.30m
  - (c) Stream current of Sai Gon River : 07:00 ↗ 14:30 ↘ 22:15

##### (2) Record of navigation

- 1) It took three (3) and half hours during pilot boarding and maneuvering the ship for the distance of 43 miles from Vung Tau to VICT.
- 2) On pilot boarding, he ordered ship's full speed until the confluence of Long Tau and Nha Be river, and in the Long Tau River, ship's speed recorded 15.7 knots with OG (Over the ground), though speed indicator on board showed 14.5 knots. Therefore average-river current was likely 1.2 knots towards up-stream at that time.
- 3) The ship took one tug boat (1,300HP) at 0.5mile short from the berth, and then turned round her head anti-clockwise just in front of the berth and made alongside to the berth on her

starboard side. It took 30 minutes from taking tugboat to completion of berthing.

- 4) During this three hours voyage, the ship has encountered one (1) relatively bigger ship to come down in the Long Tau River, as well as many small boats such as fishing boats, dredgers and lighters.

(3) Assessment of the voyage

- 1) Aids to navigation such as light buoys and light beacons were duly installed through the channel.
- 2) Pilot kept his high skill constant through the voyage and no anxiety for unsafe navigation was felt.
- 3) Vessel Traffic became heavy and navigable channel narrow on the ship coming in the confluence of Nha Be and Long Tau River, due to the increased number of anchored / moored vessels, pusher barges and small boats. After the ship entered in Sai Gon River, the traffic density became very high. A high degree of skill in handling a vessel is indispensable to avoid accidents.
- 4) The most unsafe situation while ship navigating the channel seems to be when a heavy tropical squall is encountered, because aids to navigation and obstacles could not be identified by radar. Ship passing the channel might anchor in case of emergency at that time.
- 5) Ships passing the channel could not come through fair way in the channel when other large ships would be turning round for berthing or leaving, especially in the Sai Gon River channel. In the future when number of calling ships to HCMC ports increases, these occasions will increase unless vessel traffic control system is established.
- 6) Foreign vessels usually use British Admiralty Charts when calling the ports in SFEA, because Vietnamese charts showing aids to navigation and channel depth to date in detail are not available. The charts are not opened to the public, though Vietnamese officials concerned possess them.



## Chapter 8 Port Administration, Management and Operation

### 8.1 Port Administration

#### 8.1.1 MOT and VINAMARINE

The overall administrative responsibility of the transport sector is shared between the Ministry of Transport (MOT) and other public organization including the Government Office, other ministries and the provinces/cities. The Civil Aviation Administration of Vietnam (CAAV), having the function of state management over the civil aviation in the whole country, is an agency attached to the Government Office. The Ministry of Planning and Investment (MPI), which is the body in charge of state management of foreign investment, has the role of supervising the projects related to the transport sector.

MOT has administrative power and state management responsibility over land, roads, railways, river, and maritime transport in accordance with the Prime Minister's Decree. The maritime administration framework is also set up centering on MOT as shown in Figure 8.1.1.

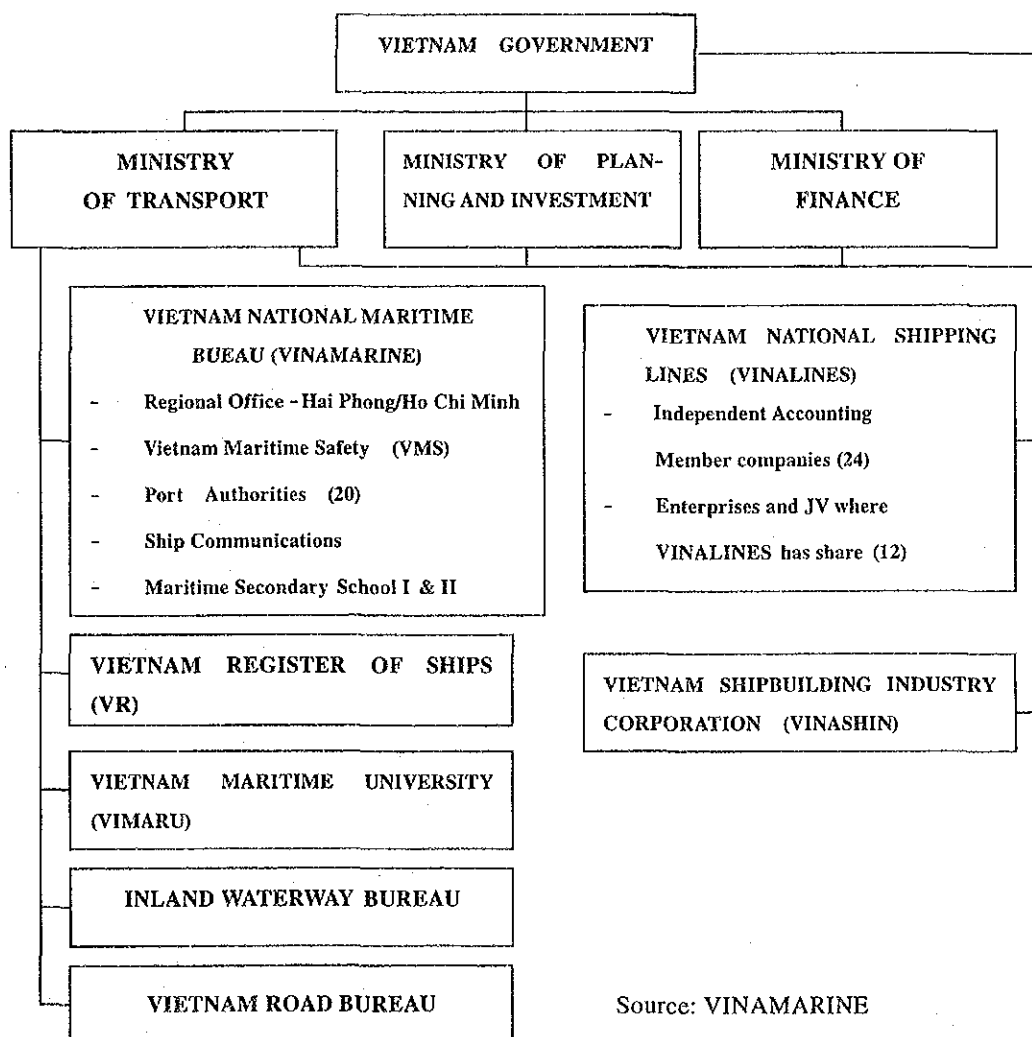


Figure 8.1.1 Maritime Administration Framework

Main Functions of the MOT are: a) to elaborate general planning and master plan on transport development throughout the country, b) to draft legislation (laws and ordinances) and submit them for promulgation by the Government or by the ministry itself, c) to issue, according to the government stipulations, national technical standards for construction, transport means, equipment and spare parts, d) to examine and inspect the implementation of laws, policies and regulations. The MOT has 8 general staff departments and, 6 research and training departments, 6 project management units, performing such tasks as infrastructure management (see Figure 8.1.2).

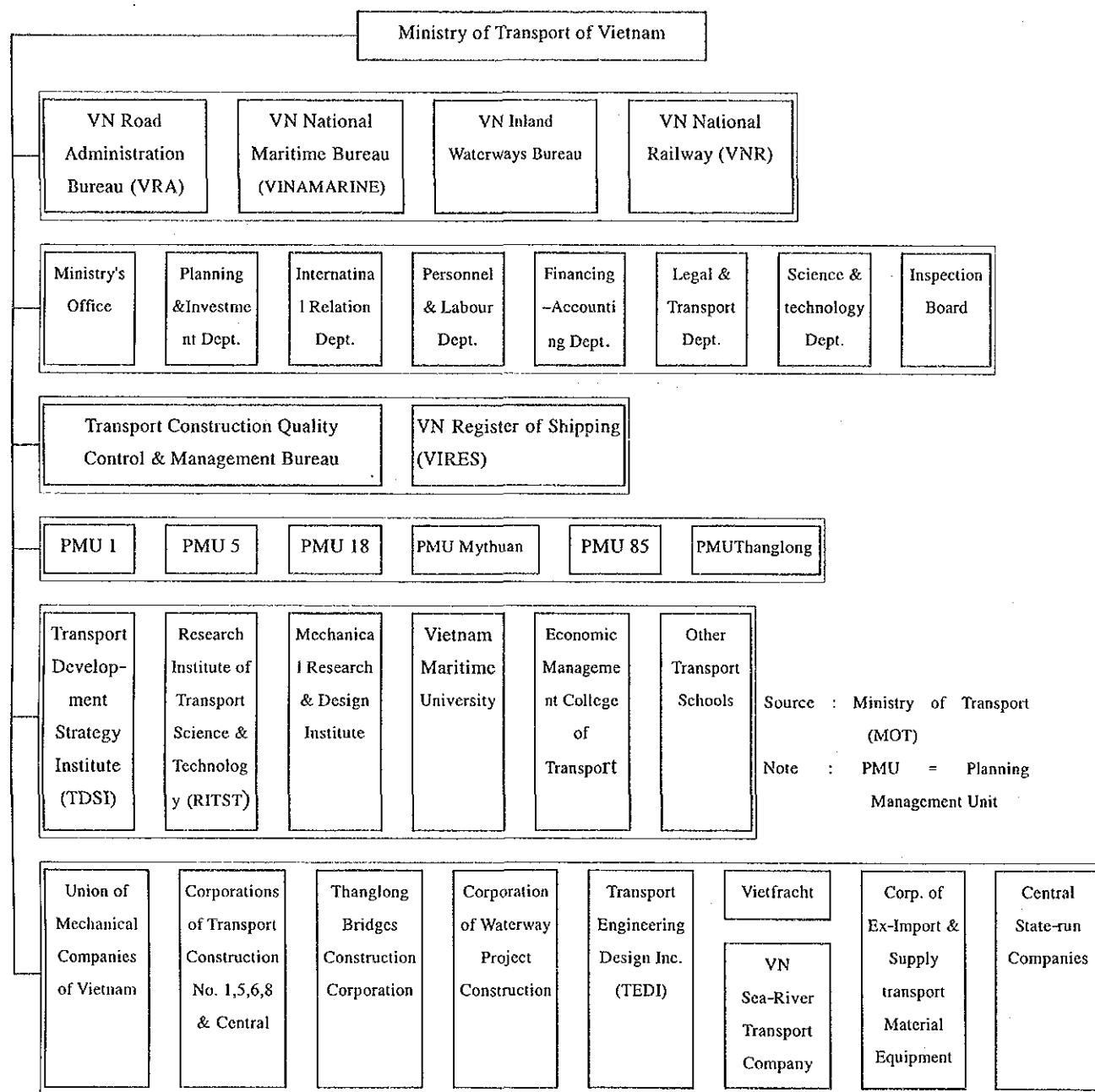


Figure 8.1.2 Organization Chart of Ministry of Transport

Further, the substantial administration and management functions for sea ports (hereinafter referred to as “ports”) are under the mandate of the Vietnam National Maritime Bureau (VINAMARINE), which is one of the specialized management departments under the MOT. VINAMARINE was established under Decree No. 239/HDBT dated on 29 June 1992. River ports and inland waterway transport are mainly administrated and managed by the Vietnam Inland Waterway Agency (VIWA).

VINAMARINE has following duties and powers:

- to work out strategies, programs, five-year and long-term plans for development of the shipping industry,
- to make out draft laws, regulations, policies and rules of management, procedures and legal norms on maritime activities,
- to join in domestic and foreign investment projects of maritime infrastructure development acting as investor/sponsor or as administrative agency,
- to carry out international co-operation in the shipping field,
- to promulgate the statutes of ports, declare their opening navigation and issue the entry permits to foreign ships,
- to issue the certificates of registry for sea-going vessels,
- to co-ordinate and co-operate with relevant organizations to effectively carry out the search, rescue and salvage operations for vessels,
- to investigate and settle the violations regarding shipping activities, and others.

The organization of VINAMARINE consists of its headquarters, 3 branch offices (Hai Phong, Danang, HCMC), 20 Port Authorities and many organizations under its control as shown in Figure 8.1.3. It is noteworthy that VINAMARINE has the internal department of a Port Authority and it still directly manages the several major ports through the organizations under its own control.

