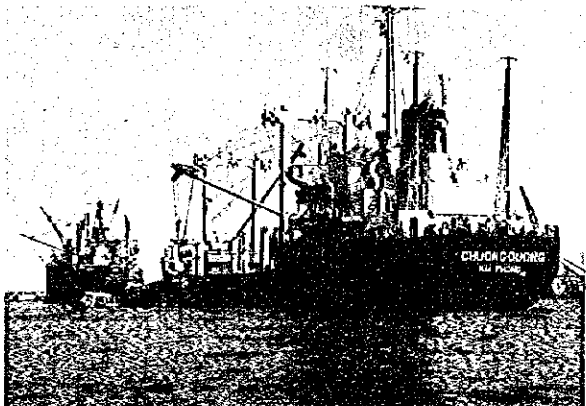
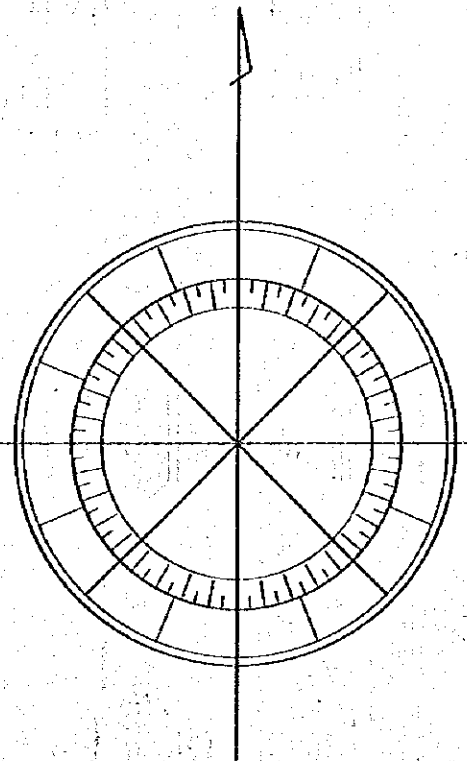


MASTER PLAN STUDY ON COASTAL SHIPPING REHABILITATION AND DEVELOPMENT PROJECT IN VIETNAM



Final Report
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March 1997

The Maritime International Cooperation Center of Japan (MICC)
Overseas Shipbuilding Cooperation Centre (OSCC)
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The exchange rate used in the report is
J. Yen 110 = US\$ 1 = Vietnam Dong 11,000
J. Yen 1 = Vietnam Dong 100
(average during FY 1995-1996)

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

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

**FINAL REPORT
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MARCH 1997

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



1135246(5)

PREFACE

In response to a request from the Government of the Socialist Republic of Vietnam, the Government of Japan decided to conduct "Master Plan Study on Coastal Shipping Rehabilitation and Development Project in Vietnam" and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Vietnam a study team headed by Mr. Shojiro MIYANAGA, General Manager of the Maritime International Cooperation Center (MICC) and composed of members from MICC, Overseas Shipbuilding Cooperation Centre (OSCC) and ALMEC Corporation between December 1995 and January 1997.

The study team held discussions with the officials concerned of the Government of Vietnam and conducted field surveys at the study area. After the study team returned to Japan, the present report was prepared.

I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of Vietnam for their close cooperation extended to the study team.

March 1997



Kimio FUJITA

President

Japan International Cooperation Agency

March 1997

Mr. Kimio FUJITA
President
Japan International Cooperation Agency
Tokyo, Japan

Dear Mr. FUJITA,

LETTER OF TRANSMITTAL

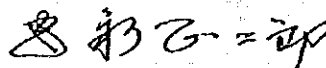
We are pleased to submit to you the master plan report on coastal shipping rehabilitation and development project in Vietnam. The study forged its master plan and short-term priority projects towards the years 2010 and 2000, respectively. The advice and suggestions of the authorities concerned of the Government of Japan and your Agency are duly incorporated into the report. Also included are comments made by the officials concerned of the Government of Vietnam during technical discussions on the draft report which were held in Hanoi and Ho Chi Minh City.

This report concludes that coastal shipping in Vietnam has a great development potential although it has not been developed adequately. And the report presents the development directions with a set of conditions integrally and strategically. We hope that implementing the Master Plan will improve and expand the role of coastal shipping, which would bring about large and extensive economic benefits through improvements to the national transport system, to shipping activity and maritime safety, and to the coastal environment.

Since it is economically and environmentally feasible and possible to mobilize various funds, we recommend that the Government of Vietnam fully implement this Master Plan as a top priority.

We wish to take this opportunity to express our sincere gratitude to your Agency, the Ministry of Foreign Affairs, the Ministry of Transport. We also wish to express our deep gratitude to the Ministry of Transport and other authorities concerned of the Government of Vietnam for the close cooperation and assistance extended to us during the course of the study.

Very truly yours,



Shojiro MIYANAGA
Team Leader

Master Plan Study on Coastal Shipping
Rehabilitation and Development in Vietnam

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

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GLOSSARY OF TERMS

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

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

Chapter 1

INTRODUCTION

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Chapter 1 INTRODUCTION

(a) Study Background and Objectives

1) Background

Appropriate transport infrastructure is an essential requirement for sustainable economic development. Over the past few years, Vietnam has experienced rapid economic growth. However, there is a risk that transport infrastructure development cannot keep pace with such growth due to inadequate finance, technology and management know-how. This is particularly true in the case of coastal shipping which has hardly been developed, compared with other transport modes, despite the country's abundant coastal and waterway resources. The effective utilization of these natural resources has been a concern of officials and agencies, but little progress has been made for various reasons.

Against this background, the Government of the Socialist Republic of Vietnam decided to request assistance from the Government of Japan, who has extensive technical experience in coastal shipping, to conduct a study with the aim of improving the coastal shipping system. In response to this request, the Government of Japan decided to conduct the study entitled "Master Plan Study on Coastal Shipping Rehabilitation and Development Project in Vietnam," with study objectives and scope agreed upon by both parties. The Japan International Cooperation Agency (JICA) was designated to execute the said Study. JICA then conducted a preliminary survey in Vietnam on which the scope of work of the Study was based. The agreement to carry out the Study was signed in March 1995. A team of consultants was then appointed to carry out the work. This JICA Study Team commenced work in December 1995.

2) Objectives

The study objectives are three-fold:

- (a) To formulate a master plan on coastal shipping development and its related subsectors up to the year 2010;
- (b) To prepare a short-term implementation plan (up to the year 2000) consisting of priority projects to be incorporated into the aforementioned master plan; and
- (c) To facilitate technology transfer to counterpart officials within the study scope by means of workshops and discussions.

3) Coverage of the Study

The study is limited to cover coastal shipping transport and its related subsectors, although overseas shipping and inland waterway transport will be dealt with only when and where they are closely related to coastal shipping.

(b) Study Framework and Report Composition

1) Overall Study Framework

The study is composed of six major subsectors including coastal shipping transport, inland waterway transport, shipbuilding and ship repair, maritime safety, seafarer education and ports, which are to be integral parts of the coastal shipping transport system. The work program has involved four major steps, including i) assessment of current condition of coastal shipping, ii) forecast of coastal shipping traffic and formulation of coastal shipping development strategies and preliminary plan, iii) formulation of a Master Plan, and iv) formulation of a short-term plan.

The results of i) and ii) were explained in the Progress Report (March, 1996) and Interim Report (August, 1996), respectively. This Final Report describes iii) and iv) and summarizes i) and ii).

Throughout the Study, transfer of technology was undertaken by way of on-the-job training (OJT) and the holding of workshops when major findings/outputs of the study were presented.

2) Report Composition

The results of the study are contained in the following reports:

- Summary
- Main Report
- Supplementary Reports
 - Vol. 1: Maritime Transport Industry
 - Vol. 2: Fleet Development and Seafarers Education
 - Vol. 3: Ports and Inland Waterways
 - Vol. 4: Maritime Safety and Environment
 - Vol. 5: Coastal Shipping Traffic Demand

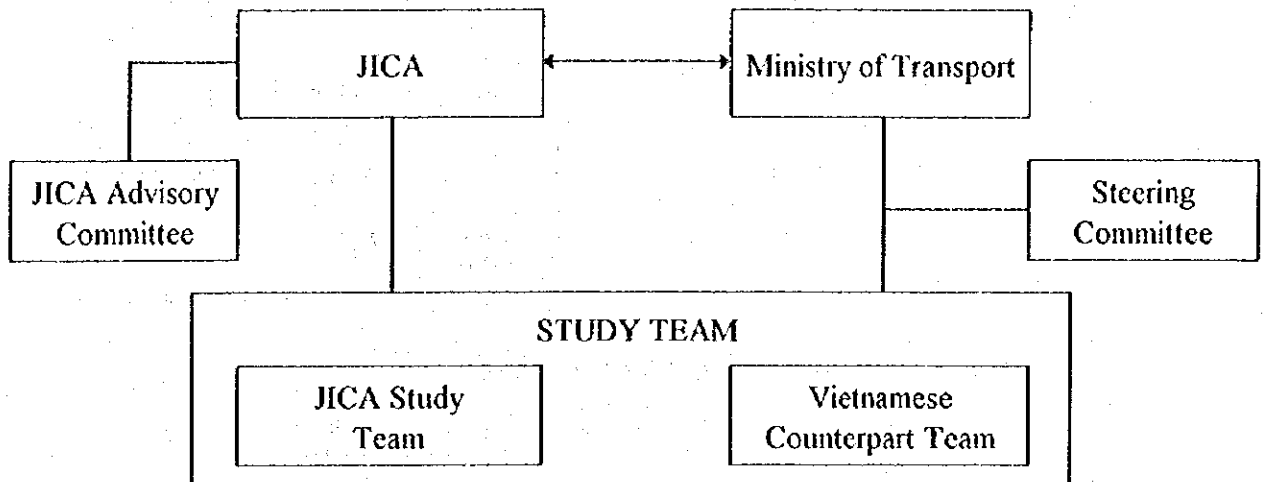
(c) Study Organization

The study organization was composed of the JICA advisory Committee and the JICA Study Team on the Japanese side, and the Steering Committee and counterpart team on the Vietnamese side, as shown in Figure 1.1.1.

The Steering Committee was comprised of decision-makers of relevant agencies, including MOT (Ministry of Transport), VINAMARINE (Vietnam National Maritime Bureau), MPI (Ministry of Planning and Investment) and IWB (Inland Waterways Bureau). In the course of the study, VINALINES (Vietnam National Shipping Lines) and VINASHIN (Vietnam Shipbuilding Industry Corporation) were included at the

Study Team's request. The MOT appointed VINAMARINE as a counterpart agency to organize the Vietnamese Counterpart Team.

