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

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

Technical Report No. 10

RURAL TRANSPORT AND CROSS BORDER TRANSPORT

July 2000

ALMEC CORPORATION
PACIFIC CONSULTANTS INTERNATIONAL

PREFACE

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

Table A
List of Technical Reports

No. 1	Transport Surveys and Database
No. 2	Main Commodities Analysis and Freight Transport
No. 3	Transport Cost and Pricing in Vietnam
No. 4	Transport Sector Institutions
No. 5	Road and Road Transport
No. 6	Railway
No. 7	Inland Waterway
No. 8	Port and Shipping
No. 9	Air Transport
No. 10	Rural Transport and Cross Border Transport
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PART I: RURAL TRANSPORT

Glossary

ADB	Asian Development Bank
AFTA	Asean Free Trade Area
AHEM	ASEAN Highway Experts Meeting
ASEAN	Association of Southeast Asian Nation
ATM	ASEAN Transport Ministers Meeting
BOT	Build-Operate-Transfer
CAAV	Civil Aviation Administration of Vietnam
ESCAP	Economic and Social Commissions for Asia and the Pacific
FDI	Foreign Direct Investment
GMS	Greater Mekong Subregion
JICA	Japan International Cooperation Agency
LOC	Letter of Credit
MOF	Ministry of Finance
MOT	Ministry of Transport
MPI	Ministry of Planning and Investment
NAFTA	North American Free Trade Area
ODA	Official Development Assistance
OECF	Overseas Economic Cooperation Fund of Japan
SKRL	Singapore-Kunming Railway Link
STOM	Senior Transport Officials Meeting
VIFFAS	Vietnam Freight Forwarders Association
VINAMARINE	Vietnam Maritime Bureau
VITRANSS	Vietnam National Transport Strategy Study
VIWA	Vietnam Inland Waterways Administration
VRA	Vietnam Road Administration
VSA	Vietnam Ship owners Association

PART I

RURAL TRANSPORT

1 INTRODUCTION

1.1 Background

As the nation's economy has been developed, economic disparity between urban and rural areas have been enlarged. Consequently reducing the disparity has been a significant issue for the nation. In order to boost regional economy as well as to support social activities in rural areas, improvement of accessibility by development of transport network has been considered as one of key factors.

In this context the Government plans to prioritise construction of roads in remote and rural areas and to concentrate on roads in remote areas to ensure balanced development among the regions in the country.

1.2 Purpose of the Report

Main purpose of the VITRANSS is to formulate national transport system with focus on "primary" and "secondary" links and nodes in its functional hierarchy. However, it is also a view of the VITRANSS that the purpose of the national in inter-provincial network development is to ensure effective integration with local transport system to activate and support local socio-economic activities. In view of this, a study on rural transport, though the coverage and depth of the study are limited, was conducted of which the findings and results are contained in this report.

2 PRESENT RURAL ROAD SYSTEM

2.1 Existing Rural Road Network

Existing Condition of Rural Road Network

The quality of rural roads is still very low as shown in Table 2.1.1. Less than 10 percent of District roads are paved with asphalt concrete or gravel. Almost all Commune roads are in the category of laterite or earth roads.

As many as 606 out of 9,816 communes could not have access by motor vehicle to the provincial capitals in the end of 1998. (Please see Table 2.1.2) In Mekomg Delta as much as 43 percent of communes lack of accessibilty to provincial capitals, followed by about 20 percent in North East region and North Central Coast region. Number of communes inaccessible to provincial capital by motor vehicles are listed by Province in Table 2.1.3.

Although in the other communes people are able to access to provincial capitals, many communes have difficulty in access in rainy season.

Accessibility by National Road and Provincial Road Network

Many districts indicate low accessibility of road transport in mountainous regions as well as both the Red River Delta and the Mekong Delta as illustrated in Figure 2.1.1.
As for the districts which have poor accessibility by national and provincial road network, most of the districts in mountain areas are not densely inhabited; the population density of the districts are less than 100 persons per square kilometers (refer to Figure 2.1.2). In contrast, the densely inhabited districts are seen in the two Delta regions, where inland waterway transport is developed.

Table 2.1.1
Rural Road System by Pavement Type

Road Classification		Asphalt Concrete	Gravel	Laterite	Earth	Total
District Road	Length (km)	53	3558	17,932	15,362	36,905
	% Composition	0.1	9.6	48.6	41.6	100.0
Commune Road	Length (km)	0	2,922	52,446	76,687	132,055
	% Composition	0.0	2.2	39.7	58.1	100.0
Total	Length (km)	53	6,480	70,378	92,049	168,960
	% Composition	0.0	3.8	41.7	54.5	100.0

Source: Ministry of Transport, July 1999

Table 2.1.2
Existing Accessibility in Rural Areas by Region

	Communes without road to provincial capital	% to Total Number of Communes
Red River Delta	0	0.0
North East	122	20.1
North West	81	13.4
North Central Coast	125	20.6
Central Highlands	9	1.5
Eastern South	7	1.2
Mekong River Delta	262	43.2
Total	**606**	**100.0**

Source: Seminar on Rural Road Development in Vietnam (TDSI)

Table 2.1.3
Number of Communes not Accessible to Provincial Capital by Motor Vehicles

Seq No	Province Name	Number of Communes not accessible to Provincial Capital
1	Ha Noi	0
2	Hai Phong	0
3	Hai Duong	0
4	Hung Yen	0
5	Thai Binh	0
6	Nam Dinh	0
7	Ninh Binh	0
8	Ha Nam	0
9	Ha Tay	0
	Red River Delta	**0**
10	Cao Bang	25
11	Lang Son	0
12	Quang Ninh	2
13	Thai Nguyen	3
14	Bac Can	13
15	Bac Ninh	0
16	Bac Giang	3
17	Phu Tho	2
18	Vinh Phuc	0
19	Lao Cai	16
20	Yen Bai	30
21	Tuyen Quang	0
22	Ha Giang	28
	North East Region	**122**
23	Son La	38
24	Lai Chau	36
25	Hoa Binh	7
	North West Region	**81**
26	Thanh Hoa	16
27	Nghe An	29
28	Ha Tinh	11
29	Quang Binh	19
30	Quang Tri	6
31	Thua Thien Hue	5
	North Central Coast Region	**86**
32	Quang Nam	24
33	Da Nang	0
34	Quang Ngai	9
35	Binh Dinh	6
36	Phu Yen	0
37	Khanh Hoa	0
	South Central Coast Region	**39**
38	Kon Tum	4
39	Gia Lai	5
40	Dac Lac	0
	Central Highlands	**9**
41	Tp Ho Chi Mi	0
42	Lam Dong	0
43	Ninh Thuan	4
44	Binh Phuoc	0
45	Tay Ninh	0
46	Binh Duong	0
47	Dong Nai	0
48	Binh Thuan	3
49	Ba Ria Vung Tau	0
	North East South Region	**7**
50	Long An	49
51	Dong Thap	6
52	An Giang	2
53	Tien Giang	3
54	Vinh Long	44
55	Ben Tre	10
56	Kien Giang	21
57	Can Toh	29
58	Tra Vinh	6
59	Soc Trang	22
60	Bac Lieu	26
61	Ca Mau	44
	Mekong River Delta	**262**
	Total	**606**