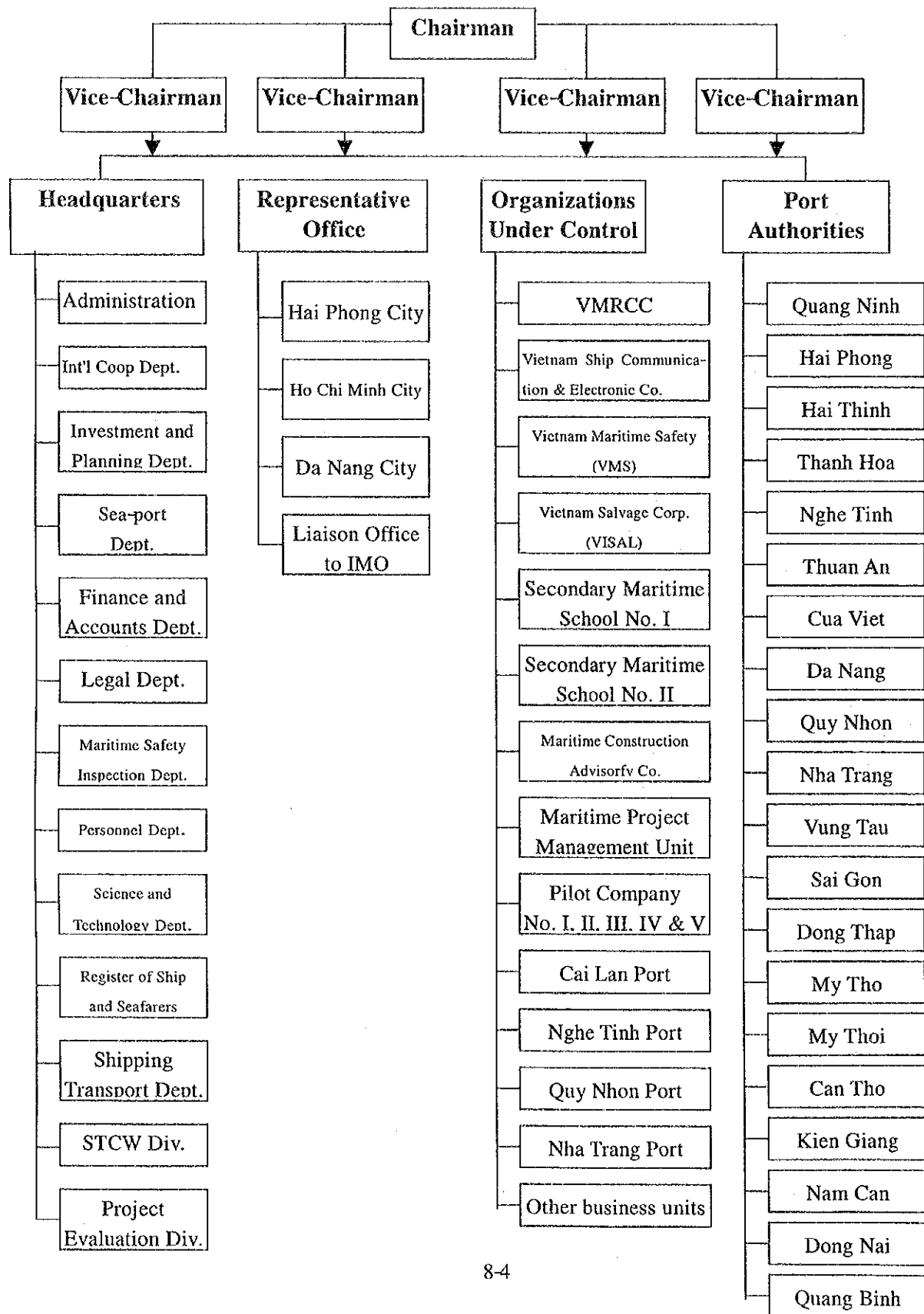
Port Authority is an important organization in the sense that it is directly related to port administration. According to the Maritime Code, Port Authority is defined as a special body responsible for state management on maritime shipping in the marine navigable zones and water area of ports. Main tasks and duties of Port Authority are as follows:

- to monitor enforcement of maritime rules and regulations,
- to grant permits for vessels to enter or to leave the port,
- to supervise maritime safety, environmental pollution and maritime sanitation,
- to organize search and rescue of vessels, and others,
- to exercise temporary detention or to carry out the warrant of arrest, and
- to impose administrative fines for acts violating rules and regulations.

The director of Port Authority has a role as the Harbor Master. In addition, this organization has bank account function of its own, collects port dues and fees regulated by the law and contributes these receipts to the state budget.

The marine navigable zones and water area of ports within the study area are under the jurisdiction of three Port Authorities: Sai Gon, Dong Nai and Vung Tau.

**Figure 8.1.3 VIETNAM NATIONAL MARITIME BUREAU**  
 11A - Lang Ha Street, Ba Dinh District, Ha noi City, Vietnam  
 Tel : 04 8561372 Fax : 04 8560729  
 E-mail: vinamarine@fmail.vnn.vn



On the other hand, The Vietnam National Shipping Lines (VINALINES) also participates in port administration in the sense that some group companies of VINALINES are playing the role of port management bodies at major ports of Vietnam. VINALINES is a State Corporation under the Prime Minister's Office, established on 1 January 1996 in accordance with the Prime Minister's Decision.

#### **8.1.2 Legal Framework of Port Administration**

In Vietnam, basic national regulations on the development, utilization and management of ports such as the "Port and Harbor Law" in Japan do not exist. However, specific laws and regulations in each matter are individually promulgated instead. The representative laws concerning the port management and port development are as follows:

- Decree No.13/CP dated 25 February 1994 which prescribes management of maritime activities at Vietnamese ports and maritime zones,
- Decree No.24/2001/ND-CP dated 30 May 2001 that some articles of the Decree No.13/CP has been amended,
- Decree No.52/1999/ND-CP dated 8 July 1999 which covers investment and construction management for domestic investment projects,
- Law on Foreign Investment in Vietnam dated 12 November 1996.

##### **(1) Port Management**

The Decree No.13/CP and No.24/2001/ND-CP regulates the opening of ports/channels and the activities of all types of vessels in ports or maritime zones in Vietnam in order to ensure maritime safety, hygiene and order, and to prevent environment pollution caused by vessels in these areas. These regulations consist of four chapters, namely, "general provisions", "opening and closure of ports and navigation channels for ocean-going vessels", "maritime activities" and "violation of regulation".

*Of these, some important provisions are summarized below:*

- + The Minister of Transport shall consider and decide the announcement on the opening and/or closure of ports and navigation channels on the basis of the proposal of VINAMARINE.
- + Ports must be invested and constructed in line with the approved Master Plan for the development of Vietnam sea port system.
- + Vietnamese and foreign organizations and individuals, permitted to invest in the construction of ports or to do business and exploit ports in Vietnam, may all open ports.
- + For cargo vessels and so on, within 48 hours before their estimated arrival at places to pick up and/or return pilots, vessel owners or their agents shall have to send the Director of the Port Authority, where vessels shall arrive at, a "Request for Permit of ship entrance".
- + Foreign vessels of all types, regardless of size, and Vietnamese vessels with gross tonnage of 2000 GT or above, must be led by Vietnamese pilots in the course of entrance and departure and so on.

In addition, the procedures for port opening and port entry/exit and the rules which have to be observed in maritime activity including port activity are minutely regulated.

Some of these contents are mentioned in detail later.

## (2) Port Development and Investment

As mentioned above, if a port investment plan is in compliance with Vietnamese regulations and is consistent with the national development strategies, an investor can obtain a permission license from the Prime Minister and the presidents of the provincial-level People's Committees.

According to the Decree No.52/1999/ND-CP, domestic investment projects are classified into three groups depending on the nature and investment scale. Management bodies, licensing procedure and preparatory works differ by each group. In the case of Group A, which includes large-scale port investment projects, the investors, in principle, have to make a pre-feasibility study, a feasibility study and others. The outline of the procedure for issuance of investment licenses is shown in Figure 8.1.4. As shown in this figure, MOT and VINAMARINE play an important part in the process of the approval for port investment. And, relevant ministries are manifold by each project.

Foreign investment is also classified into three groups. The Prime Minister has the role as a decision maker concerning Group A projects, which include those projects related to the construction and operation projects of ports.

MPI is the body in charge of overall state management of foreign investment and has to assist the Government in managing foreign investment activities. And, ministries including MOT, ministerial equivalent bodies and government bodies have to carry out the state management of foreign investment within their authority.

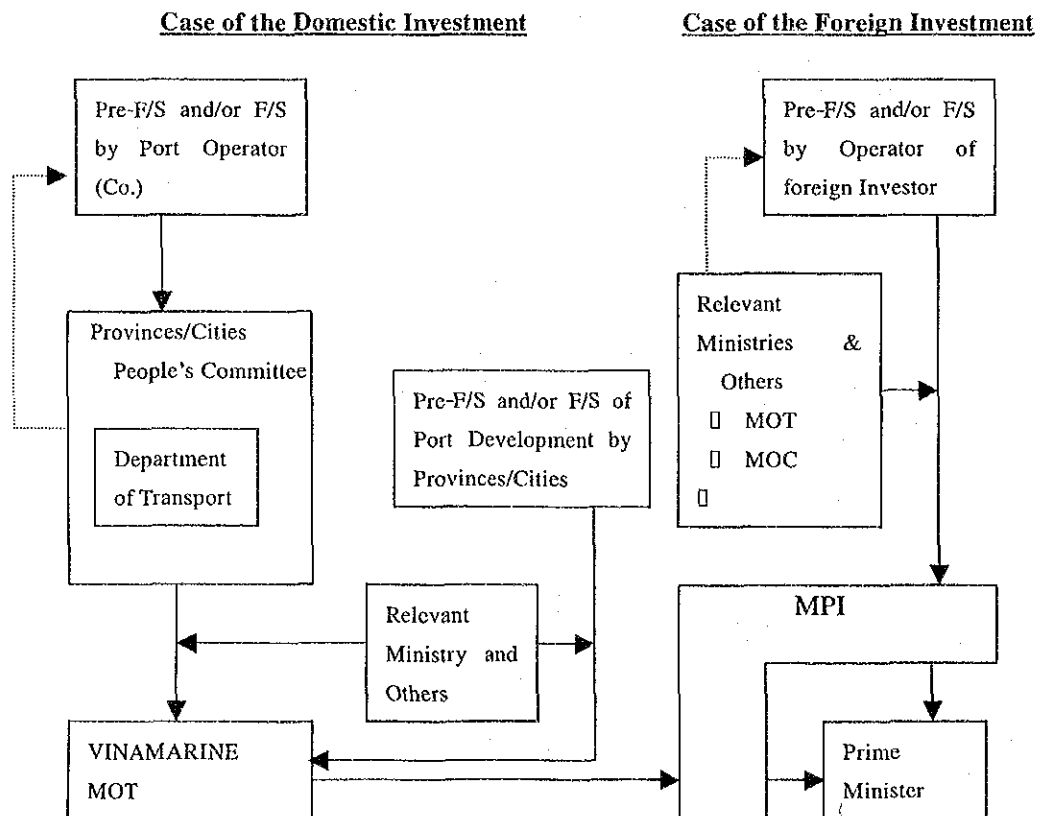


Figure 8.1.4 Outline of the Procedure for Issuance of Investment Licenses

## 8.2 Port Management and Operation

In Vietnam, various public organizations are concerned with the port management and supervision as listed below.

### a) VINAMARINE (MOT)

VINAMARINE manages four ports (Nghe Tinh, Qui Nhon and Nha Trang and Cai Lan) through public service State-owned enterprises (SOEs) under its own control. All of these ports are located at outside of the study area.

### b) VINALINES

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 shipping joint-venture, business corporations with foreign and domestic partners and carrying out other businesses and tasks assigned by the government.

Five ports including Hai Phong, Quang Ninh, Danang, Sai Gon, and Can Tho are managed by group companies (SOEs) of VINALINES.

### c) Other central government ministries

Other various central ministries manage or supervise many ports through SOEs organized and operated by themselves. Generally, almost all of these ports are specialized ports handling specific cargoes chiefly. However, some exceptions also exist. Tan Cang in HCMC is a big general port being supervised by the Ministry of Defense. Moreover, Phu My Port (Baria Serese Port), which is the first private port constructed through foreign direct investment in Vietnam, is supervised by the Ministry of Agriculture and Rural Development (MARD).

### d) Local governments (Provinces and Cities)

Local governments also manage many general and specialized ports through publicly owned corporations under the control of themselves. Ben Nghe Port is one of the representative ports in HCMC, which is managed or supervised by HCMC People's Committee.

### e) Other public sectors

Other public sectors such as "Petrovietnam" also manage some specialized ports. The Vietnam Oil and Gas Corporation called "Petrovietnam" is a SOE established by the Government. "Youth Volunteer Association", which is described in this Table, is an organization under HCMC Communist Youth Union.

In the study area, there are 46 ports controlled by the three Port Authority except buoy berths and non-berth oil export sub-ports. Of these, the number of ports supervised by VINAMARINE and VINALINES is the same of 3, and other central ministries and local government supervise 17 ports and 16 ports respectively (see Table 8.2.1).