Figure 1.1.1
STUDY IMPLEMENTING ORGANIZATION



THE STUDY TEAM ORGANIZATION

Steering Committee of Vietnam Government

Chairman:	Mr. Bui Duc Nhuan	Vice Chairman, VINAMARINE
Members:	Dr. Tran Doan Tho	Deputy Director General, Planning and Investment Dept., Ministry of Transport
	Mr. Vuong Dinh Lam	Director, International Cooperation Dept., VINAMARINE
	Mr. Dao Trong Long	Director, Basic Construction Dept., VINAMARINE
	Mr. Vu Huy Cuong	Director, Planning and Investment Dept., VINAMARINE
	Mr. Nguyen Toai	Senior Expert, Ministry of Planning and Investment
	Mr. Le Dinh Doanh	Director, International Cooperation Dept., Inland Waterways Bureau
	Mr. Phung Dinh Phuc	Director, Planning and Investment Dept., VINALINES
	Mr. Pham Thanh Binh	President, VINASHIN
	Mr. Nguyen Huu Long	Project Manager, International Cooperation Dept., VINAMARINE
	Mrs. Le Bich Nga	Deputy Director, Maritime Consulting and Service Center

Counterpart Team organized by VINAMARINE

Members:	Mr. Do Thai	Expert, Maritime Safety Inspection Dept.
	Mr. Tran Kim Sau	Expert, Finance and Accounts Dept.
	Mr. Mai Ngoc Bao	Expert, Seafarers Education Dept.
	Mr. Ha Binh	Vice Manager, Technical Dept., VMS

JICA Advisory Committee

Chairman:	Mr. OTAKE Akira (1995.12-1996.3)	Ministry of Transport
	Mr. ENDO Makoto (1996.4-1997.3)	Ministry of Transport
Members:	Mr. IMADE Hidenori	Ministry of Transport
	Mr. NAITO Yutaka	Ministry of Transport
	Mr. SASAKI Hiroshi	Ministry of Transport
	Mr. KOMORIDA Shigetoshi (1995.12-1996.3)	Maritime Safety Agency
	Mr. HAYAKAWA Tomoki (1996.4-1997.3)	Maritime Safety Agency
JICA HQ:	Mr. TSUGANE Shoichi	Officer-In-Charge

JICA Study Team

Mr. MIYANAGA Shojiro	Team Leader/Maritime Transport Policy
Dr. IWATA Shizuo	Deputy Team Leader/Financial and Management Analysis
Mr. KUMAZAWA Ken	Demand Analysis/Transport Planning
Dr. Samart Ratchapolsitte/ Dr. Ian Jenkins	Coastal Shipping Network Planning
Mr. OKAMURA Naoshi	Economic Analysis
Mr. KOZAI Tatsuji	Shipbuilding Planning
Mr. ARAI Tsutomu	Aids to Navigation Planning
Mr. ARAKI Eiji	Vessel Assignment and Operation Planning
Mr. MATSUMOTO Toshiyuki	Shipping Company Management
Mr. TACHIINO Yukio	Seafarers Education
Mr. NAGAI Takeshi	Inland Waterway/Intra-port Transport
Mr. AKIYOSHI Hiroshi	Shipbuilding Technology
Mr. SAKAMOTO Yasuzo	Ship Inspection
Mr. OWADA Makoto	Port and Inland Waterway Planning
Mr. SHITSUKAWA Kazuaki	Search and Rescue/Maritime Communications
Mr. SAKURAI Takashi	Environmental Impact Assessment
Mr. KURIYAGAWA Kenji	Port Management/Cargo Handling
Dr. MASUJIMA Tetsuji	Traffic Survey

Chapter 2

PROFILE OF THE STUDY AREA

THE FEDERAL BUREAU OF INVESTIGATION

UNITED STATES DEPARTMENT OF JUSTICE

Chapter 2 PROFILE OF THE STUDY AREA

2.1 Natural and Physical Conditions

(a) Geography

Vietnam is located in the Pacific Ocean Rim between 8°30' N and 23°22' N, with a total area of 331,041 km² stretching in an "S" shape along 3,260 kilometers of the coastline - from China in the north to the Gulf of Thailand in the south, and facing Laos and Cambodia in the west. The narrowest part of the country is about 50 kilometers in the east-west direction, located in Thua Thien Province.

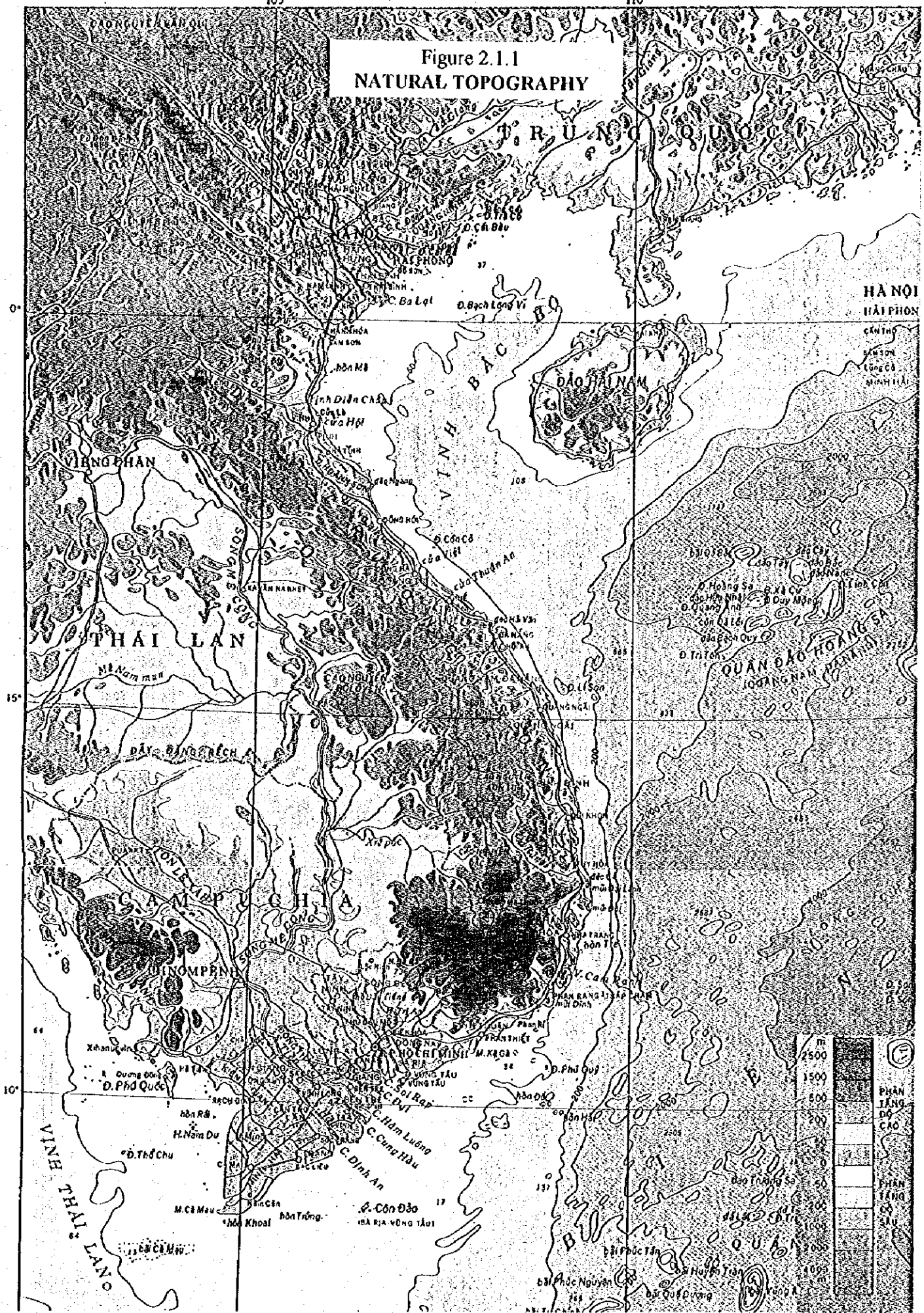
Vietnam stands on an ancient geological foundation at the edge of the Euro-Asia continent. Its soil consists of four main types; alluvial soil, eroded and poor soil, red and yellow soil, and humus on the high mountain.

Vietnam has various mineral resources. Coal, mainly anthracite and half anthracite, is found in various regions with a concentration in Quang Ninh Province. Iron ore is mainly found in Thach Khe, Bao Ha, and Thai Nguyen. There are currently about 2-3 billion tons of oil and gas reserves for commercial exploitation.

Agricultural land is about 10-11 million ha; however, only about 65% is in use. Rice production in the north is lower than that in the south since it is more affected by typhoons. Forest land, including hilly and coastal areas, accounts for 20 million ha; however, forestry reserves have decreased drastically.

Vietnam has a large sea territory with an exclusive economic influence area three times bigger than its land territory (about 1 million km²). This sea territory includes more than 3,00 islands and islets. There are stretches of mangrove forests, lagoons and coral reefs along the coast. The degradation and pollution of the sea and coastal environment are becoming more critical. For example, it is reported that there were 400,000 ha of mangrove forests before 1940. However, 50% of the mangrove area had been destroyed by 1992.

Figure 2.1.1
NATURAL TOPOGRAPHY



(b) Climate

There are two seasons in Vietnam; however, these two seasons are different between north and south. In the north, one season is winter and the other is summer, while in the south, the two seasons are rainy and dry. The temperature is much higher in the south from November to March. At other times of year the temperature difference between north and south is much less. In 1994, the average temperature in Ho Chi Minh City (HCMC) was over 25°C all year round, and the variation between the maximum and minimum temperatures was quite low. On the other hand, in Hanoi, it ranged from below 18°C to over 28°C.

Every year, six to seven typhoons pass over Vietnam, and 13 typhoons on average pass through Vietnamese waters. They come from the Philippines between June and November. Regardless of size, vessels must seek refuge from some of the typhoons. This consumes an anchorage time of at least one month a year.

Floods may occur during the rainy season due to the following reasons:

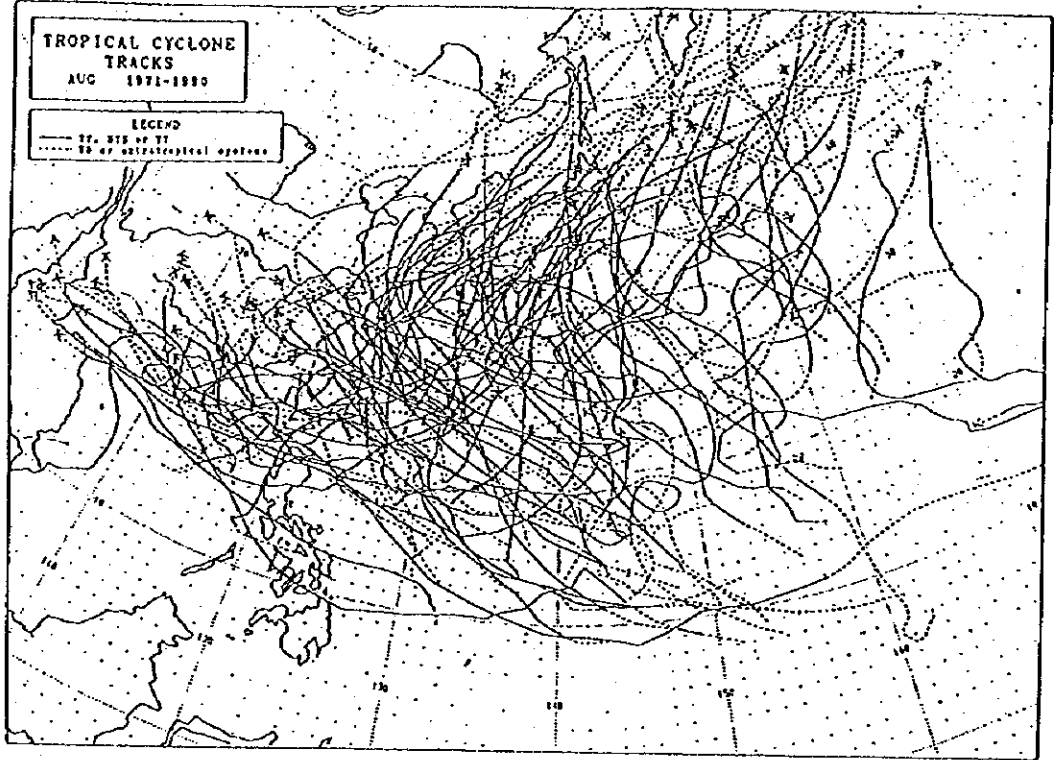
- 1) a typhoon
- 2) heavy rain in the Central Highlands in Vietnam and northeast Cambodia caused by the south-west monsoon
- 3) heavy rain along the upper reach of the Mekong River

A drought may occur just before the rainy season. Over the past fifty years, there has been no record of an earthquake.