Source: Ministry of Transport, July 1999

Figure 2.1.1 Accessibility by Road Network

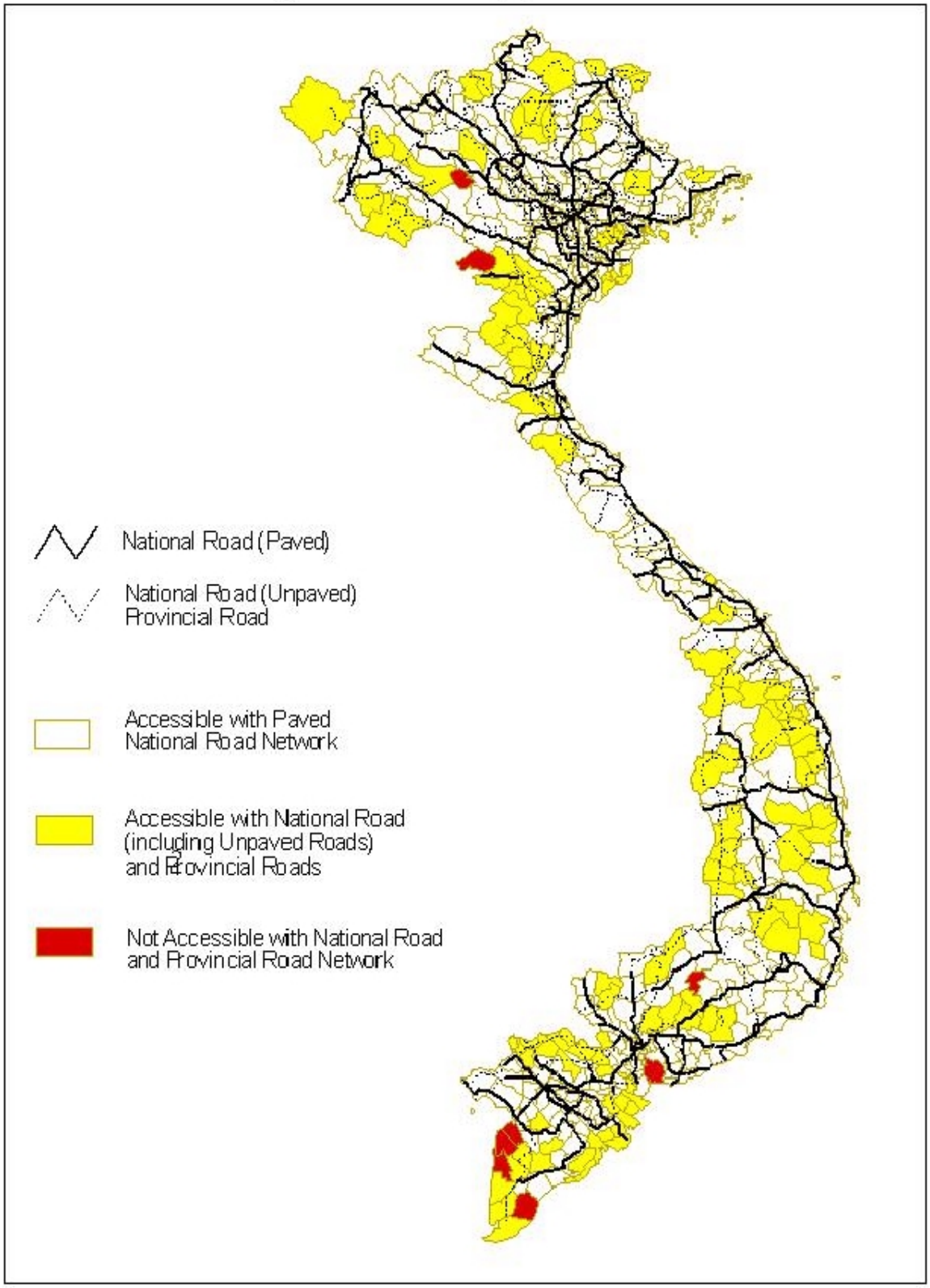
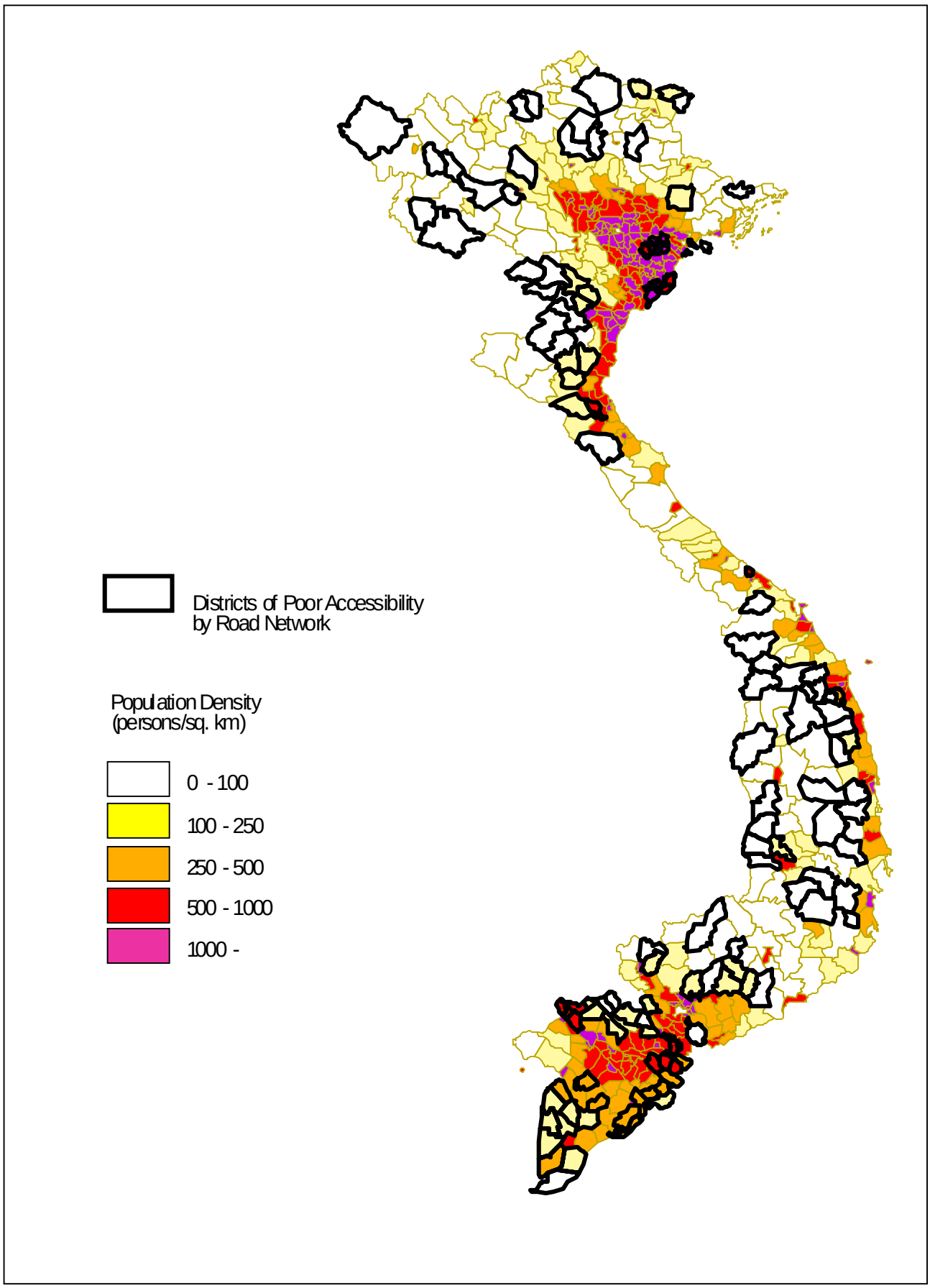


Figure 2.1.2 Population Density of Districts with Poor Accessibility by Road Network



2.2 Present Rural Road Standard in Vietnam

Technical standard for rural roads in Vietnam is shown in Tables 2.2.1 to 2.2.4.
In principle, technical standard of Class 5 and Class 6 road standard are applied for District roads, while rural road standard Type A and B are used for Commune roads. However, Class 6 can be applied for some sections of Commune roads near urban centers, where tarffic demand is relatively high.

Table 2.2.1
Design Standard for Class 5 and Class 6 Road

		Base (m)	Surface (m)	Rmin (m)	Imax (%)	Lmax (m)
Class 5	Plain	6.5	3.5	25	9	2000 *
	Mountain	6.5	3.5			
Class 6	Plain	6.0	3.5	15	10	2000 *
	Mountain	6.0	3.5			

Source : Highway Design Standard (TCVN 4054-85)
Note *: If the length of road section (Imax > 6%) is more than 2000 meters, the slope of the succeeding section should be between 2 and 2.5%.

Table 2.2.2
Technical Standard of Rural Road

		Base (m)	Surface (m)	Rmin (m)	Imax (%)	Lmax (m)
Type A	Plain	5.0	3.5	15	10	300
	Mountain	4.0	3.0			
Type B	Plain	4.0	3.0	10	6	200
	Mountain	3.5	2.5			

Source : Technical Standard of Rural Road in Viet Nam 22-TCN-210-92, 1992

Table 2.2.3
Pavement Material for Rural Road

Pavement Material		Type A	Type B
1	Concrete	X	
2	Bitumen	X	
3	Gravel and Cement	X	
4	Small Stone	X	X
5	Gravel	X	X
6	Gravel and Lime	X	X
7	Laterite	X	X
8	Sand and Gravel	X	X
9	Small Brick and Cindar		X
10	Sand and Earth		X

Source : Technical Standard of Rural Road in Viet Nam 22-TCN-210-92, 1992

Table 2.2.4
Thickness of Pavement

Pavement Material		Type A	Type B
1	Concrete	16 cm	-
2	Bitumen	12 cm	-
3	Gravel and Cement	15 cm	-
4	Small Stone	20 cm	12 cm
5	Gravel	23 cm	10 cm
6	Gravel		
	+ 6% Cement mark 400	15 cm	12 cm
	+ 8% Cement mark 300	15 cm	12 cm
	+ Mixed Sand + 8% Cement mark 400	15 cm	12 cm
7	Gravel + 8% Lime	15 cm	12 cm
	Soil + 10% Lime	15 cm	12 cm
8	Sand and Gravel	20 cm	15 cm
9	Small Brick and Cindar	-	15 cm
10	Sand and Earth / Earth and Sand	-	20 cm

Source : Technical Standard of Rural Road in Viet Nam 22-TCN-210-92, 1992

3 ANALYSES ON TRAVEL CHARACTERISTICS IN RURAL AREA

3.1 Rural Transport Survey

Rural transport survey was executed to understand travel needs and the existing access problems in rural area. The surveys were conducted in the two districts, Dong Xuan District and Tuy Hoa District in Phu Yen Province in October 1999 and Moc Hoa District in Long An Province in November 1999. The survey consists of Interview surveys with head of commune, village and household, vehicle count survey and roadside interview survey. In Moc Hoa District, in addition to the survey mentioned above, boat count survey and boat interview survey were conducted.