Table 8.2.1 Managing and Supervising Organizations in the Study Area

No.	Name of Port	Name of Controlling Port Authority	Name of Port Operator	Name of Supervising Public Organization	Type of Managing and Supervising Organizations				
					MDT / VINA-MARINE	VINA-LINES	Other Central Ministry	Local Government	Other Public Sector
1	Tan Cang	Saigon P.A	Tan Cang Sai Gon Co.	MDD			○		
2	Tan Cang ( Cat Lai)	-	Tan Cang Sai Gon Co.	MDD			○		
3	Bason Shipyard	-	Bason Repair Shipyard Co.	MDD			○		
4	Sai Gon	-	Sai Gon Port	VINALINES		○			
5	Tan Thuan Dong	-	Sai Gon Port	VINALINES		○			
6	Ben Nghe	-	Ben Nghe Port	HCMC				○	
7	ELF Gas Saigon	-	Sai Gon Petroleum Gas J.V Co.	HCMC				○	
8	Vegetables	-	Vietnam Grocer Co.	MARD			○		
9	Lotus	-	Bong Sen J.V Co.	Ministry of Trade			○		
10	VITAICO	-	J.V VITAICO Co.	Youth Volunteer Association					○
11	Petec Cat Lai Oil Terminal	-	Petec Co.	Ministry of Trade			○		
12	SAIGON PETRO	-	Sai Gon Gas & Oil Co.	HCMC				○	
13	NAVIOIL	-	Vietnam Vegetable Oils, Oils-Essences Cosmetic Co.	MARD			○		
14	Nha Be Petroleum	-	Petro. Co. of Second Zone	MDI			○		
15	VICT	-	First Logistics Development (IV) Co.	Ministry of Trade			○		
16	Bien Dong	-	Bien Dong Fishery Co.	MDAP			○		
17	Hiep Huoc Power Plant	-	Hiep Huoc Electric Co.	HCMC				○	
18	Hiep Huoc Cement	-	Nghi Son Cement Co.	HCMC				○	
19	Sao Mai	-	Sao Mai Cement Co.	MDC			○		
20	Ship Marine	-	VN Shipbuild Industry Co.	MDT	○				
21	PETROCHIM	-	Gasoline Transportation Co.	Petrovietnam					○
22	Tan Thuan 2	-	Sai Gon Port	VINALINES		○			
23	Sai Gon Shipyard	-	Water Transport Co.	MDT	○				
24	Sai Gon South Shipyard	-	Water Transport Co.	MDT	○				
25	Dong Nai	Dong Nai P.A	Dong Nai Port	Dong Nai Province				○	
26	Go Dau A	-	Go Dau Port	Dong Nai Province				○	
27	Go Dau B1	-	Dong Nai Port	Dong Nai Province				○	
28	Go Dau B2	-	Dong Nai Port	Dong Nai Province				○	
29	An Phu Shipyard	-	An Phu Shipyard Co.	HCMC				○	
30	SCT GAS-VN	-	SCT GAS Vietnam	Dong Nai Province				○	
31	Phuoc Thai (Vedun)	-	Vedun Co.	MPI			○		
32	Long Thanh	-	Mien Nam Phosphate Co.	MARD			○		
33	GAS PVC	-	UNIQUE GAS Co.	MPI			○		
34	V. Gas Dock	-	Vietnam Gas Private Co.	Dong Nai Province				○	
35	PHU DONG	-	PHU DONG Co.(J.V)	Dong Nai Province				○	
36	VICO WOCHIMEX	-	VICO WOCHIMEX Co.	Dong Nai Province				○	



No.	Name of Port	Name of Controlling Port Authority	Name of Port Operator	Name of Supervising Public Organization	Type of Managing and Supervising Organizations				
					MOT / VINA-MARINE	VINA-LINES	Other Central Ministry	Local Government	Other Public Sector
37	CTHS T.Sa	Vung Tau P.A.	Truong Sa Fish Co.	MOD			○		
38	Cat Lo	-	VIECO Co.	Ba Ria-Vung Tau Prov.				○	
39	Dau K2	-	BR-VT Oil Co.	Petrovietnam					○
40	PTSC (Ha Luu, Thuong Luu)	-	PTSC Co.	Petrovietnam					○
41	PTSC Gasoline(Dau)	-	PTSC Co.	Petrovietnam					○
42	Dau Khi	-	VIETSO PETRO	Petrovietnam					○
43	Phu My	-	Baria Serese Co.	MARD			○		
44	Phu My 2-1 Power Plant	-	Phu My 2-1 Power Plant	MOI			○		
45	LPG Cai Mep	-	Gas Products Processing Co.	Petrovietnam					○
46	Thuong Mai	-	VIECO Co.	Ba Ria-Vung Tau Prov.				○	
TOTAL					3	3	17	16	7

Notes: 1/ MOD: Ministry of Defense, MARD: Ministry of Agriculture and Rural Development  
MOC: Ministry of Construction, MOAP: Ministry of Aquatic Product,  
MOT: Ministry of Transport, MPI: Ministry of Planning and Investment  
MOI: Ministry of Industry,

### 8.3 Port Management Body (PMB)

At almost all Vietnamese ports, port management and operation is performed by enterprises including SOEs, public cooperation under the control of central ministries and provinces/cities, joint-venture companies and others as shown in Table 8.2.1. They earnestly play a role of the port management body (hereinafter referred to as "PMB") through daily own business activities. For example, the PMB of Sai Gon Port is SOE under the authority of VINALINES. The PMB of Ben Nghe Port is a public cooperation organized by HCMC, and First Logistics Development (JV) Company (FLDC), which is the port operator of VICT, is a joint-venture company.

The main activities of port operators are as follows.

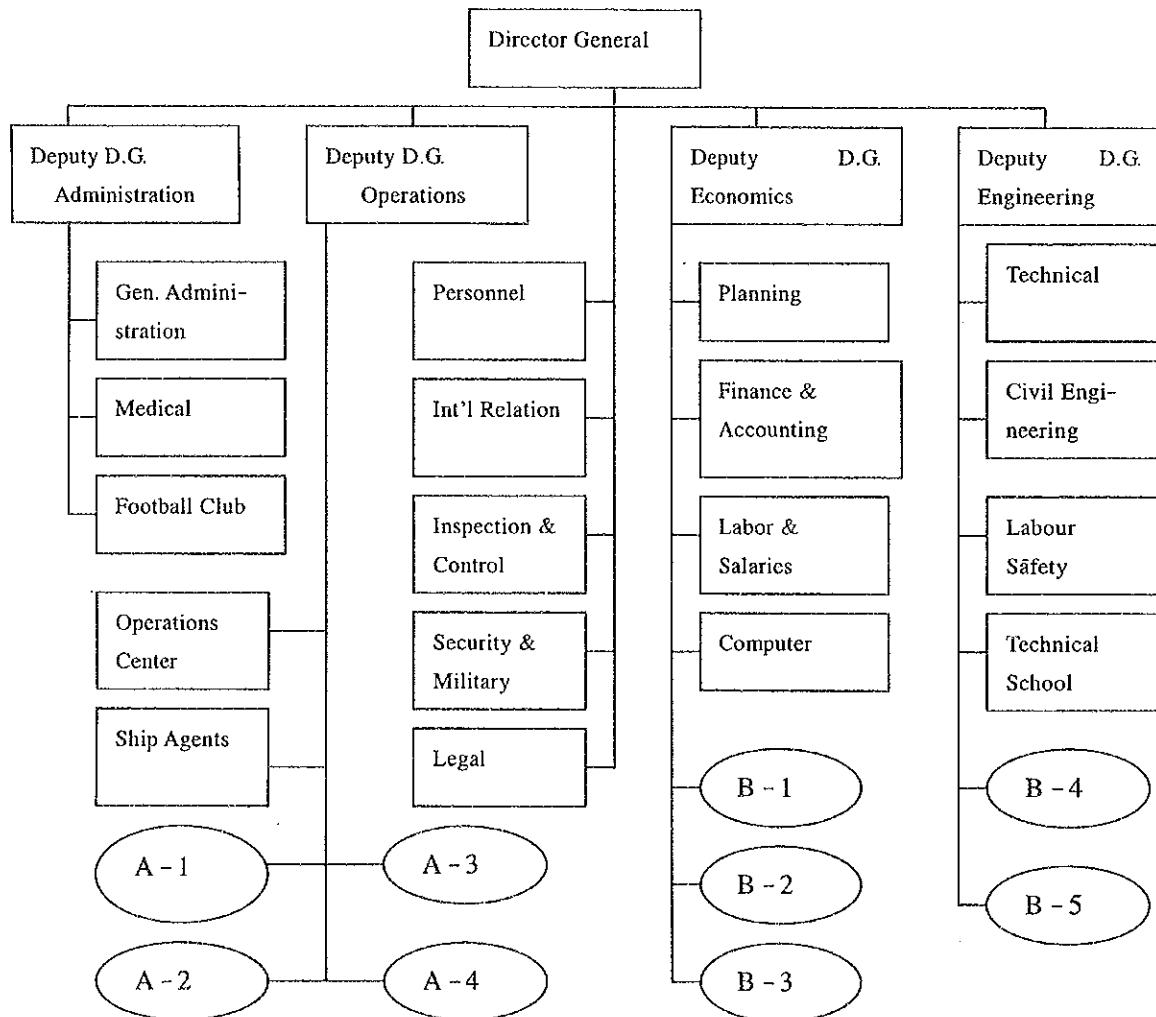
- development and maintenance of infrastructures/superstructures concerned,
- examination of port management plans,
- collection of port charges and financial management,
- cargo loading and unloading, warehouse service and cargo maintenance,
- transportation within the port area
- tug boat services and other related services,
- security keeping within the port area.

Generally, the organization of a port operator is comprised of a number of divisions and departments can roughly be divided into administration and operation groups.

- administration groups: general affairs, personnel and labor, finance and accounting, planning and inspection departments and others.

- operation groups: port operation including cargo handling and warehousing, transportation, engineering, construction and maintenance departments and others.

These may be divided into smaller groups depending on the scale of port itself and vitality/sphere of port activities. Figure 8.3.1 shows the organization chart of Sai Gon Port. PMB of Sai Gon Port has formed the suitable large organization in the port which has the highest throughput in Vietnam. Number of staffs in the headquarters, which are substantially engaging in the port management, is 400 or more, however, the total number of staffs including subsidiary companies, which actually are in charge of daily port operation, amounts to 4,000 or more.



■ Name of Subsidiary Companies

A - 1	Nha Rong Stevedoring Co.	B - 1	Import/Export & Services Co.
A - 2	Khanh Hoi Stevedoring Co.	B - 2	General Service Business Co.
A - 3	Tan Thuan Stevedoring Co.	B - 3	Khanh Hoi Cargo Distribution & Services
A - 4	Tugboat Service Co.	B - 4	Marine-works Construction Co.
		B - 5	Maritime Mechanics & Service Co.

Source: Sai Gon Port

Figure 8.3.1 Organization Chart of Sai Gon Port

Sai Gon Port has 9 subsidiary companies including 3 stevedoring companies, 1 tugboat company and some related service companies within itself. The relation between headquarters and these companies can be described as follows:

- basically, these companies are independent of Sai Gon Port in that they make their own business decisions,
- however, in the settlement of accounts, these 9 companies are consolidated into one group company,
- these companies need to obtain the permission of Sai Gon Port concerning to own investment and personnel affairs.

Moreover, there is frequent contact between headquarters and these group companies in the course of daily operations.

#### 8.4 Port Activities and Port Service

##### (1) Introduction

In the ports, various activities are carried out through the year. The following working holidays are stipulated in the regulations.

+ Calendar: January 1<sup>st</sup>; April 30<sup>th</sup>; May 1<sup>st</sup>; September 2<sup>nd</sup>.

+ Lunar: The last day of the year: 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> of Lunar Tet

However, even if on these closing days, port activities are carried out in accordance with user's demand. In particular, container terminal operates 24 hours a day and 365 days a year.

Daily operation generally is performed on a three-shift basis. The starting and ending times of each shift are as follows.

1<sup>st</sup> shift: 6:00 – 14:00      2<sup>nd</sup> shift: 14:00 – 22:00      3<sup>rd</sup> shift: 22:00 – 6:00

Berth assignment at Sai Gon Port is conducted on a “ first come, first served” basis. However, some of vessels have priority of berthing. Berthing priority is given according to vessel type in the following order.

1.- Passenger ship      2.- Container ship      3.- General cargo ship

According to the brochure of Sai Gon Port, it is described that the port offers the following activities and services for customers.

- Cargo handling	- Tug boat Service	- Warehousing
- Ship agency	- Bagging	- Tallying
- Trucking	- Ship chandler	- Passenger
- Import/Export	- Duty free shop	- Customs clearance
- Marine construction	- Information	

##### (2) Bodies responsible for Port Activities and Services

Ports are subject to a variety of activities without regard to official or private. As a result, various sectors are directly concerned with these activities and services. Table 8.4.1 shows which entities carry out the various activities and services performed at the ports.

Table 8.4.1 Bodies responsible for Port Activities and Services

ACTIVITIES	BODIES	MOT/ VINAMARIN E (except Port Authority)	Port Authority (VINA- MARINE)	Other Public Organization	Each Port Operator	Each Enterprise (private)
<b>Port Administration</b>						
Formulation & Authorization of Long-Term Port Development Policy & Plan		○				
Draft and Enforcement of Regulation for Port Development		○				
Coast Guard			○			
Control of Entrance/exit of Ships			○			
Customs Clearance				○*1)		
Quarantine				○*2)		
Immigration				○*3)		
Maintenance of Navigational Aids			○			
<b>Port Management and Operation</b>						
Planning of Port Development & Improvement		○			○	
Security Control in Port Area					○	
Charge, Due Collection			○		○	○
Berthing Arrangement					○	
Permission for Use					○	
Construction & Maintenance of Infrastructure						
Channels			○			
Basins					○	
Berths					○	
Yards					○	
Roads					○	
Construction & Maintenance of						
Warehouse & CFS					○	
Equipment for Loading/Unloading					○	
<b>Port Service</b>						
Pilotage						○
Towage						○
Cargo Handling					○	○
Lighterage						○
Mooring						○
Water Supply						○
Garbage Collection						○
Bunkering						○

Note : \*1) General Department of Custom under the Prime Minister \*2) Department of Health of Provinces/Cities \*3) Border Police Department - Headquarters of Border Defense

(3) Documents required for Authorities Concerned

Table 8.4.2 Documents required for Authorities Concerned

For Port Entry		For Port Leave	
Kind of documents	Number of copies	Kind of documents	Number of copies
1) Permit to leave the last port	1	1) Assorted permits granted by Port Authority, or agencies/organizations having State management responsibility at ports, to ships crew and passengers on board during ship stay in ports (to be withdrawn);	
2) Quarantine-free certificates	1	2) Ship departure declaration	2
3) Goods disinfection exemption certificate	1	3) Brief declaration on goods of board	3
4) Ship arrival declaration	2	4) Brief declaration of personal luggage	1
5) Crew and passenger health declaration	2	5) Health declaration of crew and passengers	1
6) Brief declaration of personal effects	1	6) List of crew and passengers	5
7) Cargo diagram and goods brief declaration	5		
8) Brief declaration of hazardous goods	5		
9) Declaration of ship's reserve storage space	5		
10) Animal quarantine declaration	1		
11) Crew list	5		
12) List of passengers or other people on board	5		
13) Declaration of crew's jewellery	1		
14) Declaration of tools banned at ports	1		
15) Applications of crew and passengers to go ashore (in case of foreign ships)	1		

## 8.5 Computerization of Port Management and Operation

In recent years, more and more procedures involved in port entry and departure are being processed electronically at major overseas ports. Computer systems are introduced to simplify the documentation procedure relevant to port operation and ensure rapid, smooth port operation. Management bodies can thus offer better service to users. In addition, computer network should not be established only between ports but also between the port and the port-related organizations and agents such as customs and shipping agencies by Electric Data Interchange (EDI) systems. Representative cases of computerization of port management and operation in the study area are described below.