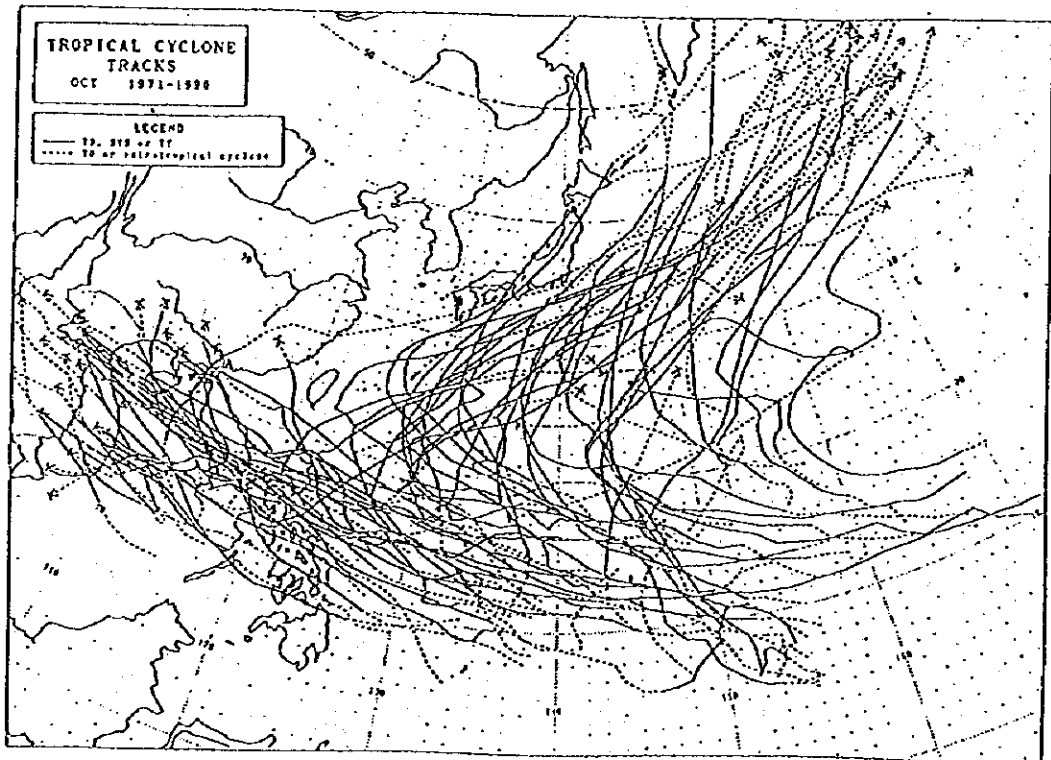
Figure 2.1.2

TYPHOON TRACKS BETWEEN 1971 AND 1990

(August)



(October)



2.2 Socio-economic Conditions

2.2.1 Economic Development

(a) Economic Structure

The Government of Vietnam announced in 1986 its decision to dismantle the centrally planned system. However it was not until 1989 that the Government started to set the stage for the transformation towards a more market driven economy. There is no doubt that substantial progress has been achieved over the period 1989 to 1995 in terms of overall growth and macroeconomics stability, integration into the regional economy through joining ASEAN, and normalization of bilateral relations, in particular with the People's Republic of China and the United States.

Such progress, however, has been achieved partly through "ad hoc" decision-making in what still remains a highly centralized and tightly controlled decision-making system. From an economic viewpoint, progress so far has been achieved with a rather low incremental capital - output ratio (ICOR), which was 2.4 in 1993. Hence, in that sense, the period 1989 to 1995 may be categorized as "the easy phase" of transformation.

Table 2.1.1 clearly shows socio-economic development between 1991 and 1995. The main features are as follows:

- Change in the economic structure is characterized by a decrease in agriculture and forestry, and an increase in industry and services.
- Annual GDP growth rate was 8.2% on average due to the remarkable expansion of both the industry and construction sectors.
- Flourishing foreign trade with neighboring countries supported economic development.
- Another important achievement was the control of inflation.

Table 2.2.1
VIETNAM SOCIAL - ECONOMIC PARAMETERS

No	Parameter	Unit	1991	1992	1993	1994	1995
1	Population	10 ³ pers.	67774	69405	71025	72905	72916
2	GDP (at constant price of 1989)	10 ⁹ VND	31206	33991	36736	39982	43797
3	GDP per capita	10 ³ VND	462	490	517	548	601
4	Structure of GDP, of which:	%	100	100	100	100	100
	Agriculture, Forestry	%	38.9	34.0	30.0	28.7	25.3
	Fishery	%	2.2	2.2	2.34	2.2	2.2
	Industry	%	21.0	22.4	23.9	25.3	23.0
	Construction	%	3.6	3.8	4.0	4.3	7.1
	Service	%	34.3	37.6	41.06	40.5	42.4
5	Value of Exports	10 ⁵ US\$	2087	2580.7	2985.2	4054	5220
6	Value of Imports	10 ⁵ US\$	2338.1	2540.8	3924.0	5825.8	7510
7	Value of Imports and Exports per capita	US\$	30.1	37.2	42.0	55.6	71.6
8	Food (in paddy equivalent) per capita	Kg	324.9	348.9	359.0	361.3	371.8
9	Inflation Rate	%	67.6	17.6	5.2	14.4	12.5

Source: General Statistics Office

(b) Key Economic Sectors

1) Agriculture, forestry, fishery

The policy change in setting farmers free from cooperative control triggered an explosion in rice production after 1990. In the early 1990s, Vietnamese agriculture increased production steadily. In fact, the annual growth rate was 5.4% over the period 1991 - 1995. Agricultural activities take several forms as follows:

- The main product is cereals. Vietnam has gradually decreased its imports and now has become the third largest exporter of rice in the world.
- Coffee is widely planted in the Western Plateau such as Dong Nai, Nghe An, Son La in recent years. Coffee has become the second largest export product in this sector.
- Tea is planted mainly in the North Mountain and Midland Region while rubber is planted in the south.
- The forestry industry ships out forest products of three million cubic meters annually. In addition, it exploits some pharmaceutical materials such as cinnamon, anise, flower, resin, etc. with an average quantity of 7 - 10,000 tons. The fishery industry is rather weak due to the lack of fishing equipment and on-site processing facilities. The fishery production is 0.5 - 0.7 million tons annually.

- It is observed that Vietnam is a sizable net exporter of rice although 50% of its population is classified as "poor" and there is a tight food supply in the North. Given Vietnam's population growth and agricultural potential and constraints, agriculture is considered to be a leading strategic sector in terms of maintaining a reasonable level of food security.

Table 2.2.2

TREND IN AGRICULTURAL PRODUCTS

Commodity	Unit	1991	1992	1993	1994	1995
Food (in paddy equivalent)	10 ³ T	21,989.5	24,214.6	25,501.7	26,198.5	27,500
Tea (dry)	10 ³ T	33.1	36.2	37.7	38.0	NA
Rubber	10 ³ T	64.5	66.1	96.0	128.7	NA
Coffee	10 ³ T	67.0	71.8	131.3	166.4	NA
Round wood	10 ³ CUM	3210	2,646.6	2,884.0	NA	NA
Sea fish	10 ³ T	614.6	627.4	660.0	NA	NA

Source: General Statistics Office

2) Industry

Industry has been a driving force of national development and registered an annual growth rate of 13.4% between 1990 and 1994.

Industrial activities: Major industrial activities in Vietnam are to process agricultural products and to mine fossil fuel resources. Table 2.2.3 indicates gross output of industrial activities and shows that food processing accounts for about 1/3 of the total output. Table 2.2.4 shows the trend in mining and manufacturing products.

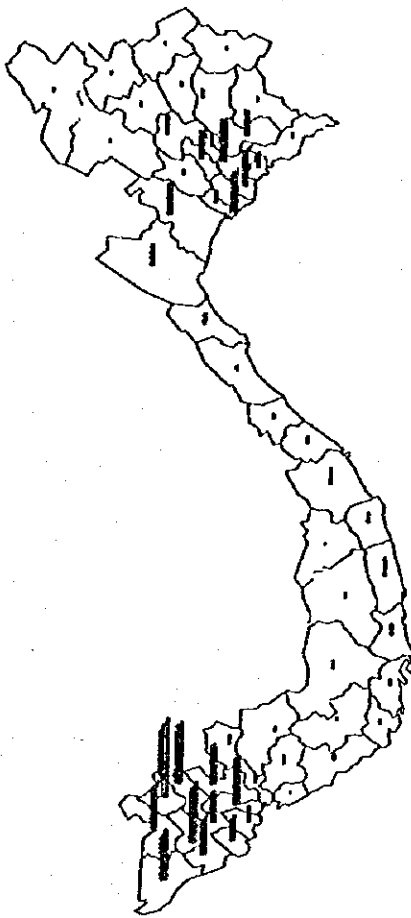
Table 2.2.3

GROSS OUTPUT BY INDUSTRY TYPE (at 1989 constant prices)

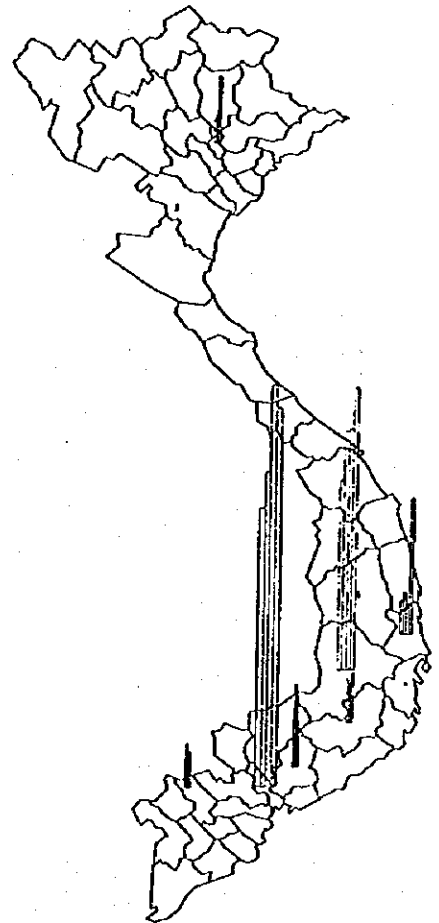
Industry Type	Gross Output (bil. dong)			Share (%)	Annual Growth Rate
	1990	1992	1994	in 1994	1990-1994
1. Food Processing	5,040	6,140	7,909	34.1	11.9
2. Textile / Clothing	1,555	1,764	2,189	9.4	3.9
3. Equipment / Machinery	923	995	1,201	5.2	6.8
4. Metal / Non-metal	219	406	515	2.2	23.8
5. Chemical / Products / Fertilizer / Rubber	921	1,355	1,937	8.4	20.4
6. Electric & Electronic Products	272	300	491	2.1	15.9
7. Construction materials	1,000	1,384	1,793	7.7	15.7
8. Wood / Wood Products	573	611	668	2.9	3.9
9. Fuels	1,551	2,963	3,675	15.9	24.1
10. Electric power	1,046	1,161	1,515	6.5	9.7
11. Others	910	1,038	1,277	5.6	8.8
Total	11,011	18,117	23,170	100.0	13.4

Source: General Statistics Office

Figure 2.2.1
MAJOR AGRICULTURE PRODUCTS



RICE PRODUCTION BY PROVINCE



COFFEE PRODUCTION BY PROVINCE

Table 2.2.4
TREND IN MINING AND MANUFACTURING PRODUCTS

Product Item	Unit	1991	1992	1993	1994	1995
Coal	10 ⁶ T	4.7	5.0	5.9	6.0	7.65
Crude Oil	10 ⁶ T	4.0	5.5	6.3	6.9	7.7
Steel	10 ³ T	149.0	196	243	280	380
Cement	10 ⁶ T	3.1	3.9	4.8	5.2	5.9
Chemical Fertilizers	10 ³ T	450	530	714	790	859
Phosphatic Ores	10 ³ T	319	290	362	470	NA

Source: General Statistics Office

Locational allocation: The Government of Vietnam has designated two economic focal areas, the North and South Triangle Zones, and is planning additional Central Development Zones. These zones will be developed with adequate infrastructure and urban facilities in order to attract both foreign and domestic investment. Existing and planned industrial estates and export processing zones are illustrated in Figure 2.2.2.