3.2 Characteristics of Surveyed Households

Average Household Income

It is observed that there is significant difference in the average household incomes of Dong Xuan, Tuy Hoa, and Moc Hoa Districts, which account for 733,000, 892,000, 1,643,000 VND respectively. Dong Xuan and Tuy Hoa, which belong to Phu Yen Province, show much lower household income than Moc Hoa District in Long An Province as illustrated in Figure 3.2.1. Furthermore, average household incomes varies from village to village even in the same District as shown in Figures 3.2.2 to 3.2.4.

Figure 3.2.1
Household Income Distribution by District

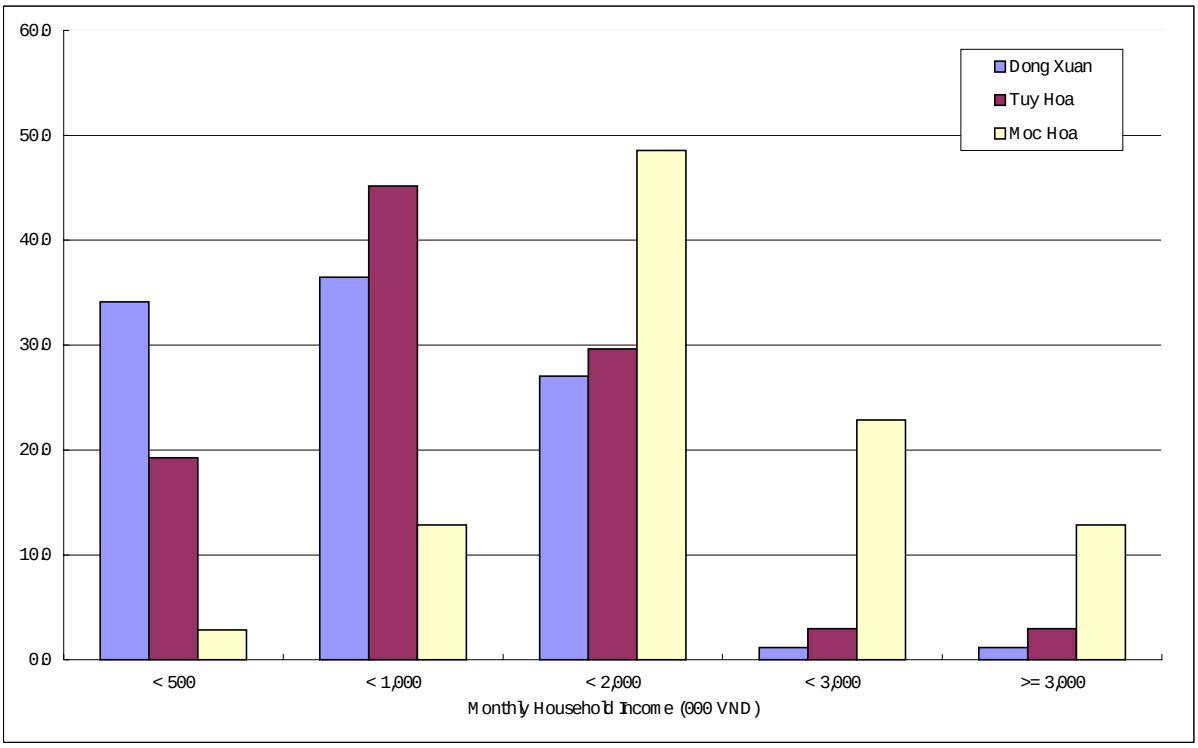


Figure 3.2.2
Average Monthly Household Income and Expenditure :
Dong Xuan District