### (1) VICT

The terminal management and operation at VICT, which is a modern container port with 2 gantry cranes, is performed by using a sophisticated computer system called "VICT Information Network". Main system is the container terminal computer software created and developed by PSA running on an IBM AS/400 mainframe computer. Figure 8.5.1 shows the outline of the VICT information network. This system, which basically comprises a number of modules shown in Figure 8.5.2, has the capability to trace individual information or activities of containers in the yard, as well as vessel operation activities, CFS packing/unpacking activities, CFS cargo activities, gate operation arrival/exit process, customer's containers information reports and others.

At present, VICT and customers (shipping lines) are connected by the EDI off-line through e-mail system. All information required for customers is downloaded from the system with the EDI format, and then are directly sent to customers by e-mail. On the other hand, the information from shipping lines is uploaded to the system directly.

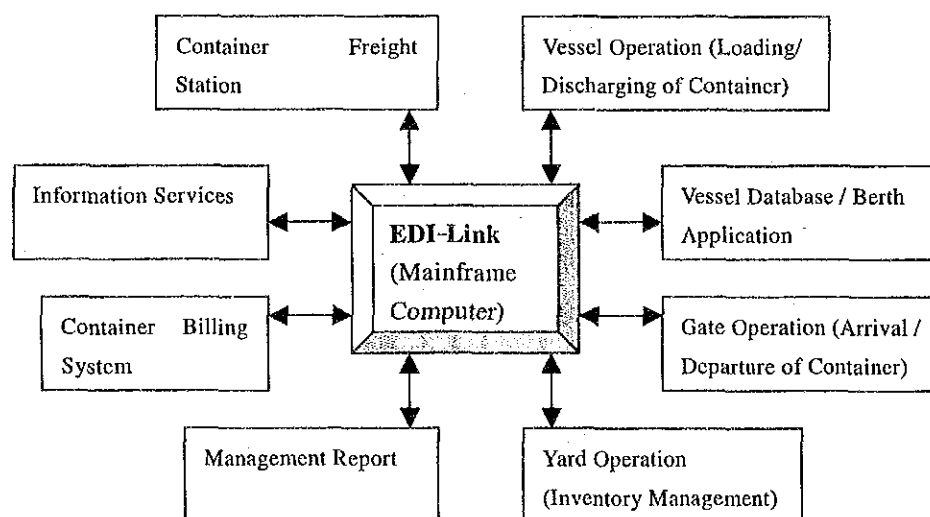


Figure 8. 5.1 Outline of VICT Information Network

To date, this system has been running effectively. However, with the expected growth of business activities, a connection by EDI on-line needs to be established in near future. VICT is taking this matter into consideration.

## (2) Sai Gon Port

At Sai Gon Port, a computer system called "Management Information System (MIS)" has been introduced to enhance port management and operation. MIS is a network computer system with LAN, of which 2 terminals of Nha Rong and Khanh Hoi are connected with the main office by fiber optics and Tan Thuan terminal is connected by a leased line (see Figure 8.5.2). Hardware consists of 6 servers and terminals made by HEWLET PACKARD. Sai Gon Port and shipping companies are concerned by an e-mail system. At present, applications of MIS cover many important tasks for port management and operation.

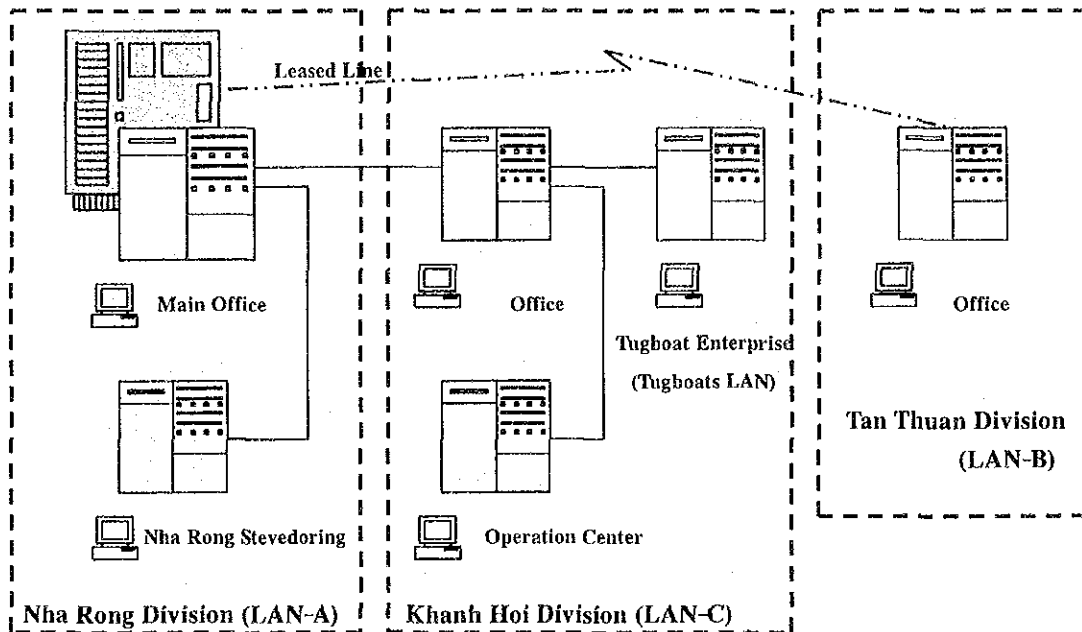


Figure 8.5.2 Outline of the Sai Gon Port MIS

## 8.6 Port Promotion and Training System

### (1) Port Promotion

In the worldwide and severe competition among ports, port promotion activities are vital in attracting port users and increasing the utilization of a port.

Generally, port promotion activities consist of the following:

- to dispatch information required for port users,
- to call for sales at port users including shipping companies and consignor,
- to participate constructively in international exchange,
- to establish sister ports, friendship ports and other affiliations,
- to welcome overseas guests.

Sai Gon Port has been a regular member (the only one in Vietnam) of the International Association of Port and Harbors (IAPH) since 1992 and ASEAN Ports Association (APA) since 1995. In addition, Sai Gon Port has established sister port affiliation with Osaka Port/Japan, Zhanjiang Port/China and Los Angeles Port/USA.

## (2) Training System

The staff training on port management and operation is essential for all port's staff to acquire knowledge/skill of own themselves and realize further development of own port. Representative staff training courses are listed as below.

- Training for administrative staffs
- Training for engineers
- Training for operators
- Training for computer operators

Concerning to the training for operators, Ben Nghe Port conducts the following courses.

- a) Training for the cargo handling techniques  
This course always is carried out an object to a new face.
- b) Training for the prevention of labor accidents and the Labor Law  
These courses are held at least once a year.

Furthermore, the tests for staffs handling special equipments including crane and forklifts are carried out once a year. Only staffs that passed this examination can engage the special works.

## 8.7 Port Tariff

In Vietnam, port tariffs are promulgated under the Decision made by the Government. These tariffs are generally applied for all sea-going vessels operating at a port, entering or leaving a port or navigating through channels. The newest Decisions concerning port tariffs are as follows.

- + Decision No. 85,86,87/2000/QD-BVGCP dated 10 November 2000
- + Decision No. 48/2001/QD/BTC dated 28 May 2001

No. 85/2000/QD-BVGCP is port service tariff for international cargo ships. Pilotage service tariff for domestic cargo vessels is provided under Decision No.86/2000/QD-BVGCP. Moreover, port service tariff in some special cases is promulgated under Decision No.87/2000/QD- BVGCP dated 10 November 2000. The Government Pricing Committee and Ministry of Finance make these Decisions.

Namely, port tariffs concerning to the port service including pilotage, wharfage, cargo handling were revised by Decisions mentioned above. However, tariffs except port service are not mentioned on these Decisions. These are provided for the Decision No.48/QD/BTC dated May 28<sup>th</sup>, 2001 made by the Ministry of Finance.

Port dues and charges in Vietnam are roughly classified into two categories: dues and charges for entrance/exit of vessels and for utilization of port facilities. The former includes tonnage dues, maritime safety charges, procedure fees and others, while the latter consists of wharfage dues, cargo handling charges, storage charges and others.

The latest tariffs for international cargo vessels are shown in Table 8.7.1. The rates for cargo handling service stipulated in the tariff table are basic ones, which the directors of service enterprises may adjust within the following limitation according to market price and actual conditions.

- cargo handling charge (except containers)                      more or less 10%



- storage charge (except containers) more or less 10%
- transshipment charge (except containers) more or less 20% in maximum
- container handling charge(stuffed) Area 1 & 2 10% basis rates  
Area 3 15% basis rates  
(empty) 15% basis rates
- container storage charge more or less 20%

Table 8.7.1 Rate of Port Tariff for International Cargo Vessels

Name of Charges and Dues	Collection Organizations	Contents of Tariff	
		Rate	Remarks
<b>1. Maritime charges</b>			
1.1 Tonnage dues	Port Authority (VINAMARINE)	0.085 US\$/GRT	by No.48
1.2 Maritime safety charges	Port Authority (VINAMARINE)	0.24US\$/GRT(Area1&3),0.18US\$/GRT (Area 2) (for conventional ship except LASH ship)	ditto
1.3 Pilot charges	Pilot enterprises	0.0022-0.0034US\$/GRT-NM*1) (minimum charge 100-170 US\$/ship) depending on distance	by No.85
1.4 Tugboat assistance charges	Enterprises	500 HP is 170 US\$/hour and from 501st upward is 0.26 US\$/HP-hour (in the case of supporting boat 501 – 1,000 HP)	Ditto
1.5 Mooring/ unmooring charges	Enterprises	(at buoy) 40 – 194 US\$, (at berth) 11 – 84 US\$ depending on ship size	ditto
<b>2. Wharfage dues</b>			
2.1 Wharfage for ships	Port operator	(at berth) 0.0035US\$/GRT-hour (at buoy) 0.0014US\$/GRT-hour	ditto
2.2 Wharfage for cargo	Port operator	(at berth) 0.30US\$/ton, (at buoy) 0.15US\$/ton	ditto
2.3 Charges for closing/opening hatch covers	Port operator	8 – 40 US\$/time (in the case of using derrick), 50% additional (in the case of using port's crane) depending on ship size and service type	ditto
2.4 Charges for fresh water supply	Enterprises	2.50US\$/m3 (in the case of using conduit at berth)	ditto
2.5 Charges for shooting rubbish	Enterprises	(at berth for cargo vessel) 20 US\$/ship-time	ditto
<b>3. Charges for cargo handling service</b>			
3.1 Cargo handling charges	Port operator	2.9 – 6.46 US\$/ton (in the case of ship/barge to warehouse/yard) depending on commodity type	ditto
3.2 Container handling charges	Port operator	50– 57 US\$ per 20' stuffed container, 76– 85 US\$ per 40' stuffed container (in the case of ship/barge to CFS/yard) depending on Area	ditto
3.3 Storage charges	Port operator	(general cargo) 0.08-0.2 US\$/ton-day depending on service type and Area, (with cargo container) 1.6 – 4.5 US\$/day depending on container type and Area	ditto

Name of Charges and Dues	Collection Organization	Contents of Tariff	
		Rate	Remarks
3.4 Labor employing charges	Port operator or other unit concerned	1 – 3 US\$/person-hour (distinguish of skilled or unskilled)	by No.85
<b>4. Procedure fee</b>			
4.1 Procedure fee	Port Authority (VINAMARINE)	(Ship of below 600GRT) 20 US\$/call (Ship from 600 to 1,000 GRT) 50 US\$/call (Ship of above 1,000GRT) 100 US\$/call	by No.48

Source: Decision of the Government Pricing Committee

Note: \*1) NM: nautical mile

\*2) Area 1: Ports are from latitude 20 to the North, Area 2: Ports are from latitude 11.5 to latitude 20, Area 3: Ports are from latitude 11.5 to the South.