Based on location and the magnitude of industrial operations, it is estimated that over 52% of industrial production is undertaken in only three provinces, namely Vung Tau, Ho Chi Minh City and Hanoi. The country's industrial base is almost exclusively located in the South, in Vung Tau and Ho Chi Minh City, with the gap between these two and Hanoi rapidly expanding. (Refer to Table 2.2.5)

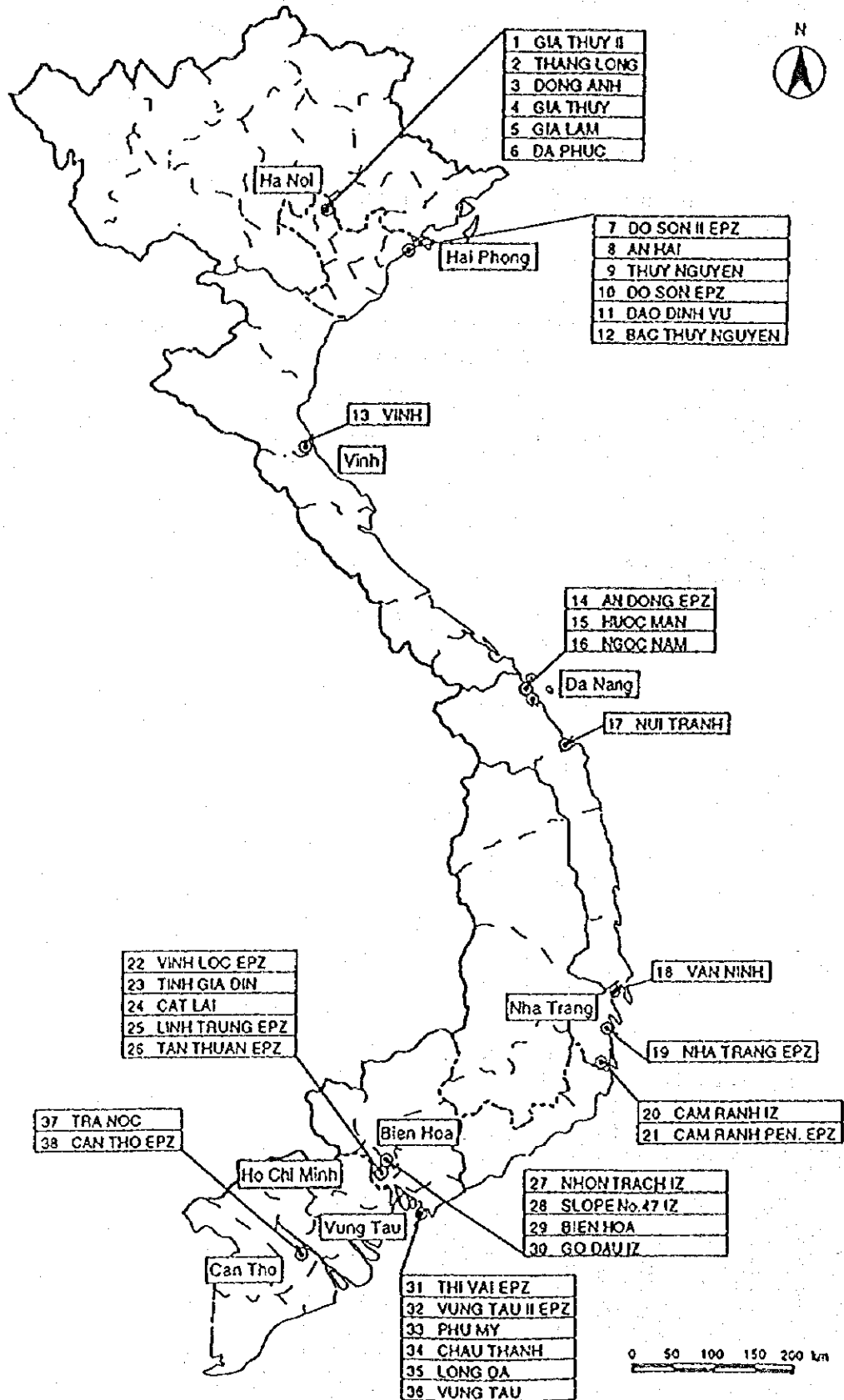
Table 2.2.5
TOP RANKING PROVINCES IN TERMS OF GROSS VALUE
OF INDUSTRIAL OUTPUT

Rank	Province	Industrial Output (bil. dong)		National Share (%)	
		1990	1994	1990	1994
1	HCMC	1,326	2,053	23.9	23.5
2	Vung Tau	845	2,059	15.2	23.5
3	Hanoi	355	510	6.4	5.8

Source: JICA Study Team

Figure 2.2.2

LOCATION OF EXISTING AND PLANNED INDUSTRIAL ESTATES AND EXPORT PROCESSING ZONES IN VIETNAM



3) Tourism

Tourism in Vietnam was a fledging activity in the 1980s and registered an upward trend in the 1990s. The number of international visitors entering Vietnam increased by about 40% each year recently. In fact, Vietnam received 135 thousand and 940 thousand international visitors in 1990 and in 1994, respectively, and the estimate for 1995 is 1.4 - 1.5 million foreign visitors. (Refer to Table 2.2.6).

In 1994, 738 thousand foreign visitors and 202 thousand overseas Vietnamese were recorded. Among the foreign visitors, tourists constituted 58% and most of the rest were in business. Many overseas Vietnamese visited the country, and 90% were visiting relatives or having holidays. More than half of them had obtained US citizenship.

Table 2.2.6

TREND IN INTERNATIONAL VISITORS

Unit: person

Item	1990	1991	1992	1993	1994
TOTAL	135,866	188,305	308,073	528,375	940,707
A. Foreigners	99,721	129,234	231,973	375,700	738,661
Classified by objectives					
Tourism	41,829	65,477	128,858	209,640	431,308
Business	29,880	46,287	76,096	111,978	235,677
Other Objectives	28,012	17,470	27,019	54,082	71,676
B. Overseas Vietnamese	36,145	59,071	76,100	152,675	202,046
Meeting relatives, tourism	33,944	56,216	73,827	128,267	183,416
Business	2,201	2,855	2,273	5,566	7,730

Source: Statistical Annals - 1995

The comparatively small number of tourists in the 1980s is partly explained by the fact that, for many years, Vietnam was virtually a closed country, and visa and movement regulations discouraged tourism. But the main constraint to the development of tourism is certainly the poor condition of its tourism infrastructure, in particular, the limited amenities in the hotels.

2.2.2 Population

The population of Vietnam increased from 49 million in 1976 (148 persons/km²) to 72 million in 1994 (217 persons/km²), with an average annual growth rate of 2.2% (Figure 2.2.3). This figure is greater than the population of 95% of all the countries in the world; however, its per capita income is greater than only 5% of all countries worldwide. The

distribution of population in 1994 by geographic area was as follows: 17.3% in the North Mountain and Midland Region; 19.7% in the Red River Delta Region; 13.6% in North Central Coast; 10.6% in South Central Coast; 4.2% in Central Highlands; 12.4% in Southeast; and 22.2% in the Mekong River Delta Region. Hanoi, the capital city, had a population of 2.2 million or approximately 3% of the total population in 1994, while HCMC had the highest population of 4.4 million, or about 6% of the total population. However, these two largest cities accounted for about 47% of the total urban population. Urban population in 1994 accounted for about 20% of the total population, a 15% increase from 1960. Female population has remained at about 51% of total population for a number of years. In terms of population distribution by age, 39% were under 15 years old, and the median age was 20 years. Life expectancy was 65 years old.

Changes in population share by region from 1979 to 1994 are shown in Table 2.2.7. With the exception of Red River Delta, the South Central Coast, and the Mekong River Delta Regions, population shares increased.

The labor force increased from 39% (19.4 million) of the total population in 1976 to 46% (33.7 million) in 1994 with an average annual growth rate of 3.1%, which was higher than that of the whole population.

Figure 2.2.3
POPULATION GROWTH

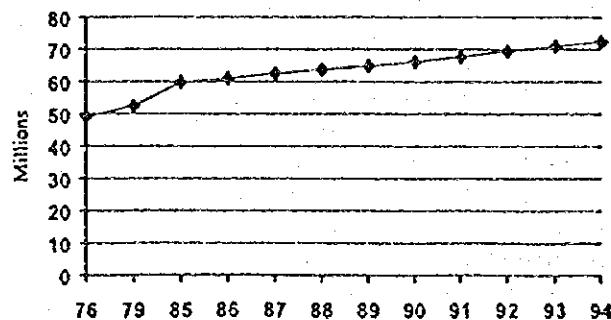


Table 2.2.7
CHANGES IN POPULATION SHARE, %

Region	Proportion of Land (%)	Proportion of Population (%)		
		1979	1989	1994
North Mountain and Midland	16.4	15.3	15.9	17.3
Red River Delta	8.6	21.7	21.4	19.7
North Central Coast	11.3	13.8	13.5	13.6
South Central Coast	9.4	11.0	10.5	10.6
Central Highlands	13.9	2.9	3.9	4.2
Southeast	10.8	11.9	12.3	12.4
Mekong River Delta	29.6	23.4	22.4	22.2
Whole Country	100.0	100.0	100.0	100.0

2.3 Overall Transport System

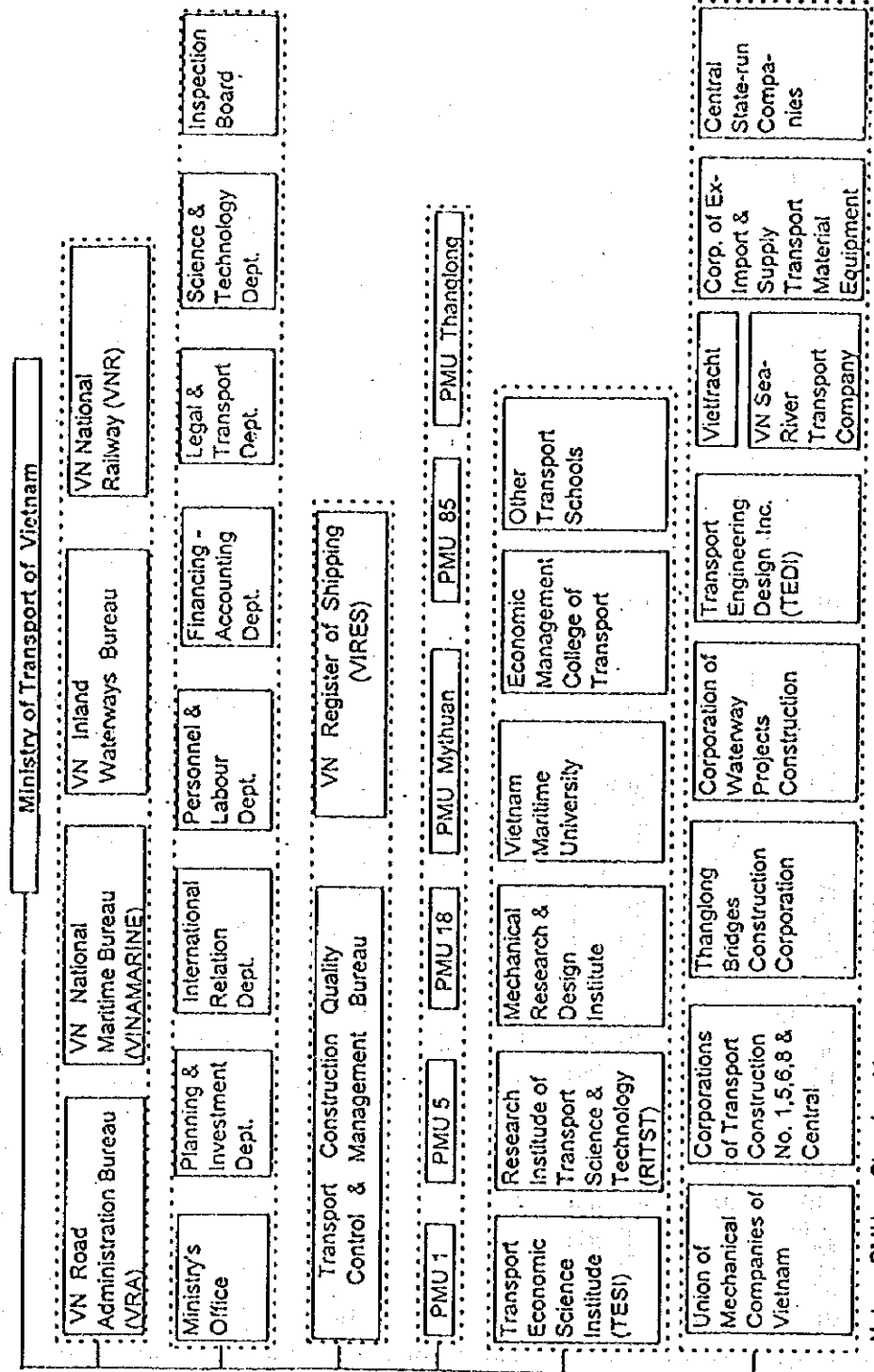
2.3.1 Administration/Institution

The Ministry of Transport (MOT) presently supervises various transport-related agencies including among others, the Vietnam Road Administration (VRA), Vietnam National Maritime Bureau (VINAMARINE), Inland Waterways Bureau (IWB), Vietnam National Railway (VNR), and Vietnam Register of Shipping (VIRES). In addition, some research and academic institutes and state companies are also under MOT such as the Transport Economic Science Institute (TESI), Research Institute of Transport Science and Technology (RITST), and Vietnam Maritime University (VIMARU). Figure 2.3.1 depicts the organization chart of MOT.