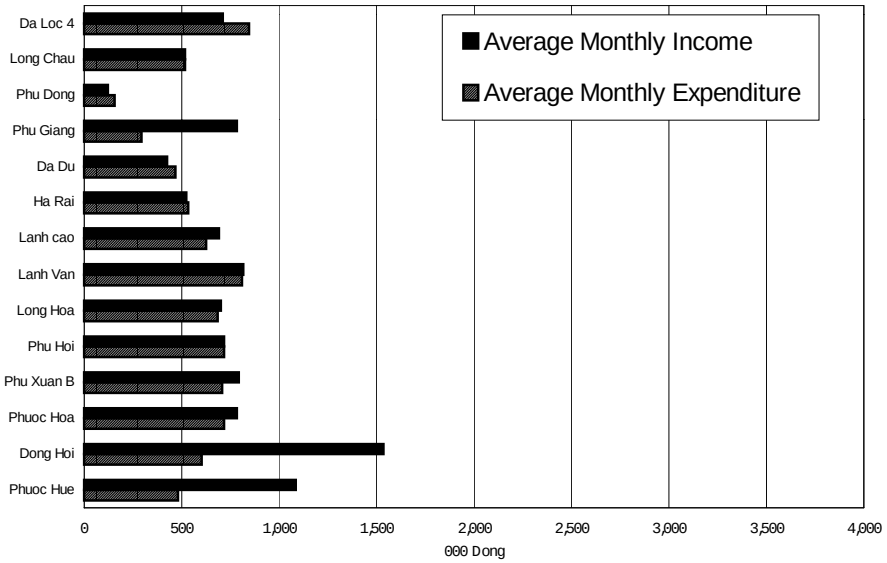


Figure 3.2.3
Average Monthly Household Income and Expenditure :
Tuy Hoa District

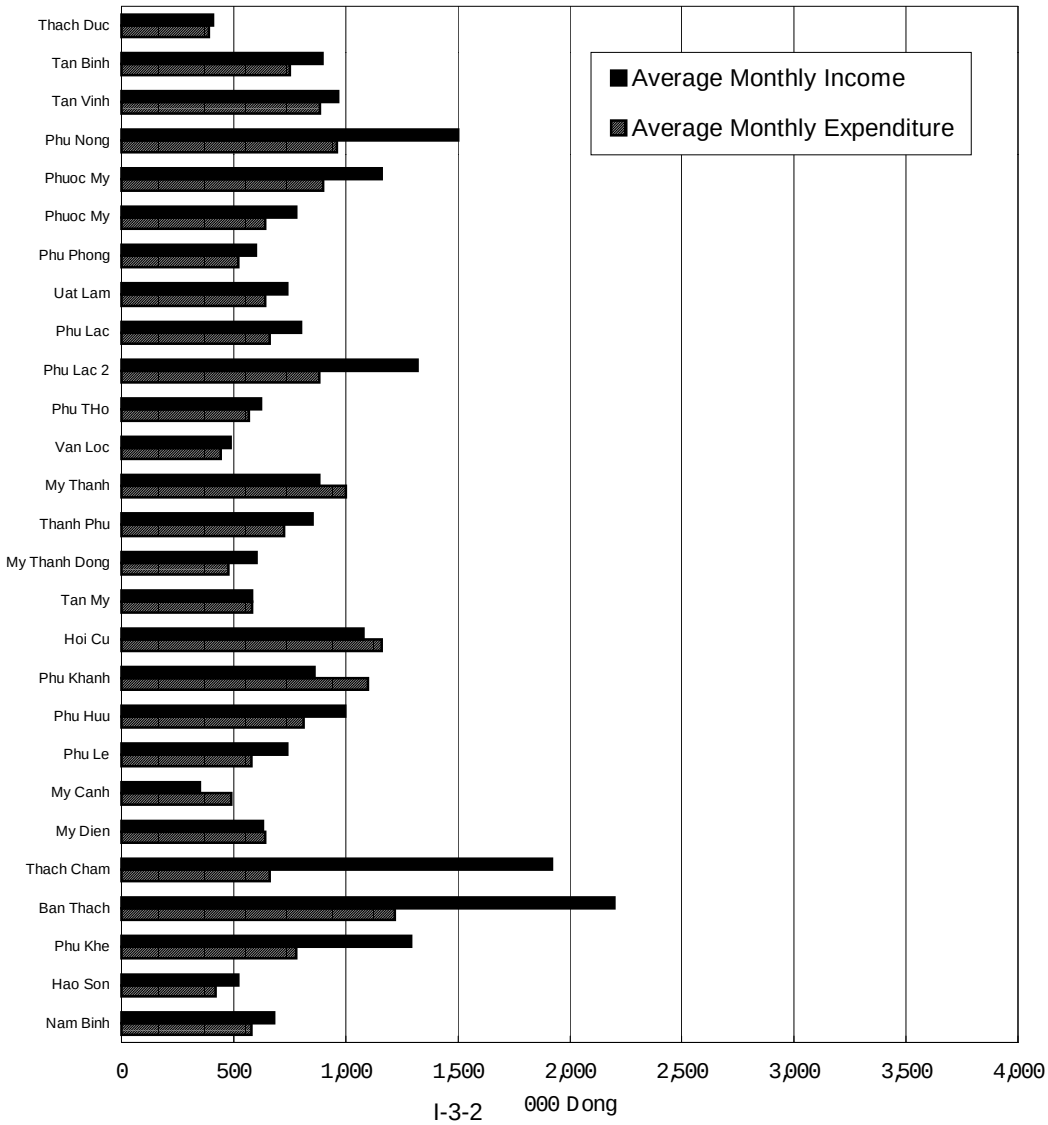
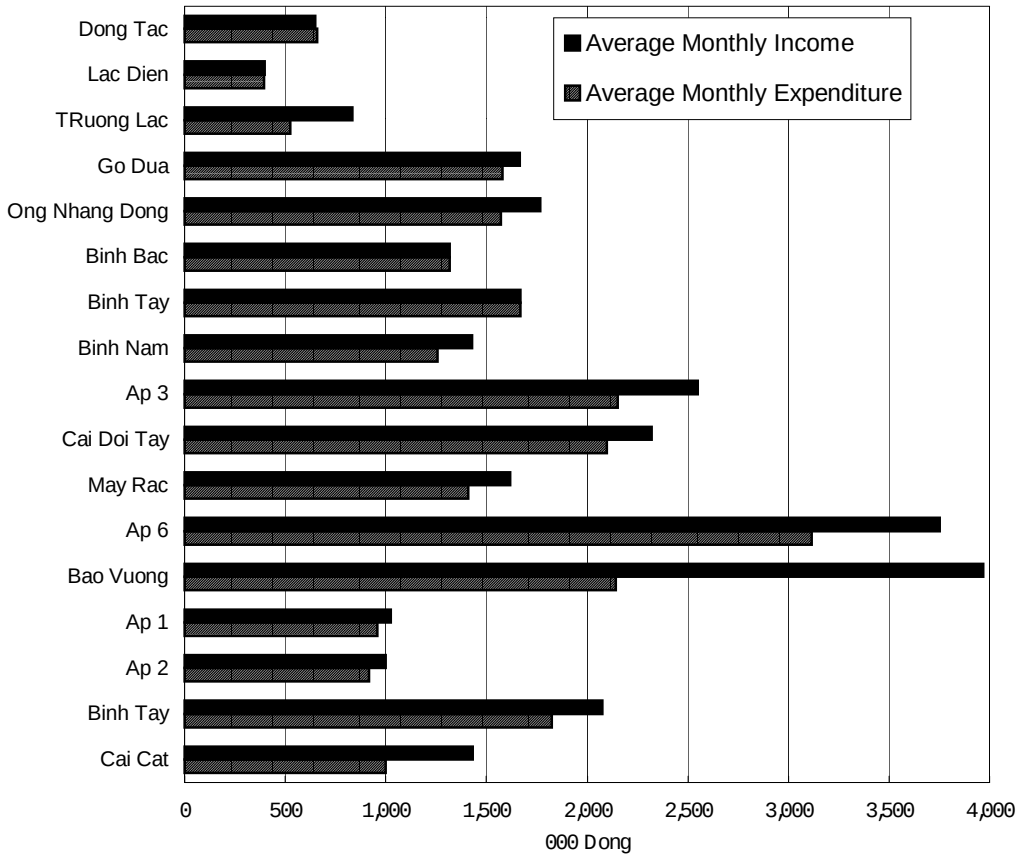


Figure 3.2.4
Average Monthly Household Income and Expenditure :
Moc Hoa District



Vehicle and Boat Availabilty

Availability of motor vehicles and boats apparently corelated to the householde income. In Dong Xuan District more than 50 percent of households can afford to have at least one motorcycle as indicated in Table 3.2.1. Some 27 percent of households use bicycles as private mode of tranport. 14 percent of households cannot afford to have either a motorcycle or a bicycle. The monthly income of the households which cannot afford to own any means of transport are below 500 thousand VND.

In Tuy Hoa District vehicle availability is slightly better than in Dong Xuan District. Availability of motorcycle is almost the same as in Dong Xuan District but almost all the households own at least one bicycle as shown in Table 3.2.2.

In contrast to the two Districts in Phu Yen Province, many household in Moc Hoa District have a boat as a mean of transport due to extensively developed inland waterway network. Approximately 70 percent of households own a boat with an engine, and 20 percent of households have a boat without engine as indicated in Table 3.2.3. A boat is not available for only 11 percent of households. In fact, life in Mekon Delta without boat seems very difficult. Ownership of motorcycles are limited at less than 9 percent due to investment in boat and less developed road network.

Table 3.2.1
Vehicle Availability in Dong Xuan District

(unit: percent)

Monthly Household Income (000 Dong)	Vehicle Availabilty					
	0	1	2	3	9	
	No Bicycle, No Motorcycle	Bicycle Available	One Motorcycle Available	Multiple Motorcycles Available	Only Animal Cart	Total
< 500	14.3	9.5	10.7	0.0	0.0	34.5
< 1,000	0.0	14.3	19.0	1.2	1.2	35.7
< 2,000	0.0	3.6	21.4	1.2	1.2	27.4
< 3,000	0.0	0.0	1.2	0.0	0.0	1.2
>= 3,000	0.0	0.0	0.0	1.2	0.0	1.2
Total	14.3	27.4	52.4	3.6	2.4	100.0

Source: VITRANSS Rural Transport Survey, Oct. and Nov. 1999

Table 3.2.2
Vehicle Availability in Tuy Hoa District

(unit: percent)

Monthly Household Income (000 Dong)	Vehicle Availabilty				
	0	1	2	3	
	No Bicycle, No Motorcycle	Bicycle Available	One Motorcycle Available	Multiple Motorcycles Available	Total
< 500	0.0	11.9	6.7	0.7	19.3
< 1,000	0.7	22.2	22.2	0.0	45.2
< 2,000	0.0	6.7	20.7	2.2	29.6
< 3,000	0.0	0.0	2.2	0.7	3.0
>= 3,000	0.0	0.7	1.5	0.7	3.0
Total	0.7	41.5	53.3	4.4	100.0

Source: VITRANSS Rural Transport Survey, Oct. and Nov. 1999

Table 3.2.3
Vehicle and Boat Availability in Moc Hoa District

(unit: percent)

Monthly Household Income (000 Dong)	Boat Availability								
	0		1			2			
	No Boat Available		Boat without Engine Available			Boat with Engine Available			
	Vehicle Availability								
	0 No Bicycle, No Motorcycle	1 Bicycle Available	0 No Bicycle, No Motorcycle	1 Bicycle Available	2 One Motorcycle Available	0 No Bicycle, No Motorcycle	1 Bicycle Available	2 One Motorcycle Available	Total
< 500	1.4	1.4	0.0	0.0	0.0	0.0	0.0	0.0	2.9
< 1,000	1.4	2.9	5.7	2.9	0.0	0.0	0.0	0.0	12.9
< 2,000	2.9	1.4	1.4	7.1	1.4	17.1	15.7	1.4	48.6
< 3,000	0.0	0.0	1.4	0.0	0.0	10.0	8.6	2.9	22.9
>= 3,000	0.0	0.0	0.0	0.0	0.0	5.7	4.3	2.9	12.9
Subtotal	5.7	5.7	8.6	10.0	1.4	32.9	28.6	7.1	100.0
Total	11.4		20.0			68.6			100.0

Source: VITRANSS Rural Transport Survey, Oct. and Nov. 1999

3.3 Travel Characteristics in Rural Area

Shopping

(1) Type of Markets

People go to markets near home for shopping daily consumption such as food and household utensils, on the other hand, they travel to furhter markets for commodities which are not often purchased such as clothes, construction materials and tools. However the usage of type of market is remarkably different by District. Daily consumption commodities are bought mainly at neighborhood market in Tuy Hoa District, and at market in Commune Center in Dong Xuan District. In contrast, in Moc Hoa District, people go to the District Center, Moc Hoa town for shopping of almost all kinds of commodities. This is attributable to the fact that commercial facilities in neighborhood or Commune Centers have not been developed yet in Moc Hoa District probably due to lack of road network. From many communes the District Center is accessible by a boat but not by a car or a motorcycle.