\*3) GRT: Gross Registered Tonnage

Furthermore, port charge system for coastal shipping vessels differs from that for international shipping vessels. The rate for coastal shipping vessels is approximately 20% of that applied to international shipping vessels in tonnage dues and maritime safety charges.

Tariff rates have generally shown a tendency to decline in recent years. Table 8.7.2 shows some rates for international shipping vessels in 1998 and 2000/2001.

Table 8.7.2 Comparison of Some Port Tariffs between 1998 and 2000

(Unit: US\$/GRT-mile)

	Decision No.127 (1998.1.1~)	Decision No.85 (2001.1.1~)
Pilot charges		
(Distance: over 60 miles)	0.00232	0.0022
(Distance: 31 up to 60 miles)	0.00276	0.00262

(Unit: US\$/GRT)

	Decision No. 127 (1998.1.1~)	Decision No.48 (2001.7.1~)
Tonnage dues	0.10	0.085
Maritime safety charges		
(for conventional ship except LASH ship)	0.282 (Area 1 & 3) 0.209 (Area 2)	0.24 0.18

Source: Decision of the Government Pricing Committee and Ministry of Finance

Note 1/ Area 1~3: see the note of Table 8.7.1

In particular, there is a following remarkable description in the Decision No.48: “the tonnage dues and maritime safety charge collection rates as from January 1st, 2002 shall be equal to 85% of the corresponding rates prescribed in Section 1 etc”. Namely, in the case of the tonnage dues, tariff rates for international ship was 0.10 US\$/GRT in 1998 and was revised to 0.085 US\$/GRT in 2001. Furthermore, from January 1st, 2002, the Government intends some tariff rates to reduce 15% still more. It can be observed that the Government will make effort to build up the appropriate tariff base.

## 8.8 Foreign Direct Investment for Port Development

The legal framework for encouragement of foreign direct investment has been established through passage of the Law on Foreign Investment in Vietnam dated 29 December 1987, the 1992 amendment and Decree No.87/1993/CP to introduce concepts of "Build-Operate-Transfer (BOT)", and the latest 1996 amendment to expand BOT schemes. The Law on Foreign Investment in Vietnam dated 12 November 1996 authorized the following three forms of foreign investment and defined "Build-Transfer-Operate (BTO)" and "Build-Transfer (BT)" besides BOT as the concepts of BOT.

- a) Joint venture enterprises
- b) Enterprises with one hundred (100) per cent foreign owned capital
- c) Business co-operation contracts

Furthermore, the 1996 Law amended items relevant to the investment licensing process to entice foreign investors through simplification and speed-up of the procedure.

With these amendments, good conditions for promoting foreign direct investments steadily have been prepared.

Concerning to port developments through foreign direct investment, two private terminal development projects at Phu My Port (Baria Serese Port) and VICT are listed as successful cases, both within the study area. Phu My Port (Baria Serese Port) is the first private port in Vietnam (see Table 8.8.1). However, none of these are BOT projects.

Table 8.8.1 Outline of Investments for Private Terminal

Project Name	Approval	Present Situation	Ownership
Phu My Port (Baria Serese Port)	Signed on June 22 <sup>nd</sup> 1995	Now Operational Phase I construction Completed	Norsk Hydro (20%); SCPA – a division of France's EMC (40%), Vietnam Government and State-owned Im/Ex Companies (40%)
VICT	License granted in 10/94; 5/97	Now Operational Phase I construction Completed	Mitorient Enterprises Pte Ltd. [ Mitsui Co. (25%), Neptune Orient Lines (75%)](65%), Vietnamese Southern Waterborne Transport Co., Transport Chartering Co. (35%)

Source: Private Solutions for Infrastructure: Opportunities for Vietnam – The World Bank in Vietnam

On the other hand, a few years ago the Ben Dinh Sao Mai container port project under a BOT scheme has been studied. However, so far this project has not been realized due to various problems. At present, in response to the order of the Vietnam Maritime Corporation and MOT, the Government Office has called for a pre-feasibility study of Ben Dinh Sao Mai container terminal to be promptly carried out.

## 8.9 Financial Aspects

According to the VINAMARINE's report, business units under direct administration of VINAMARINE consist of 3 groups: ports, pilot enterprises and other business units group. Business results of these enterprises in 1999 and 2000 are shown in Table 8.9.1. It is observed that all group enterprises still have kept stable growth rate. The total turnover in 2000 reached 599,793 million VND and contribution into state budget reached 121,988 million VND, seeing a 18% and 12% rise, respectively compared with that of 1999. In these enterprises, pilot enterprises group largely contributes to bringing big business fruits into VINAMARINE. Three ports (Nghe Tinh, Nha Trang and Qui Nhon) also produced the turnover of 89,641 million VND and the contribution into state budget of 10,183 million VND in 2000. Total turnover greatly increased by 27% compared to 1999, however, the contribution into state budget increased by only 4%.

Table 8.9.1 Business Data of Enterprises under Direct Administration of VINAMARINE  
(Unit: Million VND)

Name of Enterprise	Throughput (Unit: Million tons, 1,000GRT/miles)			1999			2000		
	1998	1999	2000	Total Turnover	Contribution into State Budget	Profit & difference	Total Turnover	Contribution into State Budget	Profit & difference
1. Ports Group									
Nghe Tinh Port	480,270	526,814	648,014	20,353	1,650	400	23,928	1,245	532
Nha Trang Port	485,580	537,303	549,331	13,000	1,646	924	12,760	1,698	1,902
Qui Nhon Port	953,444	1,040,500	1,461,922	37,387	6,506	6,778	52,953	7,240	10,695
TOTAL	1,919,294	2,104,617	2,659,267	70,740	9,802	8,102	89,641	10,183	13,129
2. Pilot Enterprises Group	3,033,100	3,603,400	4,064,711	129,405	80,087	87,897	155,142	85,446	109,441
3. Other Business Units				308,197	18,451	3,017	355,010	26,359	20,540
GRAND TOTAL		5,708,017	6,723,978	508,342	108,340	99,016	599,793	121,988	143,110

Source: " Overview Report in 1999(2000) and the Planning in 2000(2001) of VINAMARINE "

Table 8.9.2 shows the results of implementing key targets by VINAMARINE in 2000 and the 2001 plan. The amount of investment for capital construction in 2000 by VINAMARINE was 287,232 million VND. In which, the domestic capital was 39,315 million VND and the foreign capital was 247,917 million VND. The foreign capital occupies a great part of all capital investment. And, almost all of it was invested to the implementation of the Group A Project including the Cai Lan Port project that was initiated at the end of September 2000. The improvement of three port (Nghe Tinh, Qui Nhon and Nha Trang) was performed by using 28,500 million VND in 2000, however, it is only 10% of total investment capital. In 2001, the total investment capital of 213,800 million VND is estimated, in which 43,300 million VND is a domestic capital and 170,500 million VND is a foreign capital.

Table 8.9.2 Implementation of 2000 Plan and Tentative Plan of 2001

(Unit: million VND)

No.	Items	Implementation	Plan
		2000	2001
1 -	State-budget		
1.1	Port Authorities		
	- Total Turnover	149,000	154,000
	- Total Expenses	25,986	27,000
	- Other Expenses	5,569(VTS Project)	30,260
1.2	Training		
	- Total Turnover	12,865	11,970
	+ State-budget	11,965	11,370
	+ Collected Fees	900	600
	- Total Expenses	12,865	11,970
1.3	Total Expenses of Administration	3,418	2,840
1.4	Total Expenses of Rescue Searching	3,700	4,200
2 -	Investment of Construction		
2.1	Total Investment Capital	287,232	213,800
	- Domestic Investment Capital	39,315	43,300
	- Foreign Investment Capital	247,917	170,500
2.2	of which		
	- For Planning and Engineering		400
	- For Investment Preparation	200	6,200
	- For Project Implementation	287,032	207,200
	<b>* Group A Project</b>	255,532	174,350
	Cai Lan Port	106,780	102,800
	- Domestic Capital	1,650	7,000
	- Foreign Capital	105,130	95,800
	<b>* Group B Project</b>	51,500	17,800
	Improvement of Nghe Tinh Port	13,000	8,000
	Improvement of Qui Nhon Port	8,000	580
	Improvement of Nha Trang Port	7,500	7,820
	<b>* Group C Project</b>		15,550

Source: same as Table 8.9.1

## **Chapter 9 Review of Existing Port Development Plan**

### **9.1 Port Development Plan up to 2010**

#### **9.1.1 Background**

The growth of cargo throughput of Vietnamese seaports in the period of 2000-2010 is related to the Socio-economic Development Strategy of the country. GDP of Vietnam is expected to grow at a rate of 9-10% from 2000 – 2010. Vietnam has entered ASEAN and joined AFTA, and will focus on increasing trade as a means to develop its economy. Vietnam is close to the international shipping lanes and able to attract goods in transit etc. This should help to boost the development of the Vietnamese seaports system.

To take advantage of its strategic location, the transport sector is planning to develop the national commercial fleet, to rehabilitate and improve seaports, especially deep-water ports in the focal economic areas. In addition, advanced technologies, which have been applied to ship and port operations through the world, must be introduced to the Vietnamese seaport system.

#### **9.1.2 Development Plan up to 2010**

##### **(1) General**

Based on the current port system in Vietnam and the increased cargo volume expected in the next decade, the MOT has worked out the Master Plan for the development of ports in Vietnam up to the year 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 to accommodate 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. Vietnamese port development plan up to 2010 was announced in 1999 (No.202/1999/QĐ-TTg, Hanoi 12 Oct.).

##### **(2) 8 Port Groups and Cargo Throughput**

Vietnamese seaport system is basically comprised of 8 port groups. A port group is composed of several ports that support each other in one area due to geographical features. A group may include general ports, specialized ports, floating ports and ports for local economic development. The scale of 8 port groups composed from 114 ports is based on cargo throughput up to 2010. The capacity of ports will be 106 million tons in 2003 and 268 million tons in 2010.

##### **(3) 10 Key Ports**

The following 10 key seaports shall be the focus of investment and development up to 2003.

General-purpose:	Cai Lan Seaport
General-purpose:	Hai Phong Seaport
General-purpose:	Cua Lo Seaport
General-purpose:	Da Nang (Tien Sa – Han River) Seaport

Specific-purpose:	Seaport for Dung Quat Industrial Park
General-purpose:	Quy Nhon Seaport
General-purpose:	Nha Trang Seaport
General-purpose:	Thi Vai Seaport
General-purpose:	Saigon Seaport
General-purpose:	Can Tho Seaport