Other transport related agencies which are under the direct supervision of the Government Office include the Department of Civil Aviation and the Department of Post and Telecommunications. The Posts and Telecommunications General Company and the Civil Aviation General Company were established, responsible to the Department of Post and Telecommunications, and the Department of Civil Aviation, respectively. The departments are responsible for administrative and regulatory functions, whereas the general companies engage in commercial activities.

A rather complicated arrangement applies to the Vietnam National Shipping Lines (VINALINES) and the Vietnam Shipbuilding Industry Corporation (VINASHIN). These are under the direct supervision of the Government Office and, at the same time, under the technical supervision of MOT.

Figure 2.3.1
ORGANIZATION CHART OF MINISTRY OF TRANSPORT



Note : PMU = Planning Management Unit
 Source : Ministry of Transport (MOT)

2.3.2 Network Development

(a) International Linkage

Transport is very important both for developing a country and for integrating it with other countries. Vietnam has a multi-modal transport system, including land, river/sea, and air transport. The transport network in Vietnam is part of the South East Asian network, linking to the sea, landlocked countries or provinces such as Laos, the eastern provinces of Cambodia and Thailand and Yunnan (China).

At present, the following international links have connections with Vietnam:

(River)

- Red River (Yunnan - Vietnam - Tonkin Bay)
- The Lancang - Mekong River (Yunnan - Laos - Cambodia - Vietnam - South China Sea)

(Rail)

- Kunming - Hanoi - Haiphong Line
- Nam Nung - Dong Dang - Lang Son - Hanoi Line

(Road)

- In the north, the previous local, across-the-border trade is already being dwarfed by national level trade. The northern road network will be supplemented in future by other routes such as Nos. 2, 3 and 7.
- In the central region, road links to Laos will grow in importance as well. In addition to the present primary route (No. 9), there is considerable potential associated with the envisaged development of National Road Nos. 8 and 19.
- The southern part of Vietnam is already endowed with a convenient road link to Cambodia via National Road No. 22. No. 13 will be another important access to provincial centers in Cambodia.

(b) Roads

Vietnam's road network has a total length of 106,048 kilometers (as of the end of 1993), with a higher density in the urbanized areas and the industrial zones. The road network is classified into six categories, including national roads (11,353 km), provincial roads (14,499 km), district roads (24,624 km), urban roads (3,211 km), village roads (46,910 km), and special roads (5,451 km). The road density is calculated to be 32 km/100 km² and 1.47 km/1,000 inhabitants. These indicators are higher than those of several countries in this region. However, Vietnam's road quality is still lower than those of many countries. Based on the road statistics of the Ministry of Transport (MOT) in

1993, only 7.1% were in good condition, 42.5% were of medium quality, 34.6% were in bad condition, and 15.8% were in very bad condition.

Main roads from Hanoi include highway numbers 1, 2, 3, 6, and 32, and those from HCMC are numbers 10, 13, 20, 22, and 51. Highway No. 1 acts as the backbone of the national road network serving traffic demand in the north-south corridor of the country.

(c) Railways

The railway network consists of six lines with a total length of 2,637 kilometers and 261 stations. Most railway lines (84.7%) have a gauge of one meter, 6.6% have a 1.435 meter gauge, and 8.7% are mixed gauge. The backbone of the network is the line linking Hanoi and HCMC, which is meter gauge and was constructed between 1889 and 1935. Railway traffic in the north is heavier than in the south. Besides serving domestic traffic demand, the railway network also serves international demand between Vietnam and China. This border crossing was reopened recently (on 14 February 1996).

In total, there are 1,480 railway bridges (approximately 3,000 meters), most of which were built about 80 to 90 years ago on an emergency basis, with a short expected life. They are generally in poor condition. The improvement in railway infrastructure cannot be done effectively due mainly to a shortage of funds.

(d) Air Transport

Air transport serves both domestic and international traffic. There are 16 airports, including three international airports, namely Noi Bai, Tan Son Nhat and Danang. Most of these airports were converted from military use. Terminal facilities and navigation aids are generally sub-standard, even at the three international airports. Only four domestic airports provide scheduled services, Haiphong (Cat Bi, for both military and domestic traffic), Nha Trang, Buon Me Thuot (Hon Thang), and Phu Quoc (Duong Don).

The three international airports served approximately 451,000 international passengers in 1993. The growth in air passengers increased considerably from 5% per annum during 1975-1989 to 48% during 1990-1993 and to 50% in 1994.

(e) Waterways

Vietnam has a dense and extensive waterway network, including about 2,360 rivers, canals, and channels running through most cities and provinces all year round, totaling 41,900 kilometers in length. However, the total length of waterways which can be used for transport is only about 11,400 kilometers. There are 25 river ports with a total cargo handling capacity of approximately 25 million tons per year (as of 1995). There are two main waterway systems; one is the Red River and Thai Binh River system in the north, and the other is the Mekong River and Dong Nai River in the south. The navigation routes in central Vietnam are more limited.

Cargoes transported by waterways in the north are mainly related to heavy industries, particularly coal, whereas in the south they are mainly agricultural products.

To serve increasing demand, it is expected that waterway traffic will increase from 15% of capacity at present to 25% and 50% by the years 2000 and 2010, respectively.

(f) Sea Transport

Coastal shipping is an important means of cargo transport in Vietnam due to its strategic location. It is estimated that there is a major seaport for every 300 kilometers of the coastline. Some ports were built before independence, such as Haiphong and Hong Gai in the north, Saigon in the south, and Danang in the central area. Most of the port equipment is old, resulting in inefficient handling capacity. In addition, silting problems have reduced the capacity of sea transport.

Of Vietnam's 70 seaports there are three large ones, Haiphong, Danang, and Saigon. These 70 seaports have a total cargo handling capacity of about 14 million tons per year.

2.3.3 Traffic Characteristics

(a) Historical Changes in Traffic Demand

Vietnam has developed a multi-modal transport system which caters for large volumes of cargo and passengers everyday. According to the General Statistics Office (GSO), 76 thousand tons and 555 million passengers were transported by the system in 1994.

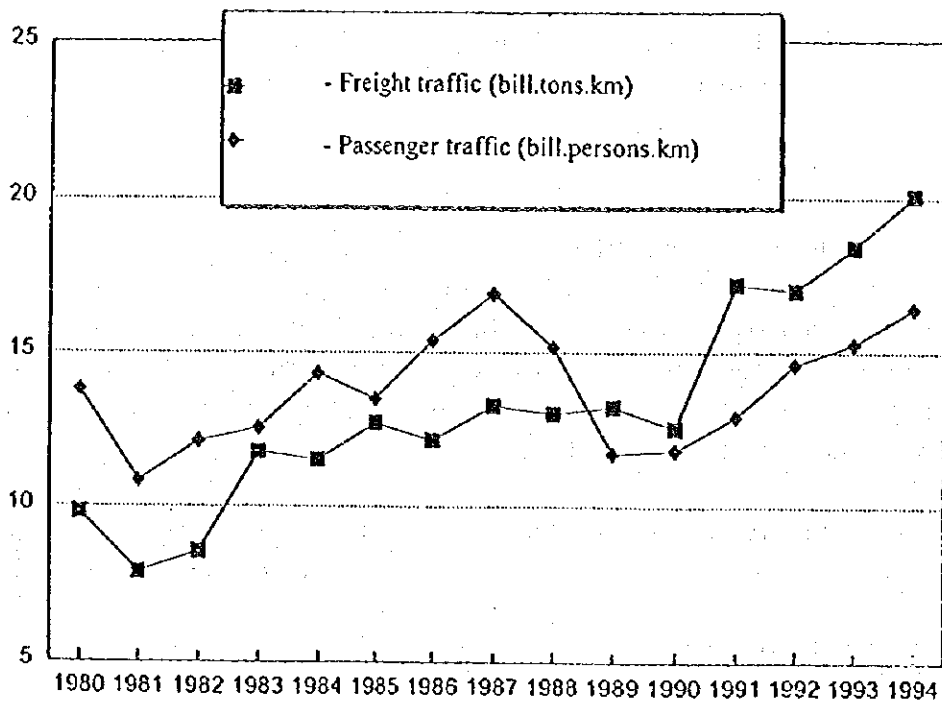
Table 2.3.1
TREND IN DOMESTIC AND INTERNATIONAL TRAFFIC DEMAND

Year	Volume of Cargo (thousand tons)	Volume of Cargo Traffic (mill. tons-km)	Volume of Passengers (million persons)	Volume of Passenger Traffic (million person-km)
1980	42,291 (100)	9,823 (100)	448 (100)	13,795 (100)
1985	53,675 (127)	12,704 (129)	397 (85)	13,487 (97)
1990	53,889 (127)	12,544 (128)	327 (73)	11,830 (86)
1994	76,455 (181)	20,127 (205)	555 (124)	16,757 (121)
1995 (Est.)	82,877 (196)	21,797 (222)	602 (135)	18,450 (134)

Note: Index of traffic volume is indicated in brackets.

Source: GSO

Figure 2.3.2
TREND IN DOMESTIC AND INTERNATIONAL TRAFFIC DEMAND



Some salient policy changes made in the trade and transport sector reflect changes in the management of the economy. Without them, historical changes in traffic demand as well as modal share cannot be explained. They took several forms:

- Economic reforms aimed at building a market-based economic system: In rural areas, it freed the farmer from cooperative control and moved agricultural policy towards the acceptance of the family farm as a basic socio-economic unit. In fact, after 1990, the policy triggered an explosion of rice production. Nowadays, rice is the second largest foreign currency earner, after crude oil.
- Reduction in the central government's involvement in the management of the transport sector: At the same time, there was a considerable reduction in the amount of subsidy from the central budget.
- Removal of the administrative system for allocation of transport demand to transport means since 1989: Shippers may now choose whatever transport mode suits them best. In the same way, passengers can freely decide on how they will travel within constraints of affordability.
- Freedom of setting tariffs, except in a few cases: This includes transport of salt to remote areas, fertilizer to rural areas and rice from south to north; passenger fares in the case of urban transport and air transport, especially domestic flights.

Following these changes, national traffic demand, which was formerly depressed in the 1980s, significantly increased during the 1990s (refer to Figure 2.3.2 and Table 2.3.1).

The increase in cargo volume was 181% between 1980 and 1994, which was even bigger than the increase in population (136%) in the same period. The historical comparison of cargo volume (unit: ton) and cargo traffic (unit: ton-km) also implies that the cargo distribution area has been expanded due to more widespread economic activities and closer relationships with neighboring countries.

(b) Modal Share

1) Cargo Traffic

In many provinces in Vietnam, cargo can be transported by rail, road, inland waterways, sea and coastal waters, and by air. Table 2.3.2 shows the historical changes in cargo traffic by mode. There are some unique characteristics as follows:

Road Transport: Road transport plays a major role in cargo transportation (modal share was 64% of tons in 1994) and the transported cargo volume substantially increased in line with national development. Road transport is the most convenient means, e.g., door-to-door access to any destination, and the average traffic distance is only 54 km. Currently, road transport has serious problems such as poor road and bridge conditions

and inadequate trucking industry. Therefore, there is still considerable scope to attract more users in the future.

Railway Transport: Following the removal of cargo allocations by government in 1989, the annual railway cargo volume declined from 4 million tons to some 2 million tons in 1990, but it has recently recovered. The northern area has a relatively good railway network and is capable of competing with inland waterways.