Figure 3.3.1
Usage of Market Type by District

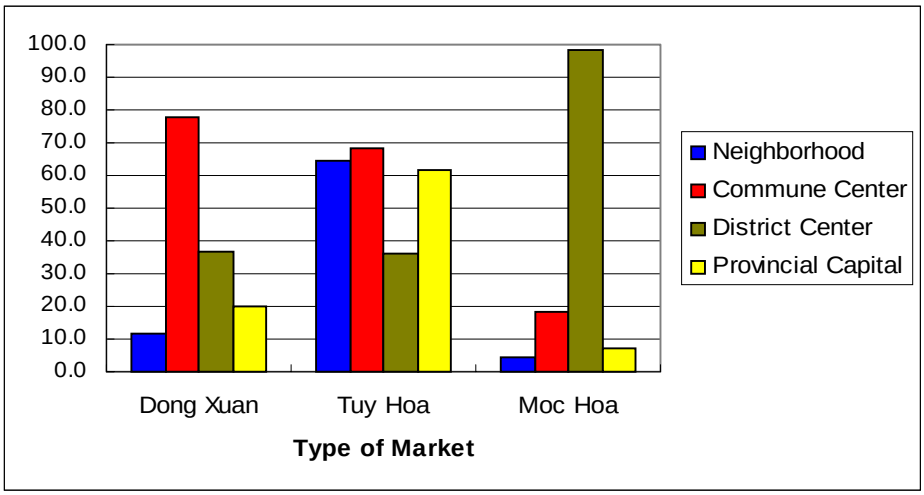


Table 3.3.1
% Distribution of Market Utilization by Commodity Dong Xuan District

(unit: percent)

		Neighbor-hood	Commune Center	District Center	Provincial Capital	Total
1	Rice, Other Cereals	15.4	**79.5**	2.6	2.6	100.0
2	Vegetables	3.7	**87.0**	9.3	0.0	100.0
3	Fish, Meat	12.9	**76.5**	10.6	0.0	100.0
4	Household Utensils	10.1	**56.0**	20.2	13.8	100.0
5	Clothing	10.1	**60.6**	23.2	6.1	100.0
6	Farm Tools, Pesticides	13.1	**70.5**	16.4	0.0	100.0
7	Fertilizer	4.4	**82.2**	13.3	0.0	100.0
8	Seeds	0.0	**100.0**	0.0	0.0	100.0
9	Construction Tools	0.0	0.0	**100.0**	0.0	100.0
10	Construction Materials	5.1	**76.9**	15.4	2.6	100.0
11	Hadicraft Products	7.1	**78.6**	0.0	14.3	100.0

Source: VITRANSS Rural Transport Survey, Oct. and Nov. 1999
Note: Figures in bold letters indicate highest share in all types of markets.

Table 3.3.2
% Distribution of Market Utilization by Commodity: Tuy Hoa District

(unit: percent)

		Neighbor-hood	Commune Center	District Center	Provincial Capital	Total
1	Rice, Other Cereals	**64.3**	24.3	8.6	2.9	100.0
2	Vegetables	**59.4**	32.8	6.3	1.6	100.0
3	Fish, Meat	**50.0**	41.0	7.1	1.9	100.0
4	Household Utensils	**31.6**	26.0	16.9	25.5	100.0
5	Clothing	29.1	**32.4**	13.8	24.7	100.0
6	Farm Tools, Pesticides	**44.2**	42.9	10.4	2.6	100.0
7	Fertilizer	**54.2**	38.2	7.6	0.0	100.0
8	Seeds	**43.1**	27.7	20.0	9.2	100.0
9	Construction Tools	35.4	**47.9**	11.5	5.2	100.0
10	Construction Materials	31.1	**49.6**	13.3	5.9	100.0
11	Hadicraft Products	30.6	**50.0**	10.2	9.3	100.0

Source: VITRANSS Rural Transport Survey, Oct. and Nov. 1999

Table 3.3.3
% Distribution of Market Utilization by Commodity: Moc Hoa District

(unit: percent)

		Neighbor-hood	Commune Center	District Center	Provincial Capital	Total
1	Rice, Other Cereals	0.0	11.1	**88.9**	0.0	100.0
2	Vegetables	3.9	17.6	**78.4**	0.0	100.0
3	Fish, Meat	4.4	16.2	**79.4**	0.0	100.0
4	Household Utensils	2.5	12.3	**79.0**	6.2	100.0
5	Clothing	1.7	3.4	**94.8**	0.0	100.0
6	Farm Tools, Pesticides	3.2	1.6	**95.2**	0.0	100.0
7	Fertilizer	1.6	6.5	**91.9**	0.0	100.0
8	Seeds	0.0	0.0	**100.0**	0.0	100.0
9	Construction Tools	0.0	0.0	**100.0**	0.0	100.0
10	Construction Materials	0.0	0.0	**94.3**	5.7	100.0
11	Hadicraft Products	0.0	0.0	**100.0**	0.0	100.0

Source: VITRANSS Rural Transport Survey, Oct. and Nov. 1999

(2) Mode of Transport for Shopping

In Phu Yen Province shopping trips to neighborhood market is mainly made by bicycle and walking in both Dong Xuan and Tuy Hoa Districts. To go to markets in commune centers, in addition to non-motorized mode of transport, people use motorcycles as well. For shopping to markets in District Center motorcycles are the most significant mode of trasnport. When people need to go to provincial capital for shopping, 20 to 30 percent use buses as well.

Table 3.3.4
Modal Composition of Shopping Trips in Dong Xuan & Tuy Hoa Districts

(unit: percent)

District	Location of Market	Walking	Bicycle	Motorcycle	Bus	Others	Total
Dong Xuan	Neiborhood	37.5	31.3	25.0	6.3	0.0	100.0
	Commune_Center	31.8	44.7	23.5	0.0	0.0	100.0
	District_Center	8.3	16.7	66.7	8.3	0.0	100.0
	Provincial_Capital	0.0	0.0	70.6	29.4	0.0	100.0
Tuy Hoa	Neiborhood	38.0	56.5	5.4	0.0	0.0	100.0
	Commune_Center	10.9	55.5	30.9	0.0	2.7	100.0
	District_Center	4.4	29.4	61.8	1.5	3.0	100.0
	Provincial_Capital	1.1	4.3	70.2	19.1	5.3	100.0

Source: VITRANSS Rural Transport Survey, Oct. and Nov. 1999

In Moc Hoa District of Long An Province, people depend heavily on boats with outboard engine for shopping, thanks to extensively developed inland waterway and also due to lack of road network. In the district, walking and bicycle are also used to access to markets in neighborhood and commune center, however, people do not go to markets in neghborhood and commune centers probably due to a limited number of markets available in neiborhood or communes.

Table 3.3.5
Modal Composition of Shopping Trips in Moc Hoa District

(unit: percent)

Location of Market	Walking	Bicycle	Motor-cycle	Bus	Boat without Motor	Boat with Outboard Motor	Boat with Inboard Motor	Total
Neiborhood	25.0	0.0	25.0	0.0	0.0	50.0	0.0	100.0
Commune_Center	6.7	46.7	13.3	0.0	6.7	26.7	0.0	100.0
District_Center	0.0	12.4	12.4	0.0	7.9	65.2	2.2	100.0
Provincial_Capital	0.0	0.0	0.0	50.0	0.0	50.0	0.0	100.0

Source: VITRANSS Rural Transport Survey, Oct. and Nov. 1999

(3) Frequency of Shopping

People often go to markets in neiborhood or in the commune center. In Tuy Hoa District, neiborhood markets are more used by the residents for their shopping needs than other Districts. More than 80 percent of households go to the markets nearby their home everyday. In Dong Xuan District, villagers use markets in the Commune Centers most frequently; more than 50 percent of households go to the Commune Centers for shopping once in a few days. In contrast, in Moc Hoa District, since markets in neiborhood and in Commune Centers have not been developed and have not been utilized by villagers, people rather access to the market in the District Center more frequently. 33 percent of people go to the markets in the District Center twice or three times a month and 31.9 percent once a week.

Table 3.3.6
Frequency of Shopping Trips by Type of Market

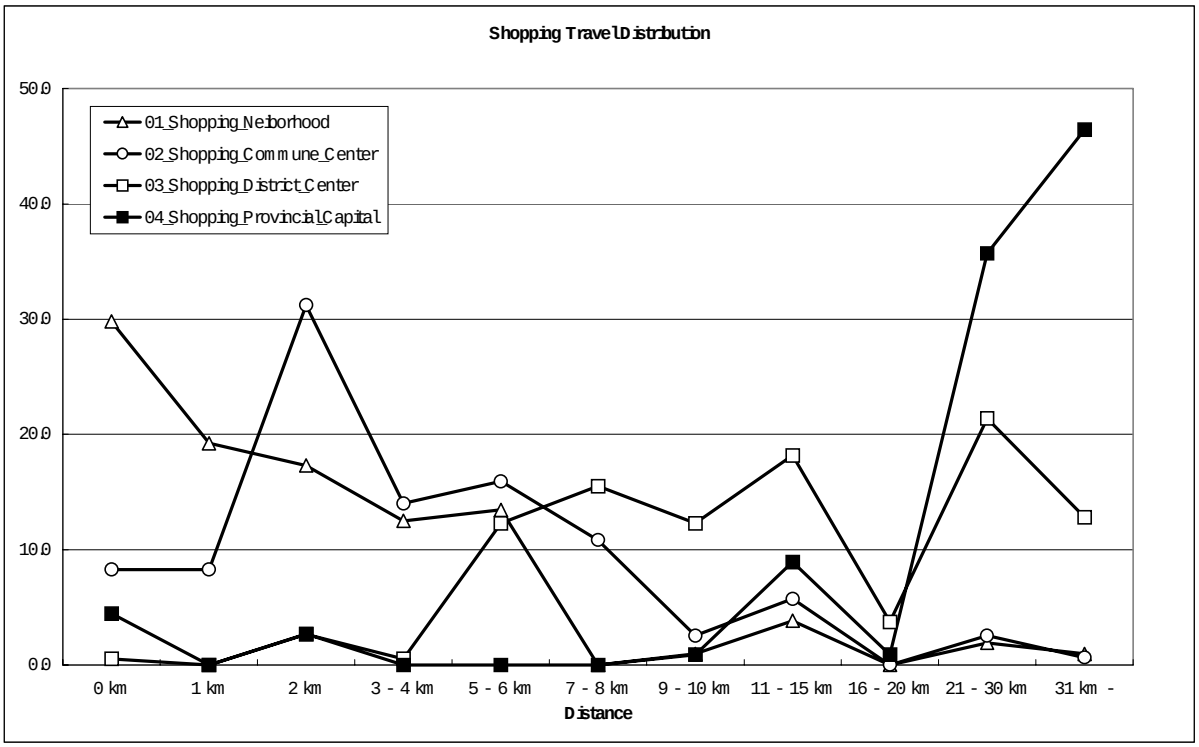
(unit: percent)