FIGURE 9.1 VIETNAMESE SEA PORT SYSTEM

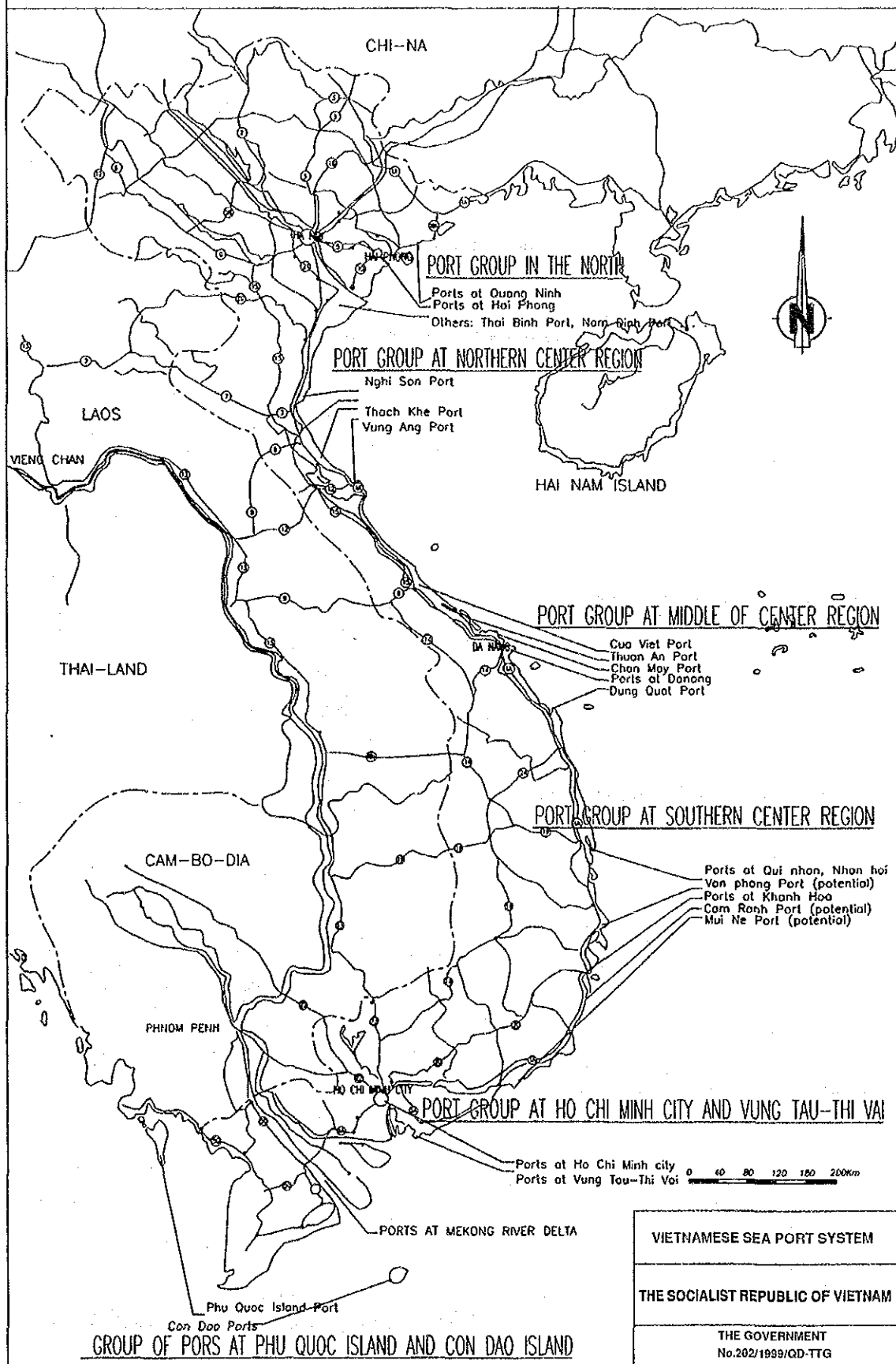




Table 9.1.1 Port Groups in Vietnam

Name of Port Group		Number of Ports and Potential Area for Seaport Construction
1	Northern Port	25 ports and port sites, of which there are 13 general ports (2 main ports) and 12 specialized ports
2	North Central Coast	8 ports, of which there are 5 general ports (3 main ports) and 3 specialized ports
3	Middle Central Coast	14 ports, of which there are 9 general ports (2 main ports) and 5 specialized ports
4	South Central Coast	10 ports, of which there are 6 general ports (2 main ports) and 4 specialized ports
5	HCMC, Dong Nai, Ba Ria-Vung Tau	40 ports, of which there are 18 general ports (6 main ports) and 22 specialized ports
6	Mekong Delta	13 ports, of which there are 12 general ports (1 main ports) and 1 specialized ports
7	Southwest islands	An Thoi and Duong Dong Floating ports
8	Con Dao	1 general port of Ben Dam

Source: Port Development Plan 2010

Table 9.1.2 Cargo Throughput (1)

(mil.tons)

Type of freight	By 2003	By 2010
Total	106.2	268.4
General freight (Incl.Cement, petrol and coal)	60.0	131.1
Specialized cargo (Incl.refinery 1 and 2)	13.5	25.0
Crude oil (Converted into oil of all kinds and gas)	20.5	40.0
Goods in transit and transshipment freight	12.7	58.3
	Potential	Potential
Iron ore from Thach Khe and Cam Pha		14.0
		Potential

Source: Port Development Plan 2010

Table 9.1.3 Cargo Throughput (2)

(mil.tons)

Name of Port Group		Throughput Volume of Port Group	
		2003	2010
1	Northern Port	21-24	57-69
2	North Central Coast	2-4	23-26
3	Middle Central Coast	17-18	35-38
4	South Central Coast	3	5-6
5	HCMC, Dong Nai, Ba Ria-Vung Tau	34-38	84-89
6	Mekong Delta	5-6	9-11
7	Southwest islands		*
8	Con Dao		*

Source: Port Development Plan 2010

## **9.2 Existing Port Development Plan**

### **9.2.1 HCMC Area**

#### **(1) General**

SFEA Master Plan suggests that the new port sites should be relocated to the suburban area of HCMC in order to reduce congestion in the center and to raise the handling productivity. The port area of Sai Gon, Ben Nghe, Tan Thuan, and Tan Cang are limited for expansion and development. The inner ports should gradually change their functions such as to river tourism. Those ports should be relocated and expanded to the east and south of the city. The great traffic volume generated by the port activities can be diverted from the center of HCMC and the route of freight trucks should be changed. To achieve this, HCMC has been developing new roads.

The latest development plan of HCMC including ports was described in Prime Minister's Decision No 123/1998/QĐ-TTg dated July 10<sup>th</sup> 1998 as the Master Plan Adjustment to 2020 etc. Plans are summarized below.

#### **(2) Sai Gon River Area**

Investment should only be made in handling equipment and for the rehabilitation of existing berths, which would limit the maximum handling capacity of Sai Gon Port, Tan Cang and Ben Nghe Port to about 20 million tons per year. Under this amended plan, traffic congestion in HCMC will become more serious.

Room to expand and develop the existing inner city ports such as Sai Gon, Ben Nghe, Tan Thuan, and Tan Cang is limited. Therefore the new ports should be constructed in the suburban area and the existing inner city port should be renovated (such as the waterfront park) in step-by-step.

#### **(3) Dong Nai River (Cat Lai) Area**

In Cat Lai area along the Dong Nai River, apart from currently operating ports, there are two new port groups. Tan Cang has completed building a berth and is going to build another one to accommodate container vessels of 25,000DWT. HCMC is now studying to construct a general freight port for 20,000 DWT vessels along Dong Nai River cooperating with Cat Lai Clean IZ

#### **(4) Nha Be River Area**

On the stretch of the Nha Be River, as part of a long-term plan, a port group with a total berth length of 1,700m will be built to accommodate 20,000DWT vessels (potential port).

#### **(5) Soai Rap River Area**

Hiep Phuoc IZ Development Plan in the south of the city (area: 2,000 ha) has been prepared as the expansion site of ports in HCMC. VINAMARINE is in charge of studying ways to improve Soai Rap River Channel. Studies on those projects are on going. Selecting the future vessel size is the

major technical issue but this cannot be done until a detailed examination of the siltation in the riverbed is made. However, it is better to use the Long Tau-Soai Rap River Channel rather than the Long Tau-Sai Gon River Channel for 15,000-20,000DWT vessels in the short term.

(6) Nga Bay and Thieng Lieng River Area

There is a potential for a new port in this area. The natural depth of the river is from -9m to -10m; the average width is 800-1,000m. Thieng Lieng is used as the ship-anchoring place managed by Sai Gon Port Authorities. Given its natural topography, the upstream area has the potential to be developed as a general and bulk freight port to accommodate 30,000-40,000DWT vessels. Total berth length of 4km is planned including rice husking facility and exporting mill. There is also the port group of Can Gio. But careful study is required because almost the entire area will be designated as a National Preservation Park.

## **9.2.2 Thi Vai- Vung Tau Area**

(1) General

Thi Vai-Vung Tau Area is an area with special conveniences for the construction and development of seaports, especially deepwater ports for large vessels. Sai Gon River ports cannot accommodate vessels more than 20,000 DWT, although vessels more from 30,000DWT to 50,000 DWT mainly provide interregional trunk shipping services. Therefore a large general port is expected to be constructed here as a gateway seaport in the South of Vietnam.

Pursuant to Decision No.50/1998/QĐ-TTg dated February 28<sup>th</sup>, 1998 of the Prime Minister on approval of adjustment and supplement to Thi Vai -Vung Tau port development plan and studies concerned, ports in Thi Vai-Vung Tau Area are planned with the following scale and function.

(2) Go Dau Area

Go Dau Area stretches upstream of the Thi Vai River to the curved section of Tac Ca Trung. The pace of development in Go Dau is the fastest in the region. Many factories such as Vedan Factory, Long Thanh Superphosphate Fertilizer Factory, Unique Gas & Chemicals Co., Taicera Enterprise, UIC Vietnam Co., Misui Co. are in operation and some other factories under construction. Thanks to the natural conditions, a large-scale port (berth length of 2,940 m and a land area of about 188ha) could be constructed here. This area is on the two regions: Dong Nai and Ba Ria -Vung Tau.

(2) Phu My Area

Phu My is located from Rach Muong to Thach Ban Creek with the total length along the river of about more than 6km. Phu My has been an area attracting foreign and domestic investors. Apart from ports that have been constructed and put into operation or under construction, some ports will be constructed at Phu My with the following scale.

(a) Thi Vai Steel Plant Port

This is a joint venture port among Vung Tau Maritime Service Company, Viet Nam Steel Corporation and Kyoei Steel Ltd. (Japan). The port includes 3 berths for ships of 30,000DWT with the length of about 680m, area of 41 ha. Throughput capacity is about 3.4 million tons/year including steel, iron, container and general cargo. Thi Vai Steel Plant Port has been given investment license by Ministry of Planning and Investment on May 17<sup>th</sup>, 1997.

(b) Thi Vai General Port

Thi Vai General Port is planned in the downstream Phu My Area. The length of construction area will be 2km. Thi Vai General Port will serve import and export in Phu My IZ and neighboring IZs. It will include berths for vessels from 30,000 to 50,000DWT with modern equipment. Throughput capacity will be about 10 million tons/year, and will consist mainly of general cargo.

(3) Cai Mep Area

Berths with the length of 4km are planned to be constructed in the Cai Mep Area. The width of Thi Vai River Channel in Cai Mep Area is 1,000m and the depth is 30m at certain places, where a pier for vessels of 60,000-80,000DWT can be constructed. Therefore, Cai Mep Port Area is one of the best sites in Thi Vai River for large vessels including new container ships.

(4) Vung Tau Port Area

Vung Tau Port Area includes ports on Dinh River, ports on Long Son Island and ports on Ben Dinh-Sao Mai. The following ports may be constructed in the region:

Ben Dinh-Sao Mai is near to the main navigation lines of Asia and in the middle of the large ports in Southeast Asia. Distance from here to some ports in the area is within acceptable limits of feeder transportation. This port has the potential to become a transshipment port such as Hong Kong, Singapore and Kaoshung.

The VINALINES is implementing the study on a new international container port by BOT in this area. The target vessel size is more than 70,000DWT.

### **9.3 Existing Development Plan for River Channel**

#### **9.3.1 Sai Gon-Vung Tau Channel**

In 1993 VINAMARINE formulated a plan to improve and upgrade the channel in Sai Gon-Vung Tau River according to the following channel specifications;

The depth of the channel: -8.9m (above Chart Datum)

The minimum width of the channel: 150m (vessels of 10,000 DWT in both directions)

The channel based on this program has been upgraded and improved as follows.

Up to 1997: The navigational aids system was completed, making night navigation possible.

From 1997: The introduction of vessel traffic system (VTS) and dredging to increase the depth to -8.9m on the whole route continues.

With the completion of this program, safe navigation on the Sai Gon-Vung Tau Channel can be ensured for general cargo vessels, container vessels up to 20,000 DWT, and bulkers, liquid cargo vessels up to 30,000 DWT.

But the density of vessels is too high, and accidents occur regularly in the river sections. Therefore, it will be very difficult for the channel to meet the future circulation demand of vessels.

#### **9.3.2 Soai Rap River Channel**

The cargo volume, the numbers of vessels, the vessel size and the navigation density for ports of HCMC have been increasing rapidly. Therefore Long Tau Channel will not be able to meet the technical requirements in near future. A study on opening a new channel in Soai Rap River to accommodate vessels of 20,000- 50,000 DWT will be necessary. MOT appointed VINAMARINE to conduct the feasible study on the development of Soai Rap channel. At present this study is being implemented by VINAMARINE.

And the official letter No.2456/KHDT dated August 23<sup>rd</sup> 1995 by MOT was sent to Vietnam Electric Corporation. It is proposed that the air clearance of Phu My-Phu Lam cable across Nha Be River (Soai Rap River) should be 55m. In April 1997, Electric Engineering Company No.1 formulated the feasible study on building Viet Khanh 110 KV electric cable across Nha Be River to provide air clearance of 55m. On July 15<sup>th</sup> 1998, HCMC People's Committee issued the notification No.1055/TB-VP-KT concerning lifting the air clearance for 110KV cable across Nha Be-Soai Rap River. Electric Company of the city is assigned as the investor.

On December 12<sup>th</sup> 1998, the document No.1869 / CHHVN/XDCB by VINMARINE on the technical agreements was issued and the technical parameters for the channel from the confluence of Long Tau-Soai Rap Channel to Hiep Phuoc IZ were decided. The major issues are as follows:

The width of channel B=150m

The depth of channel -8.5m (above Chart Datum)

Minimum radius R=750m

At present, vessels coming into the Hiep Phuoc IZ must pass through Long Tau, Binh Khanh

confluence and Soai Rap River. In 1999, it is planned that the air clearance of high-tension cable 110KV between Viet Thanh and Binh Khanh should be 55m. Tan Thuan Industrial Development Co. also plans to dredge and to arrange the navigational aids for the channel. The dredging volume will be not large (about 320,000m<sup>3</sup>). It has been said that Soai Rap River was shallow. The shallow section is in the river mouth next to Ganh Rai Gulf. But it is rather deep in the upper part of Soai Rap River and vessels of more than 20,000 DWT can navigate if some improvement works will be done. Therefore in planning the port system for Hiep Phuoc industrial zone, it would be more advantageous to use the Long Tau Channel-Soai Rap River. The study for the route from South China Sea to Hiep Phuoc IZ is being implemented at present.

Table 9.3.1 Parameters of Two Channels

Channel parameter	The section to Sai Gon Port	The section to Hiep Phuoc Port
The distance from Binh confluence to the port	21km	13km
Number of curves	6	5
Radius of curves	400,600,700,1000m	750,850,900,1500m
Diameter of vessel turning area	400m	600m

Source: VINAMARINE, TEDI-S

### 9.3.3 Thi Vai River Channel

There are two shallow sections on the route to access the ports in Thi Vai River through Ganh Rai Bay. One is the section 5km from the mouth of Ganh Rai Bay and the minimum depth is 10.6m. Another is the sandbar at the mouth of Cai Mep River with a length of 4km and a minimum depth of 9.1m.