Inland Waterways: This is the second most popular cargo transportation means in Vietnam, carrying 23% of cargo (tons) in 1994. Inland waterborne transportation is remarkable for its low cost. It is said that the transportation cost is only one-third of road transport and half that of rail transport. In respect of traffic distance, inland waterborne transportation caters for middle distant cargo movement (112 km on average in 1994), intermediate to road and rail.

Sea and Coastal Shipping: In recent years, active foreign trade with neighboring countries has multiplied cargo volume considerably in this field. However, coastal shipping is still weak, which is somewhat surprising in a country with such a coast line. The modal share was only 7% in 1994. However, because the average traffic distance is long (2,880 km), shipping carries 70% of ton km.

Air Transport: This mode handled 11,100 tons in domestic flights and 9,500 tons in foreign flights in 1994. The quantity is negligible at the moment, although growing quickly.

Figure 2.3.3
AVERAGE CARGO TRAFFIC DISTANCE IN 1994 (KM)

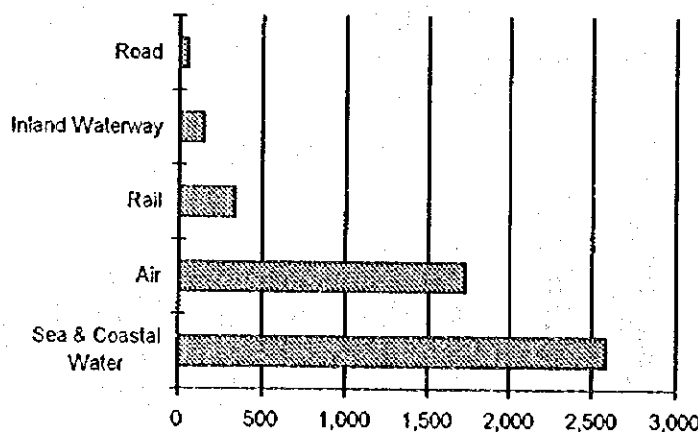


Table 2.3.2
TREND IN CARGO TRAFFIC BY MODE

Year	Rail		Road		Inland Water		Sea and Coastal	
	(000 tons)	(ave. km)	(000 tons)	(ave. km)	(000 tons)	(ave. km)	(000 tons)	(ave. km)
1980	3,509	216	25,913	50	11,610	136	1,259	4,908
	(100)		(100)		(100)		(100)	
1985	4,050	215	31,275	51	15,725	139	2,621	3,068
	(115)		(121)		(135)		(208)	
1990	2,341	362	31,765	51	16,295	107	3,484	2,386
	(67)		(123)		(140)		(277)	
1994	4,000	342	49,440	54	17,533	112	5,461	2,583
	(114)		(191)		(151)		(434)	
1995 (Est.)	4,350	345	53,052	42	19,300	104	6,140	2,606
	(124)		(205)		(166)		(489)	

Note: Cargo increase rate form 1980 in parentheses

Source: GSO

2) Passenger Traffic

Passenger movement on land decreased during the 1980s while, on water, it was stagnant. On the other hand, movement recovered in the 1990s. Further modal analysis is given below:

Rail Transport: The freedom left to transport users to choose their carriers resulted in a substantial reduction of the traffic share of the railways, e.g., 5.0% in 1985 and 1.5% in 1993, respectively. During these years, passenger traffic continued to fall even though freight traffic bottomed out in 1990 and begun recovering in 1991. Nowadays, rail transport is competitive only for long distant travelers.

Road Transport: Since 1990, for passenger transport, a successive deregulation process has been conducted. The result of these changes is a rapid shift of road traffic in favor of cooperatives and private operators. Road transport carries a dominant share of 78% of passenger traffic.

Inland Waterways: This is still a popular transportation means in Vietnam and the modal share has increased from 10.8% in 1985 to 16.1% in 1993. Unlike cargo traffic, inland waterborne transportation serves short-distance travelers.

Sea and Coastal Shipping: The passenger traffic volume is very small. The average trip distance has shortened since 1990. This is attributable to the suspension of passenger ship operation between Saigon Port and Haiphong Port.

Air Transport: It carried 1.1 million passengers with an average trip distance of 1,275 km in 1993. Although the traffic volume is negligible from the national passenger

traffic standpoint, it is noted that domestic flights remain competitive, on price, with other long distance services, such as railway and, possibly, coastal shipping. Domestic passenger air tariffs are an area where deregulation is lagging. Fares are kept at levels much lower than actual costs in order to make easier the movements between the two parts of the country which were reunited in 1975.

Table 2.3.3
TREND IN PASSENGER TRAFFIC BY MODE

Year	Rail		Road		Inland Water		Sea and Coastal	
	(mil. persons)	(ave. km)	(mil. persons)	(ave. km)	(mil. persons)	(ave. km)	(mil. persons)	(ave. km)
1980	33.8 (100)	132	370.5 (100)	23	43.2 (100)	18	0.2 (100)	307
1985	19.1 (56.5)	176	317.5 (85.7)	27	41.1 (95.1)	26	0.2 (100)	400
1990	10.1 (930.8)	189	271.5 (73.3)	31	43.6 (100.9)	23	0.8 (400)	116
1994	7.8 (23.4)	227	440.6 (118.9)	25	104.1 (240.9)	14	1.1 (550)	26
1995 (Est.)	8.5 (25.1)	273	478.0 (129.0)	25	112.0 (259.3)	13	1.2 (600)	23

Note: Passenger increase rate from 1980 in parentheses

Source: GSO

3) Regional Characteristics

To analyze regional traffic characteristics, the whole country is divided into seven agro-ecological zones (refer to Figure 2.3.4), while Tables 2.3.4, 2.3.5 and 2.3.6 indicate the following characteristics:

- Vigorous economic zones such as Red River Delta and North Central Coast in the north, and Eastern Nam Bo and Mekong River Delta in the south experienced considerably increased traffic volumes between 1985 and 1993.
- On the other hand, North Mountain and Midland, South Central Coast and Central Highlands were considered depressed zones in terms of increase in traffic volume. Central Highlands, especially, seems to have difficulty maintaining a self-contained regional economy from a traffic viewpoint.
- Inland waterways are utilized all over the country except in Central Highlands. In Mekong River Delta, in particular, it is the most popular means and thus not only

industrial products but also agricultural products and general cargoes are transported widely and routinely.

- Geographically, North Central Coast and South Central Coast are expected to have much coastal shipping activity. But the current modal share of sea and coastal shipping is no more than between 3% and 6%.
- Passenger traffic shows almost the same characteristics as those of cargo, but the number of passengers is quite different between the north and the south. It may result from some under-reporting, particularly by private operators, after deregulation.

Figure 2.3.4
REGIONAL ZONES

1. North Mountain and Midland
2. Red River Delta
3. North Central Coast
4. South Central Coast
5. Central Highlands
6. Eastern Nam Bo
7. Mekong River Delta

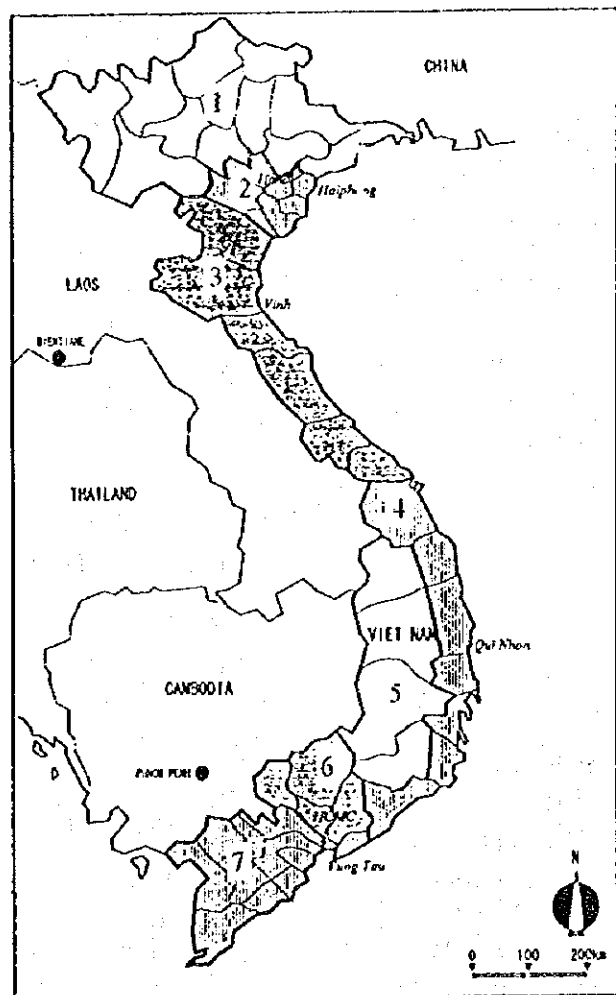


Table 2.3.4
TREND IN CARGO VOLUME BY REGION

Region	Cargo Volume (000 tons)			Ave. Traffic Distance (km)	
	1985 (A)	1994 (B)	(B)/(A)	1985	1994
North Mountain and Midland	5,647	7,618	1.35	82	90
Red River Delta	9,797	15,545	1.59	81	69
North Central Coast	4,035	8,139	2.02	81	82
South Central Coast	4,013	4,842	1.21	100	184
Central Highlands	1,164	1,337	1.15	101	249
Eastern Nam Bo	8,864	14,941	1.69	67	42
Mekong River Delta	7,691	11,977	1.56	93	106
WHOLE COUNTRY	41,211	64,400	1.56	83	86

Source: GSO

Table 2.3.5
CARGO MODAL SHARE BY REGION IN 1994

Region	Cargo Modal Share (%)			Average Traffic Distance (km)		
	Land	Inland Water	Sea & Coastal	Land	Inland Water	Sea & Coastal
North Mountain and Midland	85.7	12.3	2.0	40	101	2,156
Red River Delta	73.1	24.2	2.7	31	93	889
North Central Coast	79.1	15.5	5.4	37	61	795
South Central Coast	87.6	8.9	3.5	129	110	1,729
Central Highlands	100.0	0	0	249	-	-
Eastern Nam Bo	90.0	9.2	1.8	28	65	1,386
Mekong River Delta	37.8	60.7	1.5	70	104	1,151
WHOLE COUNTRY	74.4	23.4	2.2	51	94	1,160

Source: GSO

Table 2.3.6
PASSENGER MODAL SHARE BY REGION IN 1994

Region	No. of Passengers (million)	Modal Share (%)		Average Trip Distance (km)	
		Land	Water	Land	Water
North Mountain and Midland	19.4	84.5	15.5	55	35
Red River Delta	44.2	93.7	6.3	24	12
North Central Coast	21.5	55.3	44.7	60	3
South Central Coast	44.1	81.9	18.1	23	14
Central Highlands	6.9	100.0	0	110	-
Eastern Nam Bo	203.0	91.6	8.4	17	1
Mekong River Delta	203.8	67.2	32.8	22	18
WHOLE COUNTRY	542.9	80.2	19.8	25	13

Source: GSO

Table 2.3.7
FREIGHT FLOWS BETWEEN THE SEVEN REGIONS
 (Interprovincial flows only - all modes - '000 tons)

	NORTH				SOUTH			
	NM	RRD	NC		SC	ENB	MKD	
NM	1,173	7,951	333	<----->	196	7,530	1,042	MKD
RRD	-	2,925	1,758	N 1,483 S	1,047	1,927	-	ENB
NC	-	-	174	<----->	665	-	-	SC
				<----->		12,407		WH
				>		1,991		
Total		14,314		N 1,483 S		14,398		Total

Source: NTSR estimates

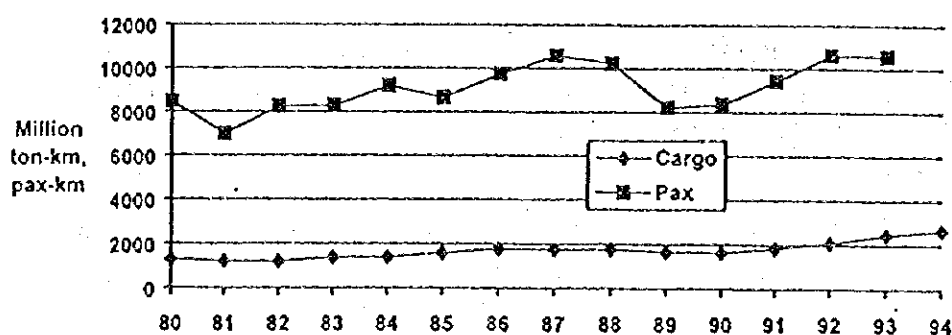
Coastal shipping is a suitable mode to transport cargo in bulk over long distances. However, in Vietnam, two large and independent economies have been historically formed in the north and in the south. Therefore, cargo movement between the two regional economies is quite low. Table 2.3.7 indicates that only 5% of total national cargo was regarded as trans-central cargo in 1990.