Trip Purpose	District	1 2 - 3 times a day	2 Every day	3 Once / 2 - 3 days	4 Once a week	5 2 - 3 times a month	6 Once a month	7 Several times a year	8 Once /twice a year
01_Shopping_Neiborhood	Dong Xuan	0.0	0.0	23.1	15.4	7.7	23.1	30.8	0.0
	Tuy Hoa	0.0	**82.1**	7.1	3.6	1.2	0.0	6.0	0.0
	Moc Hoa	0.0	0.0	0.0	0.0	33.3	66.7	0.0	0.0
02_Shopping_Commune_Center	Dong Xuan	0.0	22.2	**52.4**	15.9	6.3	3.2	0.0	0.0
	Tuy Hoa	0.0	32.2	**33.3**	16.1	5.7	11.5	1.1	0.0
	Moc Hoa	0.0	15.4	**53.8**	15.4	15.4	0.0	0.0	0.0
03_Shopping_District_Center	Dong Xuan	0.0	0.0	12.9	19.4	19.4	**22.6**	16.1	9.7
	Tuy Hoa	0.0	2.0	11.8	21.6	3.9	**29.4**	7.8	23.5
	Moc Hoa	0.0	1.4	11.6	31.9	**33.3**	15.9	2.9	2.9
04_Shopping_Provincial_Capital	Dong Xuan	0.0	0.0	0.0	0.0	5.9	11.8	**41.2**	**41.2**
	Tuy Hoa	1.3	0.0	3.8	10.3	10.3	17.9	21.8	**34.6**
	Moc Hoa	0.0	0.0	0.0	0.0	0.0	0.0	20.0	**80.0**

Source: VITRANSS Rural Transport Survey, Oct. and Nov. 1999

Travel distance for shopping depends on type of market. It is obvious that travel distance increases as a level of market increase from a neighborhood market to a market in District Center as depicted in Figure 3.3.2. In about 50 percent of villages distances to neighboerhood market are within one kilometer, on the other hand, markets in commune centers are located around two kilometers. Distance to District Centers fall between 5 to 11 kilometers. In most villages distances to Provincial Capital are more than 20 kilometers, so that it is not easy to access by non-motorised mode of transport.

Figure 3.3.2
Shopping Travel Distance



Transporting Agricultural Produce

A variety of means of transport are utilized for transporting agricultural produce in villages. In Dong Xuan and Tuy Hoa Districts, animal carts are most used for drying produce. For transporting produce for processing, people use many types of means of transport, which include bicycles, animal carts, motorcycles and manual carrying. For transporting produce to market, major means of transport are manual carrying, bicycles and motorcycles. In some occasions trucks are also utilized for transporting produce to markets.

Table 3.3.7
Modal Composition of Agricultural Produce Related Trips
in Dong Xuan and Tuy Hoa Districts

(unit: percent)

District	Purpose	1	2	4	5	6	7	8	14	
		Walk-ing	Bicycle	Animal	Animal Cart	Motor cycle	Cong Nong	Truck	Others	Total
	05_Produce_Drying	42.9	0.0	7.1	42.9	0.0	0.0	0.0	7.1	100.0
Dong	06_Produce_Processing	28.6	20.4	0.0	26.5	20.4	2.0	0.0	2.0	100.0
Xuan	07_Produce_Market	19.3	21.1	0.0	0.0	22.8	0.0	36.8	0.0	100.0
	05_Produce_Drying	14.0	26.7	2.3	46.5	5.8	4.7	0.0	0.0	100.0
Tuy	06_Produce_Processing	13.3	60.0	0.0	7.6	12.4	0.0	5.7	1.0	100.0
Hoa	07_Produce_Market	19.2	38.4	0.0	11.0	24.7	0.0	5.5	1.4	100.0

Source: VITRANSS Rural Transport Survey, Oct. & Nov. 1999

In contrast agricultural produce is mainly transported by boats in Moc Hoa District, and mode of transport for transporting produce does not vary significantly according to type of commodity. Exception can be seen in that fish, shrimp and poultry are sometimes transported by bicylces due to relatively light weight of produce.

Table 3.3.8

Modal Composition of Agricultural Produce Related Trips in Moc Hoa District

(unit: percent)

Purpose	1	2	6	7	11	12	13	14	
	Walking	Bicycle	Motor cycle	Cong Nong	Boat without Motor	Boat with Outboard Motor	Boat with Inboard Motor	Others	Total
05_Produce_Drying	6.7	0.0	0.0	6.7	4.0	49.3	0.0	33.3	100.0
06_Produce_Processing	0.0	0.0	1.5	0.0	16.7	81.8	0.0	0.0	100.0
07_Produce_Market	0.0	5.9	0.0	0.0	0.0	88.2	5.9	0.0	100.0

Source: VITRANSS Rural Transport Survey, Oct. & Nov. 1999

Table 3.3.9
Modal Composition for Transporting Agricultural Produce to Market in Moc Hoa District

(unit: percent)

Produce	1	2	5	6	8	12	13	14	
	Walking	Bicycle	Animal Cart	Motor cycle	Truck	Boat with Outboard Motor	Boat with Inboard Motor	Others	Total
Pig, Ox and Buffalo	0.0	0.0	0.0	0.0	0.0	83.3	16.7	0.0	100.0
Poultry	0.0	9.1	0.0	0.0	0.0	90.9	0.0	0.0	100.0
Fish, Shrimp	0.0	16.7	0.0	0.0	0.0	83.3	0.0	0.0	100.0
Others	0.0	0.0	0.0	0.0	0.0	90.9	9.1	0.0	100.0
Total	0.0	5.9	0.0	0.0	0.0	88.2	5.9	0.0	100.0

Source: VITRANSS Rural Transport Survey, Oct. & Nov. 1999

Destinations of transporting produce vary from District to District. In both Dong Xuan District and Tuy Hoa Districts Commune Centres are primary destinations for transporting produce, but villagers in Don Xuan District transport their produce to District Centre and Provincial Capital as well. In Moc Hoa District people bring their produce to the District Centre.

Frequency of transporting produce is not so high due to limited period for agricultural activities but it varies from District to District. In Dong Xuan District produce for drying and processing are transported once a week, while in Tuy Hoa District these activities are undertaken two or three times a month. In Moc Hoa District transporting produce for drying and processing are made several times a year or once a month respectively. Transporting produce to market is more seldom than other activities; most households transport their harvest to markets merely once or twice a year.

Table 3.3.10
% Composition of Destination of Transporting Produce

(unit: percent)

District	Destination Type				
	Provincial Capital	District Center	Commune Center	Others	Total
Dong Xuan	20.8	20.8	58.3	0.0	100.0
Tuy Hoa	0.0	2.8	94.4	2.8	100.0
Moc Hoa	0.0	100.0	0.0	0.0	100.0