In order to allow ships of more than 20,000DWT to transit frequently, the study survey should be implemented and signal buoy system should be reinstalled. And it is necessary to dredge shallow sections at Cai Mep mouth and the section 5km from the mouth of Ganh Rai Bay for ships of more than 50,000DWT. On 9<sup>th</sup> may, 1997, VINAMARINE submitted an Official letter No. 1181/XDCB to MOT asking for approval on " F/S Report on the Construction of Navigation Channel for Ports in Thi Vai-Vung Tau area. Details of the navigation channel in this project are as follows.

Table 9.3.2 Development Plan in Thi Vai-River Channel

Basic Parameters	Year 2000	Year 2010
<b>Vung Tau – Cai Mep Section ( 23.4km)</b>		
Ship operation regime ( Ships of 50,000DWT)	2 ways	2 ways
Navigation channel width	220m	220m
Exceeding probability	+ 3.20m	+ 3.00m
Channel bottom elevation	-12m	-12.2m
Minimum curve radius	920m	920m
<b>Cai Mep – Phu My Section (11.9km)</b>		
Ship operation regime (Ships of 30,000DWT)	2 ways	2 ways
Navigation channel width	220m	220m
Exceeding probability	+ 3.20m	+ 1.52m
Channel bottom elevation	-10.5m	-12.2m
Minimum curve radius	920m	920m
<b>Phu My – Go Dau Section (12.6km)</b>		
Ship operation regime (Ships of 10,000DWT)	2 ways	2 ways
Navigation channel width	150m	150m
Exceeding probability	+ 3.20m	+ 1.52m
Channel bottom elevation	-7.10m	-8.8m
Minimum curve radius	600m	600m

Source: TEDI-South

Note: Water levels in this Table are in accordance with the Sea Chart System.

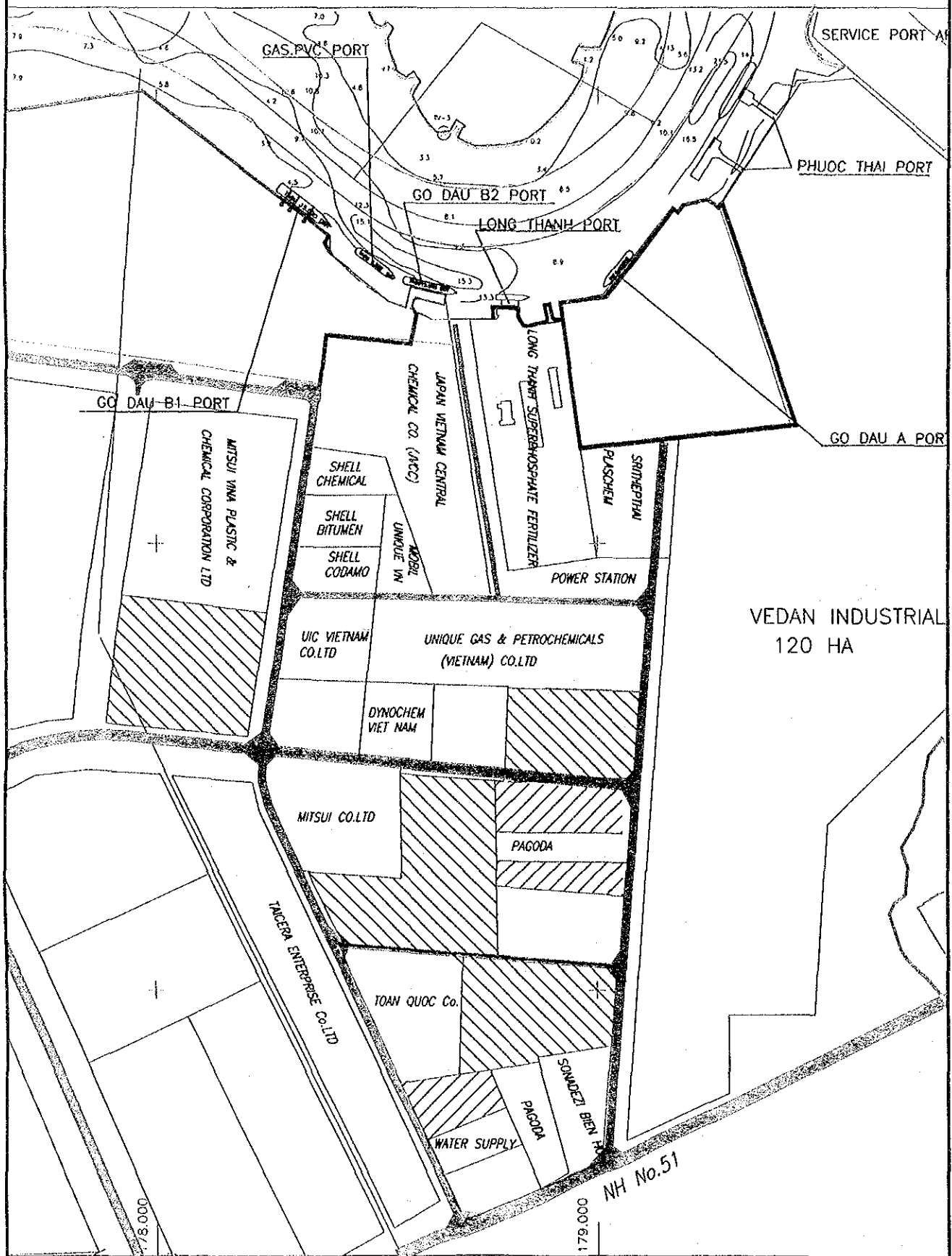
#### **9.4 Proposed Land Use Plan**

Land use plans for Go Dau Port area, Phu My Port area and Cai Mep Port area are shown in Figure 9.4.1, 9.4.2 and 9.4.3 respectively, based on information from the Dong Nai Industrial Zones Authority and the Authority for Ba Ria - Vung Tau Industrial Zones.

Go Dau Industrial Zones, which are located at the Go Dau Port area, have an area of 186 ha and the area of 105 ha has been presently occupied by various enterprises. Phu My Industrial Zones have an area of 1,700 ha including an area of the northern part (700 ha). These areas have been presently occupied by the enterprises such as the power plant, the steel mill, the fertilizer factory and so on. Cai Mep Industrial Zones have an area of 670 ha and only one company (Petro Vietnam Gas Company) is presently under operation. Progress of the planning in the Cai Mep Port area seems to be slow compared to that in the Phu My Port area.



FIGURE 9.4.1 LAND USED PLAN OF GO DAU PORT AREA



EXISTING FACILITY      NO OWNER  
OWNER

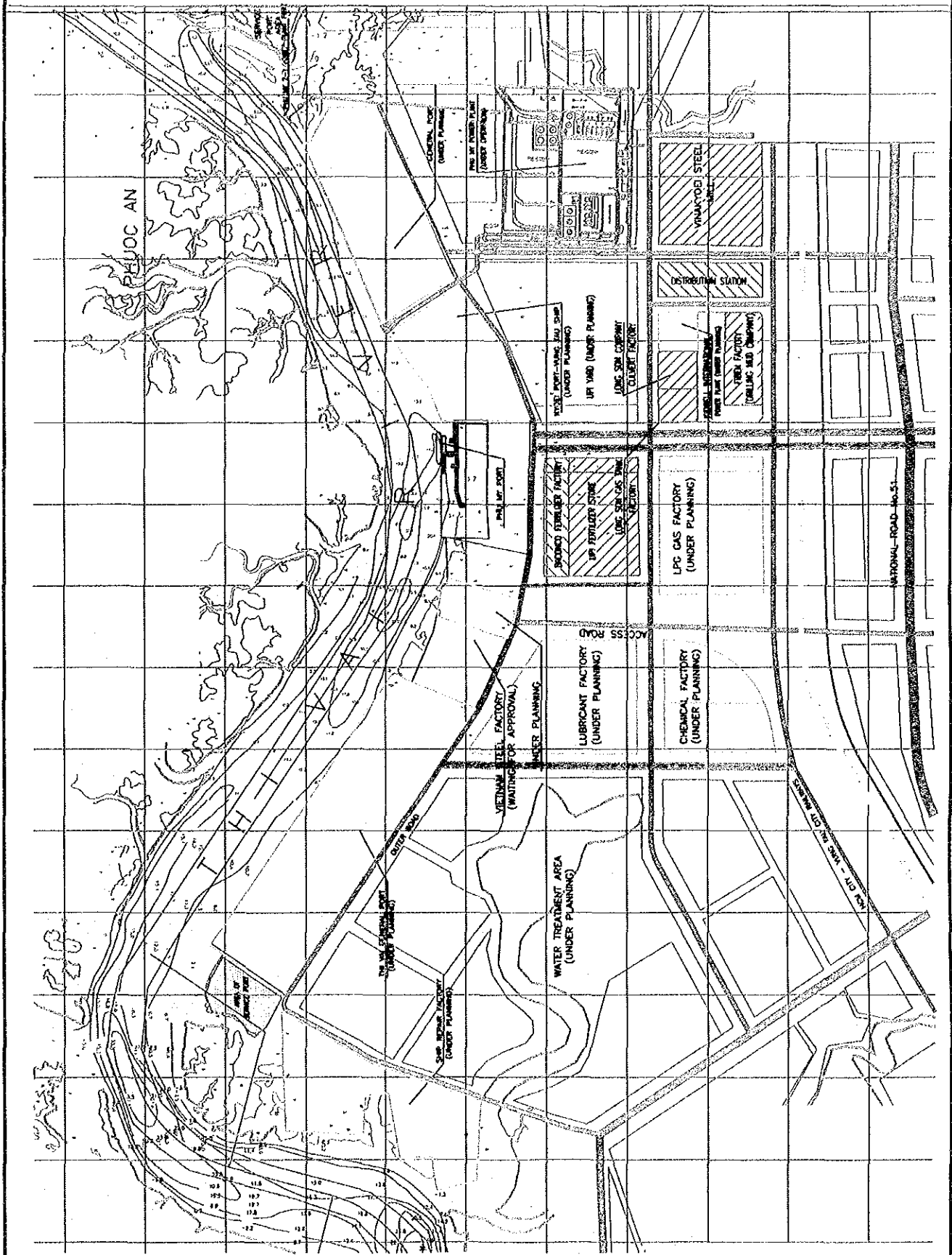
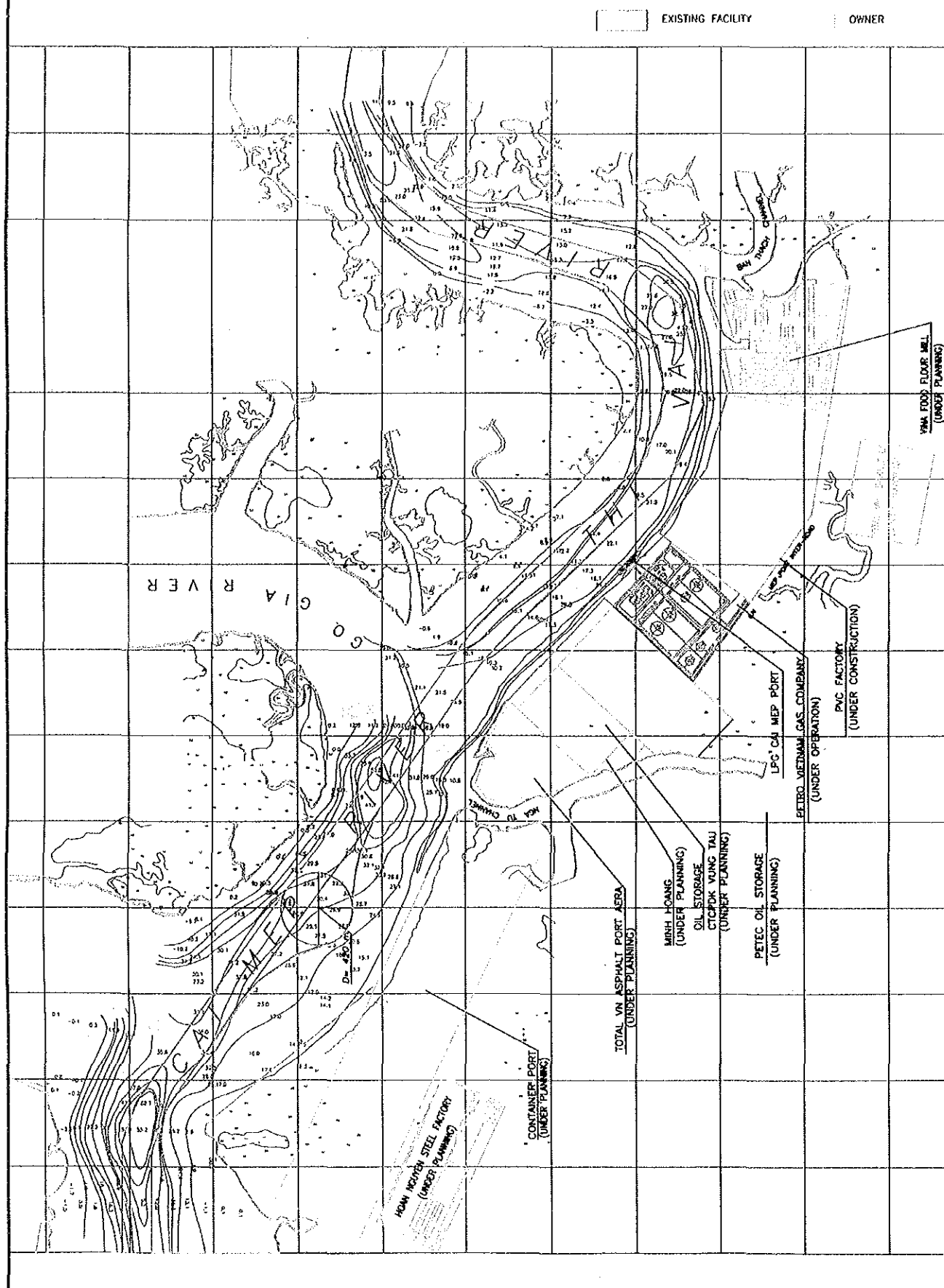


FIGURE 9.4.3 LAND USE PLAN OF CAI MEP PORT AREA



## **Chapter 10 Evaluation of the Existing Ports**

### **10.1 Evaluation on Natural and Environmental Conditions**

#### **10.1.1 Natural Conditions**

Natural conditions in the Survey Area i.e. vicinity of the three possible port construction sites consisting of Thi Vai, Lower Cai Mep and Vung Tau, are summarized as seen in Table 10.1.1.