2.3.4 Industries and Operation

(a) Roads

Roads have been a major means of transport in Vietnam. They carry increasing traffic year-by-year. Cargo traffic increased from 1,307 million ton-km in 1980 to 2,646 million ton-km in 1994 with an annual average growth rate of 5.2%, whereas passenger traffic increased from 8,459 million passenger-km to 11,150 million passenger-km over the same period, with an annual average growth rate of 2.0%. Annual changes in cargo and passenger traffic from 1980 to 1994 are depicted in Figure 2.3.5.

Figure 2.3.5
CHANGES IN ROAD TRAFFIC



Source: Statistical Yearbook, 1994

At the beginning of 1995, there were about 313,000 vehicles in Vietnam, consisting of 31.0% cars, 29.7% trucks, 12.4% buses, and 26.9% others. In addition to this number, there are about 3.5 million motorcycles and over 20 million bicycles.

The Vietnam Road Administration Bureau (VRA), which was established on 30 January 1993 and began activities on 26 May 1993, is responsible for road administration. It consists of four main units: Management Section, Road Repair and Construction Companies, Transport Company, and Road Management Unit.

(b) Railway

Vietnam National Railways (VNR), a state-owned enterprise, presently employs 47,000 workers. Its labor productivity is very low. Compared with Japan Railways (JR), the labor productivity in terms of passenger-ton-km per worker is 6.6 times lower than that of the former JR in the 1950s (before privatization) and 17 times lower than that of JR at present (after privatization). VNR possesses 482 locomotives, 774 passenger coaches and 4,774 freight wagons. Of these, 338 locomotives, 694 passenger coaches and 4,449 freight wagons were in use in 1994.

In 1995, VNR recorded a successful performance by transporting passengers and cargo beyond the planned targets. Passenger traffic reached 105% and 100% of the target in terms of passengers and passenger-km, respectively. In the same manner, the railway hauled 105% and 109% of the target in terms of loaded commodities and ton-km, respectively. These figures are 12% and 27% higher, respectively, than in 1994. Accompanying this performance VNR has improved its services by increasing travel speeds on several routes. For example, the travel time for the Hanoi - HCMC route was shortened from 58 hours in 1989 to 36 hours in 1995. This travel time is expected to be reduced further to 28 hours by the year 2000. The travel time on the Hanoi - Haiphong route, which previously was about 5-6 hours, was reduced to 2 hours by the end of 1995.

In addition, 99% and 86% of trains departed and arrived on time, respectively, in the first seven months of 1995 on the Hanoi-HCMC route, compared with 80% and 33% in 1989.

The improvement in the level of service has attracted more passengers and cargo, as evidenced by the increase in railway passengers from 7 million in 1993 to about 9 million in 1995, and that of railway cargo from 3.2 million tons in 1993 to about 4.7 million tons in 1995.

(c) Airlines

In 1994, Vietnam Airlines carried 1,677,492 passengers on a total of 20,000 flights or 42,000 flight-hours. This number of passengers was 28% higher than the target.

The number of international airlines serving passengers to/from Vietnam increased from eight in 1989 to 22 in 1994 with the expectation of more airlines in future due to increasing demand.

Vietnam Airlines carried over 40% of the international passengers to/from Vietnam between 1991 to 1995, registering a 36% increase per year, owing to improvements in their services. For example, new aircraft such as Boeing 737, 767, ATR 72, A 310 and A 320, have been acquired to replace the old ones. Vietnam Airlines presently provides services covering 23 domestic and 24 international routes from Vietnam to 19 capitals and cities throughout the world. In addition, Vietnam Airlines' staff, including pilots, flight attendants, and technicians, have been extensively trained to provide excellent service and safe flights.

(d) Inland Waterways

River transport services are mainly provided by public operators in the north and private operators in the south. There are several cooperatives for transportation and handling services, and numerous small, independent, private operators based in river ports in the south.

In the north, the river fleets are rather modern and large. A pusher method is employed in hauling barges. Freight commodities are rather limited (mainly coal and construction materials). The dominant state-run transports in the north raise rates higher than in the south, suggesting that the market mechanism should be further introduced and private operators encouraged to compete.

In the south, many private operators have only one barge. Since no official statistics are available, their activities are not clear. It is observed that they use various old ships and employ a conventional towing method. However they convey a wide variety of commodities at attractive prices.

Most waterway vessels are outdated, having been built during 1960-1970. The total number of passenger vessels is 2,910 consisting of 422 state-owned vessels and 2,488 non-state-owned vessels. Although very numerous, the non-state-owned vessels are quite old; therefore, safety is a main concern. However in 1992, only about 60% of all accidents were caused by the non-state-owned vessels (at a lower rate per vessel than state-owned vessels).

The waterway dredging capacity has been depleted from 5 million tons in 1980 to 0.5 million tons in 1993 due to shortage of funds. This has reduced efficiency of navigation of vessels. In addition, port loading/unloading equipment, which has been used since 1970-1980, cannot properly serve the increasing cargo demand. According to the latest statistics, there are around 3,700 navigational aids installed and more than 500 hazardous obstacles such as wrecked ships. Consequently, boat speeds range only from 5 to 8 km/h.

(e) Sea Transport

International shipping services covering Vietnam, Southeast Asia - Persian Gulf/ Arabian Gulf, Red Sea, Africa are being provided by VOSCO using twin-deckers of 10,000 DWT and more. The service between the neighboring regions of Vietnam - Southeast and North Asia are also being provided by VOSCO. Tramp services cover Vietnam - Southeast and North Asia using 500 to 10,000 DWT vessels. A container service in Vietnam has been started by GEMARTRANS in 1989 between HCMC and Singapore and this was followed by EAC-SAIGONSIIIP (presently APM-SAIGON) in 1990. At present, such services are also being provided by three other shipping lines. GEMARTRANS and APM-SAIGON concurrently provide feeder services to major foreign shipping companies. At present, the total number of ships engaged in container services is 26.

With regard to domestic coastal shipping, there is presently no liner service. However, a constant (albeit small) movement of domestic cargo, is observed between Haiphong and HCMC. The typical transport pattern is carrying cement from the north (Haiphong) to the south (Saigon) and carrying rice on the return. Nghe Tinh port, Qui Nhon port, Nha Trang port and Danang port also service domestic shipping transport. The domestic shipping service is provided not only by central-government-owned companies but also by foreign, provincial and private companies. The exact domestic shipping network and operation are as yet unclear.

As for passenger services, VINASHIP had been operating two 6000 DWT ships (900 passengers/120 cars/2000 DWT cargo) between Haiphong and Saigon between 1976 and 1991, and is now planning to resume the service.

Ships of 500 to 10,000 DWT are used for domestic and for international service. Smaller and older vessels are usually used for domestic transport. For short distance services

such as between neighboring provinces, ships with about 500 DWT are normally used. In many cases, a single commodity is transported in one shipment. It is also sometimes practiced that ships serving international trade load domestic cargoes in their remaining space together with imported cargoes. Loading and unloading efficiency is low due to lack of equipment such as forklifts, trucks, lighting at night, etc. Efficiency decreases during the rainy season because of typhoons and damage to bagged cargoes by water.

2.4 Development Policy and Directions

2.4.1 Socio-economic Development

During the early 1990s, Vietnam has recorded very important achievements in the transitional process to a market economy. The period in the late 1990s will become a new stage of development wherein the most important policy issue is how to accelerate industrialization and modernization of the country.

The following two documents which have been recently published by the government address the main tasks and targets in socio-economic development to the year 2000:

“Orientations and Tasks of the 1996-2000 Five Year Plan for Socio-economic Development” (Report to the 8th National Congress of Communist Party of Vietnam, June 1996)

“Socio-economic Development and Investment Requirements for the Five Years 1996-2000” (Government Report to the Consultative Group Meeting, December 1995)

Both the documents anticipate future socio-economic development as follows:

- Achieve an economic growth rate of 9-10% annually, which exceeds that of the previous 5 years.
- Develop and transform the shares of agriculture, industry and service sectors, which are projected to be 19-20%, 34-35% and 45-46% of GDP, respectively.
- Improve national fiscal performance by means of increased national income and a rapid increase in state tax revenue collection.
- Develop and increase the effectiveness of external economic relations and expand import and export markets.
- Solve critical social issues.
- Create the necessary prerequisites in terms of human resources, infrastructure, capital, technology and institutional policies.
- Continue strengthening economic reforms, closely linking this with administration reform.

With regard to development investment, to ensure a GDP growth rate of 9-10% yearly, US\$ 41-42 billion are needed in the coming five years. The available resources are divided into

- the state budget (domestic revenues and a proportion of ODA loans) : 21%
- state credit capital : 7%
- investment by state enterprises (inclusive of retained capital depreciation, after-tax profit, a proportion of ODA loans, and loans from the capital market) : 24%
- foreign direct investment (FDI) : 31%
- private savings and investment : 17%

Out of this investment, domestic capital will account for about 50%. Nevertheless, Vietnam will continue to mobilize external funds, mainly in the form of ODA and FDI. Development investment resources are projected in Table 2.4.1.

Table 2.4.1
DEVELOPMENT INVESTMENT RESOURCES (1996 - 2000)

Resources	(US\$ Billion)
Domestic	21
Foreign	20-21
ODA	7-8
FDI	13-14
Total	41-42

Source: MPI

In order to increase the effectiveness of development investment, the renovation of investment institutions and policies is of utmost importance. It is also essential to enhance the absorptive capacity for foreign investment and technologies. High priority will be given to state investment (including ODA) and FDI during the next five years to transport, electricity, telecommunications, water resources, education and health.

2.4.2 Transport Development

This section reviews the transport development policy currently adopted by MOT. For this purpose, "Master Plan for Development of Transport Infrastructure to the Year 2010" (MOT, 1995) is summarized.

(a) Trans Vietnam Route System

Four transport modes (road, rail, sea and airways) have been historically available in the north-south corridor. To connect all parts of the country, the following Trans Vietnam land routes have been given increased importance:

- 1) Highway 1A: 2,089 km (Lang Son - Minh Hai), 3rd level standard (12m wide with 2 lanes) for most sections and 4-lane width for some others

- 2) Trans Vietnam Expressway : 1,680 - 1,700 km (Hanoi - HCM City), designed carriageway ranging from 4 to 8 lanes, with a design speed at 120 km/hour
- 3) The Thong Nhat Railway : Upgrading of the existing Hanoi - HCM Line (1,726 km) as a high speed railway system

(b) Transport Infrastructure in the Northern Economic Region

1) Seaports

- Haiphong Port will be improved to accommodate vessels of 10,000 DWT and handle 7-8 million tons in 2010.
- Cai Lan Port will become a major deep seaport in the North.

2) Road

- National Highway No. 5 connecting Hanoi with Haiphong is being improved and widened to 4 lanes.
- Hanoi - Ha Long Expressway (143 km, 4-lane width) will be constructed for both tourism and industrial purposes).
- Improvement of National Highway Nos. 10 and 18
- Construction of Hanoi-Xuan Mai Expressway

3) Airport

- Noi Bai International Airport will be upgraded with extended runways and facilities, in order to meet annual demand levels of 8-12 million passengers and 0.8 million tons.