Source: VITRANSS Rural Transport Survey, Oct. & Nov. 1999

Table 3.3.11
Frequency of Transporting Agricultural Produce

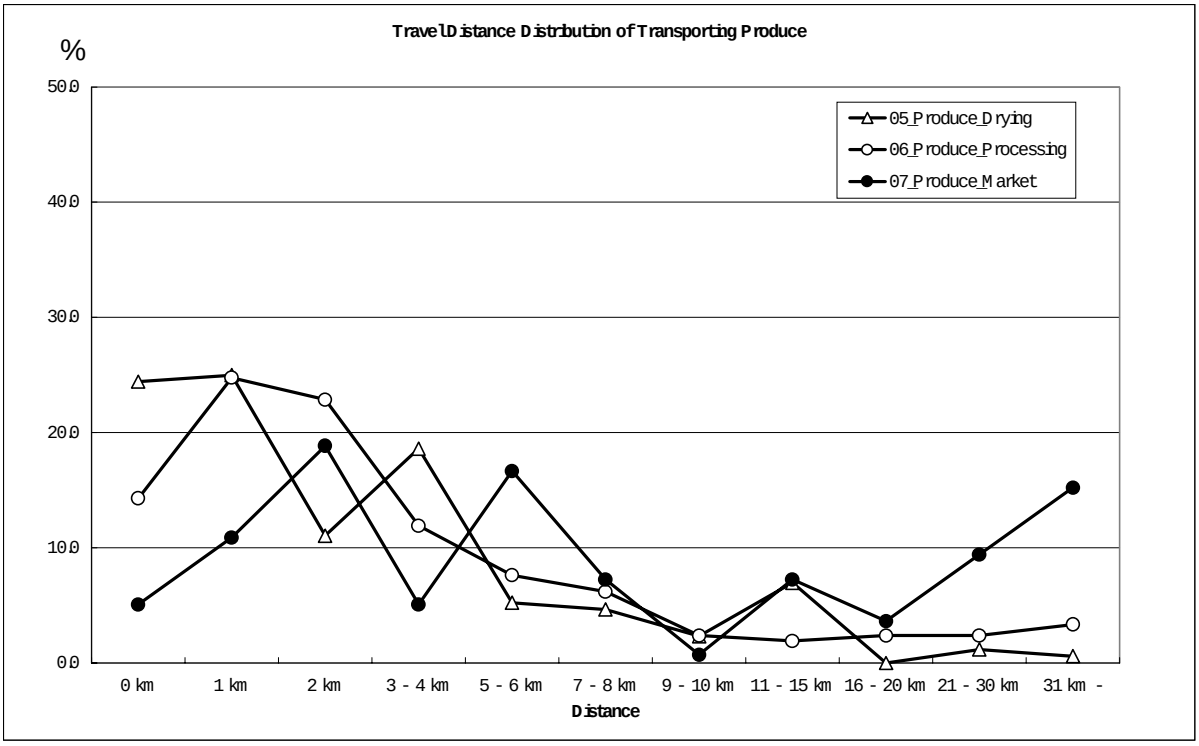
(unit: percent)

Trip Purpose	District	1 2 - 3 times a day	2 Every-day	3 once / 2 - 3 days	4 once a week	5 2 – 3 times a month	6 once a month	7 several times a year	8 once/ twice a year
05_Produce_Drying	Dong Xuan	0.0	0.0	0.0	**100.0**	0.0	0.0	0.0	0.0
	Tuy Hoa	0.0	0.0	4.3	14.3	**48.6**	8.6	24.3	0.0
	Moc Hoa	0.0	0.0	6.3	0.0	11.1	25.4	**49.2**	7.9
06_Produce_Processing	Dong Xuan	0.0	0.0	22.2	**38.9**	30.6	5.6	0.0	2.8
	Tuy Hoa	0.0	0.0	13.4	23.2	**34.1**	17.1	4.9	7.3
	Moc Hoa	0.0	1.6	0.0	0.0	1.6	**81.0**	15.9	0.0
07_Produce_Market	Dong Xuan	0.0	4.8	19.0	4.8	14.3	11.9	4.8	**40.5**
	Tuy Hoa	0.0	7.7	7.7	1.9	23.1	**30.8**	15.4	13.5
	Moc Hoa	0.0	8.3	0.0	8.3	0.0	33.3	0.0	**50.0**

Source: VITRANSS Rural Transport Survey, Oct. and Nov. 1999

Travel distances for transporting agricultural produce depend on type of activities. Drying and processing activities are made near agricultural fields, thus travel distances for these activities are relatively short compared with distance for transporting produce to markets. Distribution of travel distance indicate three peaks probably due to differences in distances by type of market. Around 15 percent of agriculture produce is transported more than 30 km to further market.

Figure 3.3.3
Travel Distance for Transporting Agricultural Produce



To Work Place

When people go to work to agricultural fields, more than 50 percent of people go on foot even in Moc Hoa District. In Dong Xuan and Tuy Hoa Districts about 20 to 25 percent of bicycle to get to agricultural work. In Moc Hoa District, boats with a outboard engine is the second popular mode of transport to get to agricultural field, accounting for some 35 to 40 percent. On the other hand, when some of them go to work other than agricultural fields, the most popular mode of transport is a motorcycle in Phu Yen Province. In Moc Hoa District, instead of using motorcycles people utilize boats with an engine.

Table 3.3.12
Modal Composition of "To Work Place" Trips in Dong Xuan and Tuy Hoa Districts

(unit: percent)

District	Purpose	1	2	5	6	9	14	
		Walking	Bicycle	Animal Cart	Motor cycle	Bus	Others	Total
Dong Xuan	08_Work_Agriculture	72.5	19.8	0.0	7.7	0.0	0.0	100.0
	09_Work_Others	29.2	25.0	0.0	41.7	4.2	0.0	100.0
Tuy Hoa	08_Work_Agriculture	57.7	26.8	2.7	8.7	0.0	4.0	100.0
	09_Work_Others	12.5	38.8	1.3	38.8	6.3	2.5	100.0

Source: VITRANSS Rural Transport Survey, Oct. & Nov. 1999

Table 3.3.13
Modal Composition of "To Work Place" Trips in Moc Hoa District

(unit: percent)

District	Purpose	1	2	11	12	13	
		Walking	Bicycle	Boat without Motor	Boat with Outboard Motor	Boat with Inboard Motor	Total
Moc Hoa	08_Work_Agriculture	53.8	1.1	4.4	39.6	1.1	100.0
	09_Work_Others	52.2	8.7	4.3	34.8	0.0	100.0

Source: VITRANSS Rural Transport Survey, Oct. & Nov. 1999

Most people go to agricultural field everyday in Dong Xuan and Tuy Hoa Districts, accounting for 83.5 and 71.3 percent. In contrast about 40 percent of people go to agricultural fields merely once in two or three days. To work place other than agricultural fields, people go to work less frequent than to fields.

Table 3.3.14
Frequency of "To Work Place" Trips

(unit: percent)

Trip Purpose	District	1 2 - 3 times a day	2 Every-day	3 once / 2 - 3 days	4 once a week	5 2 - 3 times a month	6 once a month	7 several times a year	8 once/twice a year
08_Work_Agriculture	Dong Xuan	2.5	**83.5**	11.4	1.3	1.3	0.0	0.0	0.0
	Tuy Hoa	0.0	**71.3**	18.0	5.7	1.6	2.5	0.0	0.8
	Moc Hoa	0.0	**44.3**	41.4	12.9	1.4	0.0	0.0	0.0
09_Work_Others	Dong Xuan	0.0	**70.0**	15.0	10.0	5.0	0.0	0.0	0.0
	Tuy Hoa	0.0	**39.3**	29.5	6.6	13.1	3.3	4.9	3.3
	Moc Hoa	0.0	27.3	**31.8**	22.7	4.5	9.1	4.5	0.0

Source: VITRANSS Rural Transport Survey, Oct. & Nov. 1999

Education

In primary school pupils go to school mainly on foot, accounting for 86 and 82 percent in Dong Xuan and Tuy Hoa Districts. Pupils in middle schools depend on bicycles more than primary school pupils. In Dong Xuan District about 52 percent of pupils use a bicycle and in Tuy Hoa District as much as 90 percent go to school by bicycle. In secondary school dependency on bicycle become higher and also some of them go to school by motorcycle or by bus.

In Moc Hoa District similar to the two districts in Phu Yen, about 62 percent of primary school pupils go to school by walking, however around 30 percent of pupils go to school by a boat either without a engine or with a outboard engine.

Table 3.3.15
Modal Composition of Education Related Trips in Dong Xuan and Tuy Hoa Districts

(unit: percent)

District	Purpose	1	2	6	9	14	
		Walking	Bicycle	Motorcycle	Bus	Others	Total
Dong Xuan	10_Education_Primary	86.4	13.6	0.0	0.0	0.0	100.0
	11_Education_Middle	42.4	51.6	0.0	3.0	3.0	100.0
	12_Education_Secondary	0.0	60.0	6.7	33.3	0.0	100.0
Tuy Hoa	10_Education_Primary	82.4	17.6	0.0	0.0	0.0	100.0
	11_Education_Middle	10.0	90.0	0.0	0.0	0.0	100.0
	12_Education_Secondary	0.0	94.7	5.3	0.0	0.0	100.0

Source: VITRANSS Rural Transport Survey, Oct. & Nov. 1999

Table 3.3.16
Modal Composition of Education Related Trips in Moc Hoa District

(unit: percent)

District	Purpose	1	2	11	12	
		Walking	Bicycle	Boat without Motor	Boat with Outboard Motor	Total
Moc Hoa	10_Education_Primary	61.8	9.1	18.2	10.9	100.0
	11_Education_Middle	13.5	51.4	16.2	18.9	100.0
	12_Education_Secondary	0.0	72.7	9.1	18.2	100.0

Source: VITRANSS Rural Transport Survey, Oct. & Nov. 1999

Travel distance to school increase as grade of school is higher. Primary schools are basically located in villages, so that the distance to primary school is around one kilometer on average. The location of middle schools are more dispersed when compared with primary schools, thus the distances from home is in the range of 2 to 8 km. The number of secondary school is still limited in rural area, therefore the distance to secondary school is rather long; many students must travel over 10 km.