The major subjects to be considered are summarized below:

##### **(1) Effect of Soft Foundation**

There exists the very soft surface layer, of which N value is less than 3, with thickness of about 16 to 36 m at Thi Vai and Lower Cai Mep sites. The studies on necessity of soil improvement work and its work method will be discussed later in the preliminary design.

##### **(2) Effect of Current**

The ship maneuvering at the channels in Ganh Rai Bay and the estuary of the Thi Vai River will be discussed because of relatively fast current velocity.

##### **(3) Effect of Waves**

Due to rather long fetches in the Ganh Rai Bay, it is anticipated that high waves will be generated by the monsoon, which affect berth availability at the possible port at Vung Tau Site. In addition, possible high waves invaded from offshore due to typhoons are expected, which might require a breakwater.

##### **(4) Effect on Sedimentation**

The quantitative study and research on siltation and sedimentation has not been conducted yet in the Survey Area. Therefore, prior to the analyses of sedimentation/erosion by numerical simulations, additional natural condition surveys on current and river discharge are carried out during the 2nd period of site study.

#### **10.1.2 Environmental Conditions**

Following the review of environmental conservation system and standards in Vietnam, the Study Team carried out the field surveys on sediment and water quality in the river and sea in the survey areas in May 2001. Considering the results of surveys, in the port planning at Vung Tau, special attention shall be paid on maintaining well seawater exchange and proper treatment of industrial and human waste discharge.

The population densities in the survey area ranged from 173 (Cai Mep) to 1,277 (Vung Tau) person/km<sup>2</sup> in 1998. Since most of the houses are located along the National Highway No. 51, resettlement due to the port construction needs not be taken account in the survey areas. In the survey areas, there are many relics such as pagoda, temple, church, statue, etc. All of these,

Table 10.1.1 Comparison of Natural Conditions in the Survey Area

No.	Natural Conditions	Thi Vai Site	Lower Cai Mep Site	Vung Tau Site (Ben Dinh-Sao Mai)
1	Geographical Condition			
	Present Situation of Sites	Surface behind riverbank is wet low land too, but when compared with Cai Mep site, elevation of surface at this site is preferably higher than Cai Mep.	Surface behind riverbank is covered with numerous mangroves. Many creeks run in all directions deep into the land side. The most land of the site is submerged during high water.	The site is located in the sea at bottom elevation of less than CDL-3 m.
2	Meteorological and Hydrographical Conditions			
	Wind and Typhoon (Source: Vung Tau Observatory, 40 years Data)	Monsoon: Dry season; E to NE wind direction with average velocity of 1 to 5 m/sec, and Rainy season; W to SW wind direction with average velocity of 5 to 10 m/sec. Typhoon: Maximum wind velocity; 30m/sec (WSW) in the past 40 years.		
	Effect due to Wind and Typhoon	Small	Small	Due to long distance of fetches (NE 7 km, W 12 km) in Ganh Rai Bay, waves, generated by strong winds in monsoon, might affect calmness.
	Calmness due to Wave	Negligibly small	Small	Waves due to the typhoon is anticipated. Based on the estimated wave height of 3.7m at recurrence period of fifty years, a breakwater might be needed.
	Water Level	HWL CDL+5.1 m <sup>1)</sup>	HWL CDL+4.9 m <sup>1)</sup>	HHWL CDL+4.43 m <sup>2)</sup>
	Maximum Current Velocity in Navigational Channel	1.3 m/sec <sup>3)</sup>	1.3 m/sec (Study Team)	1.2 m/sec (Study Team)
	Possible Sedimentation in Navigational Channel	Water flow discharged from the Thi Vai river might be less amount because of its narrow basin area. Disturbances due to currents could cause sedimentation / erosion, and might need maintenance dredging.		Access channel is needed to be constructed by dredging the shallow sea area, therefore maintenance dredging work will be necessary.
	Change of Riverbank and Coastline	According to a result of historical analysis, changes of the riverbank by eroding phenomena are found at these sites.		Not subject because of sea area
3	Geotechnical Condition (Study Team)			
	Thickness of the Very Soft Surface Clay Layer (N < 3)	11 to 16 m	29 to 31 m	8 m
	Unconfined Test (q <sub>u</sub> ) of the Very Soft Surface Layer	Average 0.22 kgf/cm <sup>2</sup>	Average 0.29 kgf/cm <sup>2</sup>	Average 0.15 kgf/cm <sup>2</sup>
	Depth of Bearing Stratum (N > 50)	CDL -46 m to CDL -55 m	CDL -52 m	CDL -52 m

Note 1) High Water Level with 1 % Probability of Occurrence, Source: Thi Vai-Vung Tau Port System, 1997

Note 2) Highest High Water Level during 1955 to 2000, Source: Recorded at Vung Tau observatory in 2001.

Note 3) Source: Pre-Feasibility Study Report on Thi Vai General Port, 2000.

## 10.2 Cargo and Passenger Movement

### (1) Continuous Increase in Dry Cargo

In recent years, the SFEA ports must have expanded their handling capacity to cope with a growing dry cargo of 2-3 million tons per year despite the very limited provision for new port infrastructure. Containerization has been promoted among the SFEA dry cargo with containerization rate increasing from 35.5% in 1996 to 38.5% in 2000. Thus, the SFEA ports must handle such cargo more efficiently providing for favorable multimodal arrangement and access transport.

### (2) Strong North-South Linkage by Coastal Shipping

Vietnam's coastal shipping mainly serves medium to long-distance haulage particularly between the north and the south. In terms of modal share, the VITRANSS Traffic Surveys in 1999 indicated that coastal shipping accounted for 65% between the two major economies of Vietnam. This is true for the SFEA ports where the north cargo has dominant shares among all the coastal shipping cargo, with 85% and 88% for outgoing and incoming cargo shares respectively. This north-south linkage has inherent characteristics with rice and petroleum products moving from south to north and cement and coal moving from north to south. (Refer to Section 11.2 for detailed information)

### (3) High Inter-dependency of the SFEA Economy with Other Asian Economies by Overseas Shipping

When the origin and destination countries of the SFEA trade are classified into six directions, the estimation results based on trade statistics clearly demonstrate how the SFEA economy is highly inter-dependent with other Asian economies (refer to Table 10.2.1 and 10.2.2.).

In the year 2000, the East Asian countries were the largest trading partners for both export and import, registering 38% and 40% shares, respectively. The second largest group was Thailand, Malaysia and Singapore, with 19% and 40% of respective total. The group of Indonesia, Brunei and Oceania had 28% of the total exported cargo due to the crude oil shipment for Australia.

Table 10.2.1 Estimated Exported Cargo Movement in the SFEA, 2000

(unit: '000 tons)

Group of Destination Countries	Rice & Food Crops	Industrial Crops	Fishery Products	Wood Chip	Crude Oil	Manufacturing Goods	Total	%
1. East Asia <sup>1/</sup>	868	78	390	64	5,634	1,386	8,419	37.7
2. North and South America	66	43	137	22	403	137	808	3.6
3. Europe	317	196	47	8	0	1,076	1,643	7.4
4. Middle East, South Asia and Myanmar	960	17	0	0	0	60	1,037	4.6
5. Indonesia, Brunei and Oceania	561	5	10	2	5,499	60	6,137	27.5
6. Thailand, Malaysia and Singapore	528	43	30	5	3,407	262	4,275	19.2
Total	3,300	380	614	100	14,944	2,981	22,319	100.0

Note: 1/ includes Japan, China, Korea, Taiwan, Hong Kong, Philippines

Table 10.2.2 Estimated Imported Cargo Movement in the SFEA, 2000

(unit: '000 tons)

Group of Origin Countries	Steel & Iron	Fertilizers	Cement & Clinker	Timber	Refined Oil Products	Manufacturing Goods	Total	%
1. East Asia <sup>1/</sup>	1,146	1,314	70	10	990	3,120	6,650	40.0
2. North / South America	12	203	11	0	0	157	383	2.3
3. Europe	550	615	33	0	61	638	1,897	11.4
4. Middle East, South Asia and Myanmar	32	3	0	5	0	73	113	0.7
5. Indonesia, Brunei and Oceania	46	475	25	50	123	230	949	5.7
6. Thailand, Malaysia and Singapore	214	376	20	35	4,972	1,009	6,626	39.9
Total	2,000	2,987	160	100	6,146	5,226	16,619	100.0

Note: 1/ includes Japan, China, Korea, Taiwan, Hong Kong, Philippines

#### (4) Widely Spread Port Hinterland and Long-distance Access Transport

According to the truck driver interview survey conducted in May 2001, drivers arriving in Saigon Port and Phuc Long ICD originated from various places, with some coming outside the SFEA. Among the total respondents, there were 17.4% and 14.8% long-distance drivers at Khanh Hoi Terminal of Saigon Port and Phuc Long ICD, respectively. The truckers from the Mekong River delta are likely to proceed their cargoes to Saigon Port directly while the ones from the central Vietnam prefer to transship their cargo at Phuc Long ICD. It is also observed that inland waterways tightly connect the Mekong River delta with HCM City.

With the recent completion and ongoing construction of transport infrastructure projects, such long access transport must be substantially improved in terms of travel time/cost savings, availability of container haulage and safety enhancement. Such major transport projects can be listed as follows:

- HCMC – Can Tho road rehabilitation (completed)
- HCMC – Nha Trang road rehabilitation (completed)
- My Thuan bridge construction (completed)
- HCMC – Vung Tau road improvement (completed)
- Can Tho bridge construction (construction ongoing)
- Can Tho – Nam Can road rehabilitation (construction ongoing)
- Trans-Asian Highway Project (HCMC – Phnom Penh, construction ongoing)
- Inland waterway improvement (HCMC – Kien Luong and HCMC – Ca Mau, construction ongoing)

Thus, the SFEA port system will have to serve wider hinterland including Cambodia in the near future.

#### (5) Difficult Coexistence with HCM Urban Transport

In compliance with the Decision of the HCMC People's Committee, No. 5736/QD-UB-NCVX, 1996), trucks with loading capacity of more than 2 tons, construction trucks and specialized vehicles such as cranes and tractors are prohibited to travel inside the ring road comprising National Road No. 1 and Saigon South Highway. To operationalize this, a truck ban is set for the

following periods: 6:00-8:00, 11:00-13:00 and 16:00-19:00. As a result, port operation is restricted particularly at Tan Cang and Saigon ports.

However, even during the truck ban periods, roads are still heavily congested with passenger vehicles. Thus, there is an increasing pressure towards a stricter control for road freight transport. Under such circumstances, the barge transport via ICDs (Phuc Long and Transimex-Saigon) is deemed to be the resigned solution although it will cost shippers additional expenses. Hopefully, the ongoing trans-HCM highway project may provide the much-needed relief on HCM urban transport but a port group along the Saigon River.

#### (6) An Emerging Regional Cruise Market

First and foremost, the ASEAN region is recognized as ports-of-call by worldwide and inter-continental cruise ships. The regional cruise has been active along the west coast of the South China Sea and through the Malacca Strait as a result of the establishment and business expansion of Star Cruises since 1993. The magnitude of cruise industry in the ASEAN region is estimated at around 0.8 million passengers in 2000 consisting of world cruise tours, regional tours and domestic tours which also includes river cruise tours and regional ports calls. About two-thirds of the passengers are ASEAN nationals.

SFEA is endowed with very rich and beautiful sceneries, historical sights, delectable and varied cuisine, and an assortment of lovely things and souvenir items to buy. In addition, the shipcalls on the SFEA are increasing. For example, MACS HCMC, a VINAMARINE's subsidiary ground cruise operator, handled 179 voyages with 158,000 passengers between 1999 and 2000. Although the area is able to attract more cruise shipcalls, present cruise ports such as Nha Rong Terminal of Saigon Port and Baria Serece Port are basically cargo ports which discourage cruise shipping lines. There is therefore a need to develop a dedicated cruise port at an accessible location near HCMC in collaboration with the private sector.