4) Railway

- Rehabilitation of existing lines (Hanoi - Lao Gai, Hanoi - Haiphong) and unifying the rail gauge (to 1,000 mm)

(c) Transport Infrastructure in Central Economic Area

1) Seaports

- Development and upgrading of the Danang - Lien Chien ports group
- Construction of Dung Quat Port

2) Road

- National Highway Nos. 14A and 14B will become strategically important and development of transversal routes Nos 7, 8, 9, 12, 24, 25, 26, 27, 28 will also be necessary.
- Construction of roads between National Highway No. 1A and Dung Quat Port

3) Airport

- Segregation of civil and military aviation to meet demand targets of 1.5-2.5 million passengers and 0.4 million tons in 2010

- Conducting an investigation into constructing the new Chu Lai Airport near Dung Quat
- (d) Transport Infrastructure in the Southern Economic Region
- 1) Seaports
 - It is planned that a group of HCM City seaports will be able to handle 15-16 million tons by the year 2010. For this purpose, upgrading of Saigon Port and Tan Cang Port, construction of container yard in Ben Nghe and further utilization of Tan Thuan and Nha Be areas are essential.
 - A group of Vung Tau and Thi Vai seaports will be further developed by means of various resources such as B.O.T.
 - 2) Road
 - Construction of a 6-lane expressway connecting HCM City and Bien Hoa with Vung Tau
 - 3) Airport
 - Tan Son Nhat International Airport will be expanded to serve 20 million passengers (compared to 3 million in 1995).
 - 4) Railway
 - Restoration of the existing railway in the urban area
 - Extension of the existing railway from HCM City to Vung Tau and Phnom Penh.
- (e) Transport Infrastructure in the Other Provinces and Cities
- 1) North
 - The roads from Hanoi to neighboring areas within 50-70 km are given high priority, such as National Highway Nos. 2, 3, 6 and 32.
 - Some waterways are given high priority for dredging and other route improvement. These are Quang Ninh - Pha Lai, Quang Ninh - Hanoi and Haiphong - Hanoi.
 - Excavation of a new channel at Quan Lieu, to connect Ninh Co River and Day River, will allow sea-cum-river vessels to access Ninh Binh more directly.
 - Investment in 3 port developments: Ninh Phuc Port (1-1.5 million tons by the year 2010, Hanoi Port (2.5 million tons by the year 2010) and Viet Tri Port (0.8 million tons by the year 2010).
 - 2) Central Area
 - Investment in 6 ports: Cua Lo Port (3-4 million tons by the year 2010), Vung Ang Port (3 million tons by the year 2010), Cua Viet Port (1 million tons by the year 2010), Qui Nhon Port (2.5-3.5 million tons by the year 2010), Nha Trang Port (0.5 million tons by the year 2000) and Ba Ngoi Port (0.7 million tons by the year 2010)

- Trunk roads, transversal roads and the roads connecting seaports with neighboring countries should be given priority such as National Highway Nos. 7, 8, 9, 19, 24, 26, 27 and 28.

3) South

- The following should be immediately improved:
National Highway Nos. 13, 22, 30, 50, 60, 80, and 91
- It is necessary to build a new highway from Vam Ray to An Chau (An Giang Province) via Tri Ton.
- Ports in the Mekong River delta area will be upgraded:
My Thoi Port (1.5 million tons by the year 2010)
Dong Thap Port (1 million tons by the year 2010)
Vinh Long Port (1 million tons by the year 2010)
My Tho Port (1 million tons by the year 2010)
Can Tho Port (3-3.5 million tons by the year 2010)
- Dredging works along the two inland waterways such as Saigon - Ca Mau and Saigon - Kien Luong are given high priority.
- A new river route linking Vam Co Dong and Tien River via Dong Thap will be opened.
- Adequate cargo handling equipment and warehouses will be installed in the ports along Tien and Hau rivers.

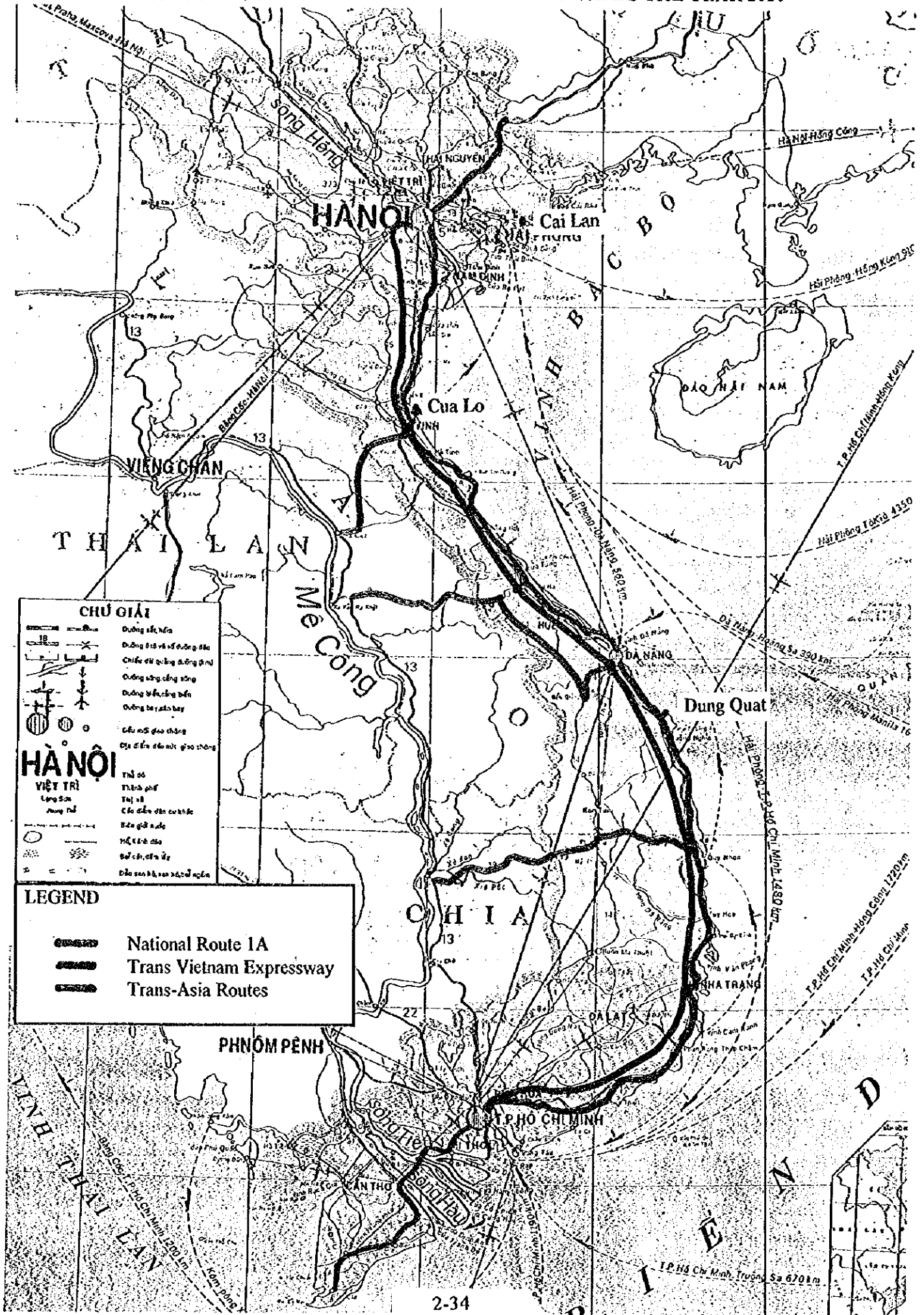
(f) Trans-Asia Routes

Consideration is now being given to construction of some Trans-Asia routes in collaboration with ADB. For the time being, there are four tentative routes which could serve Vietnam as follows:

- 1st: Bangkok - Phenom Penh - Moc Bai - HCM City - Vung Tau
- 2nd: (Thailand) - (Laos) - Cua Lo
- 3rd: (Thailand) - Savanakheth - Lao Bao - Dona Ha - Danang
- 4th: Atopu - Kon Tum - Danang or Dung Quat or Qui Nhon

Figure 2.4.1

PROPOSED OVERALL TRANSPORT SYSTEM TOWARDS THE YEAR 2010



CHỮ GIẢI

- Đường quốc lộ
- Đường ô tô và xe đạp
- Cầu đò qua sông
- Đường hàng không
- Đường trực thăng
- Cầu nổi giao thông
- Cầu đò

HÀ NỘI

- Thành phố
- Quận
- Thị trấn
- Các điểm dân cư nông thôn
- Sông, hồ, biển
- Núi
- Rừng
- Đầm lầy
- Bãi cát
- Đảo

LEGEND

- National Route 1A
- Trans Vietnam Expressway
- Trans-Asia Routes

(g) Investment Requirements

The amount of required investment in transport is estimated at around US\$ 28 billion between 1996 and 2010. It is divided into two phases; that is, US\$ 9 billion for the first phase (1996-2000) and US\$ 19 billion for the second phase (2001-2010). Table 2.4.2 shows the modal allocation.

Table 2.4.2
REQUIRED INVESTMENT IN TRANSPORT

(unit: US\$ billion)

	1996 - 2000	2001 - 2010	Total
Road	3.3	7.3	10.6
Railway	3.3	4.8	8.1
Seaway	0.8	2.2	3.0
Inland Waterway	0.3	1.0	1.3
Airway	1.3	3.7	5.0
Total	9.0	19.0	28.0

It should be noted that the investment requirement for water transport (seaway and inland waterway) is less than that estimated from recent studies. As summarised in Table 2.4.3, total proposed investment in water transport amounts to US\$ 9.5 billion which is far in excess of the US\$ 4.3 billion given in Table 2.4.2. This emphasises the huge need for investment in transport and the need to prioritize investment requirements.

According to the World Bank, Vietnam needs to allocate adequate public expenditure to transport infrastructure. It is said that the rate required is about 3% of GDP every year, which is further divided into 2.4% for construction and improvement and 0.6% for routine maintenance. In addition, it is assumed that state enterprises and non-state transport sector will spend another 1.5% - 2.0% of GDP a year for transport fleets, equipment and other commercial infrastructure such as airports and port facilities. To meet the World Bank's investment target would require about US\$ 1.0-1.5 billion per year (US\$ 5.0 billion up to 2000 and US\$ 12.0 billion from 2000 up to 2010) to be invested in infrastructure. The MOT's estimated figure, of US\$ 9 billion investment in the transport sector up to 2000, can be considered rather ambitious within the framework of the World Bank.

Table 2.4.3
INVESTMENT REQUIREMENTS AND CAPITAL SOURCES
BASED ON THE PLANS AND PUBLICATIONS BY
THE RESPONSIBLE AGENCIES
(in US\$ million)

Items	Investment Requirement			Capital Sources					
	Total	1995-2000	2001-2010	State Budget	Loan Credit/ Int'l Assist.	Joint - Venture & BOT	From Transport Operation	Priv.	
SEAPORT SYSTEM DEVELOPMENT									
1.1	Northern Area	2,325	432	1,893	*	*	*	*	*
1.2	Central Area	1,130	398	732	*	*	*	*	*
1.3	Southern Area	1,856	569	1,287	*	*	*	*	*
NATIONAL FLEET DEVELOPMENT									
2.1	Vietnamese Sea-going Vessels	1,750	745	1,005		*	*	*	*
INLAND WATERWAYS DEVELOPMENT									
3.1	Waterway	1,059	176	883	*	*	*	*	
3.2	Key River Ports	393	44	349	*	*	*	*	*
3.3	River Fleet	559	14	545	*	*	*	*	*
3.4	Education and related Industry	218	19	199	*	*	*	*	
MARITIME TRANSPORT RELATED INDUSTRIES AND SERVICES									
4.1	Ship Building and Repair Yard	88	88	0		*	*		*
4.2	Ship Related Industry	50	50	0		*	*		*
4.3	SAR System	12	12	0	*	*			
4.4	Sea Communication	16	16	0	*	*	*		
4.5	Lighthouse System	25	25	0	*	*			
TOTAL INVESTMENT									
		9,481	2,588	6,893	*	*	*	*	*

Source: VINAMARINE (Vietnam Seaport System Development Plan, National Fleet Development Plan, Orientation on Strategic Development of Vietnam Maritime Sector to the Year 2000), IWB (Development Strategies and Projects for Inland Waterways)