In terms of travel time, pupils going to primary school on foot live near school so that travel time to school of those pupils are about 60 percent. Pupils going to primary school by bicycle take longer time; more than 35 percent of those pupils take 11 to 20 minutes and some 25 percent travel from 21 to 30 minutes. In middle school, since travel distances to schools are longer than primary school, travel times are also longer; among those who go to school on foot about 50 percent of pupils walk for 21 to 30 minutes. In secondary school among those who use bicycle to school almost 30 percent of students travel long time of about one hour.

Figure 3.3.4
Travel Distance to School

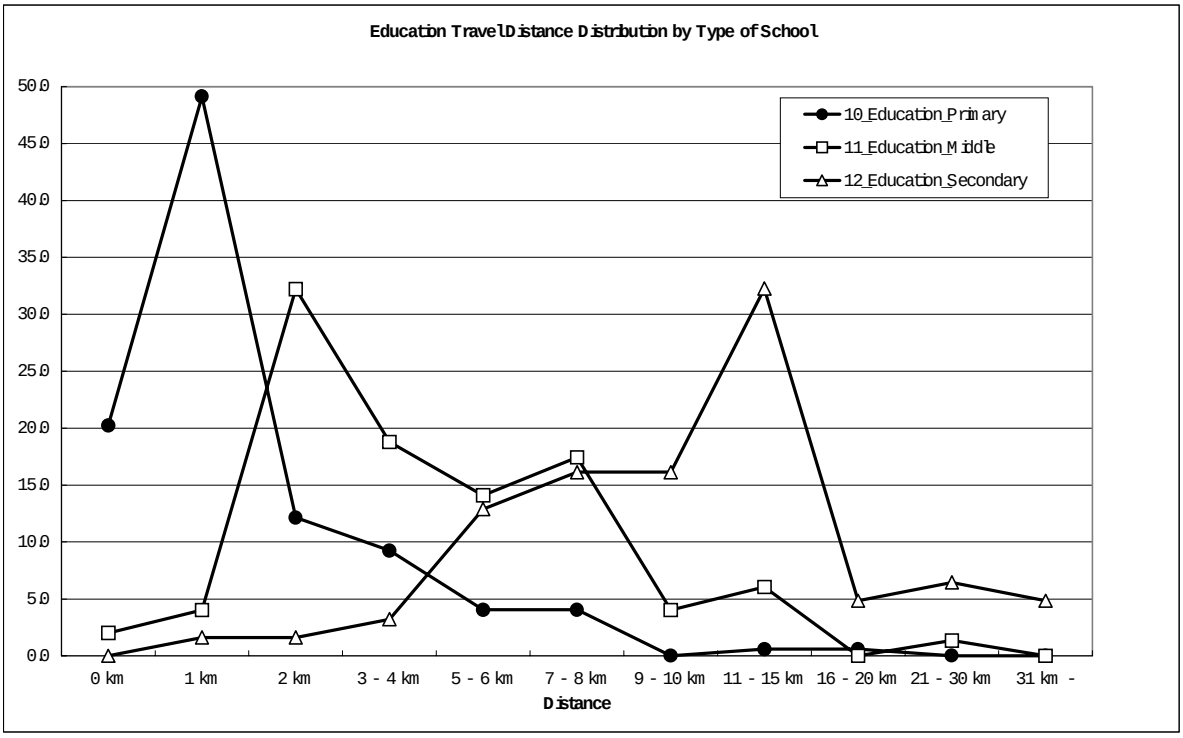
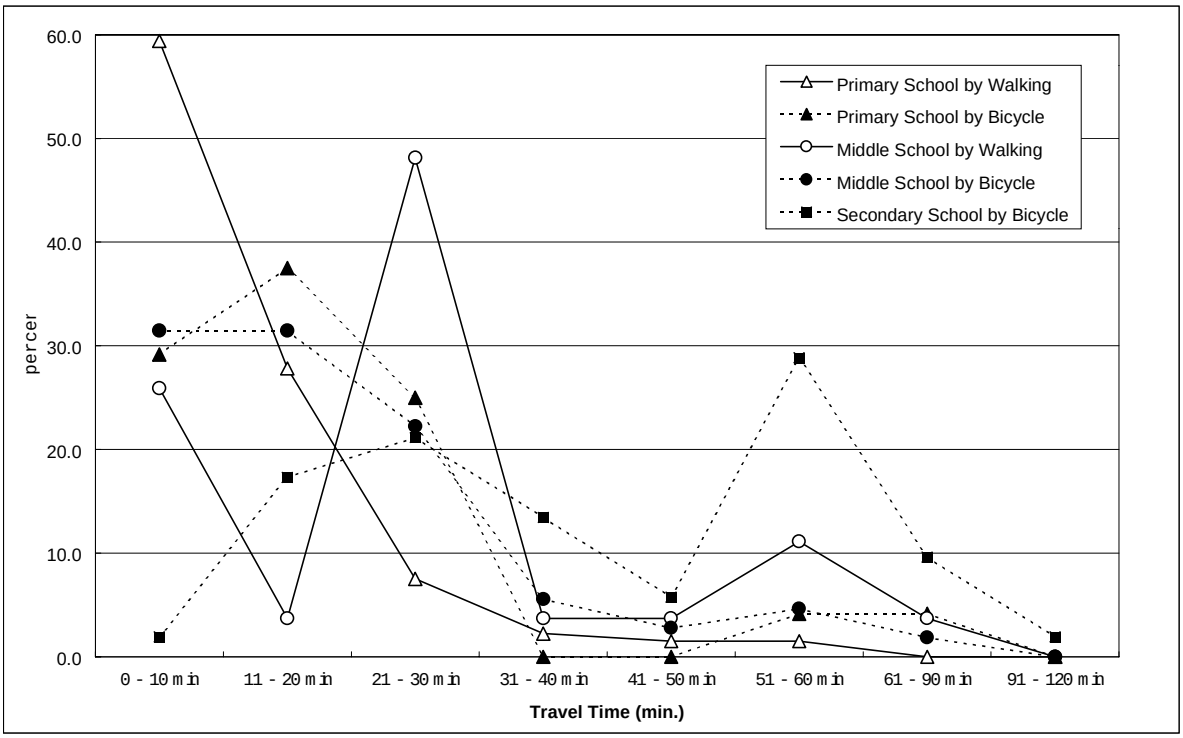


Figure 3.3.5
Travel Time to School by Mode of Transport



Health Care

In Dong Xuan and Tuy Hoa Districts major mode of transport for visiting neighbourhood health care facilities such as health care center, family planning centers, and clinic is a bicycle, followed by motorcycle or walking. When they need to go to a hospital, which is located in District Center or Provincial Capital, they use a motorcycle most followed by a bus.

In Moc Hoa District, the most prevailing mode of transport for accessing to health care facilities is a boat with outboard engine, similar to other trip purposes.

Table 3.3.17
Modal Composition of Health Care Realted Trips
in Dong Xuan and Tuy Hoa Districts

(unit: percent)

District	Purpose	1	2	6	9	14	
		Walking	Bicycle	Motorcycle	Bus	Others	Total
	13_Health_Center	0.0	0.0	0.0	0.0	0.0	0.0
Dong Xuan	14_Family_Planning	0.0	92.9	7.1	0.0	0.0	100.0
	15_Clinic	40.8	33.8	23.9	0.0	1.4	100.0
	16_Hospital	2.7	13.5	51.4	32.4	0.0	100.0
	13_Health_Center	25.7	54.1	20.3	0.0	0.0	100.0
Tuy Hoa	14_Family_Planning	3.9	68.8	27.3	0.0	0.0	100.0
	15_Clinic	9.8	63.4	25.6	0.0	1.2	100.0
	16_Hospital	0.0	11.6	80.0	4.2	4.2	100.0

Source: VITRANSS Rural Transport Survey, Oct. & Nov. 1999

Table 3.3.18
Modal Composition of Health Care Related Trips in Moc Hoa District

(unit: percent)

Purpose	1	2	6	9	11	12	13	14	
	Walking	Bicycle	Motor cycle	Bus	Boat without Motor	Boat with Outboard Motor	Boat with Inboard Motor	Others	Total
13_Health_Center	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14_Family_Planning	0.0	17.2	13.8	3.4	0.0	65.5	0.0	0.0	100.0
15_Clinic	22.2	16.0	4.9	0.0	7.4	40.7	6.2	2.5	100.0
16_Hospital	0.0	5.6	26.4	8.3	1.4	58.3	0.0	0.0	100.0

Source: VITRANSS Rural Transport Survey, Oct. & Nov. 1999

Apparently people do not go to health care facilities so frequently as other trip. The majority of people go to neighborhood health care facilities once a month. For a hospital more than 50 percent of residents visit once or twice a year.

Table 3.3.19
Frequency of Health Care Related Trips

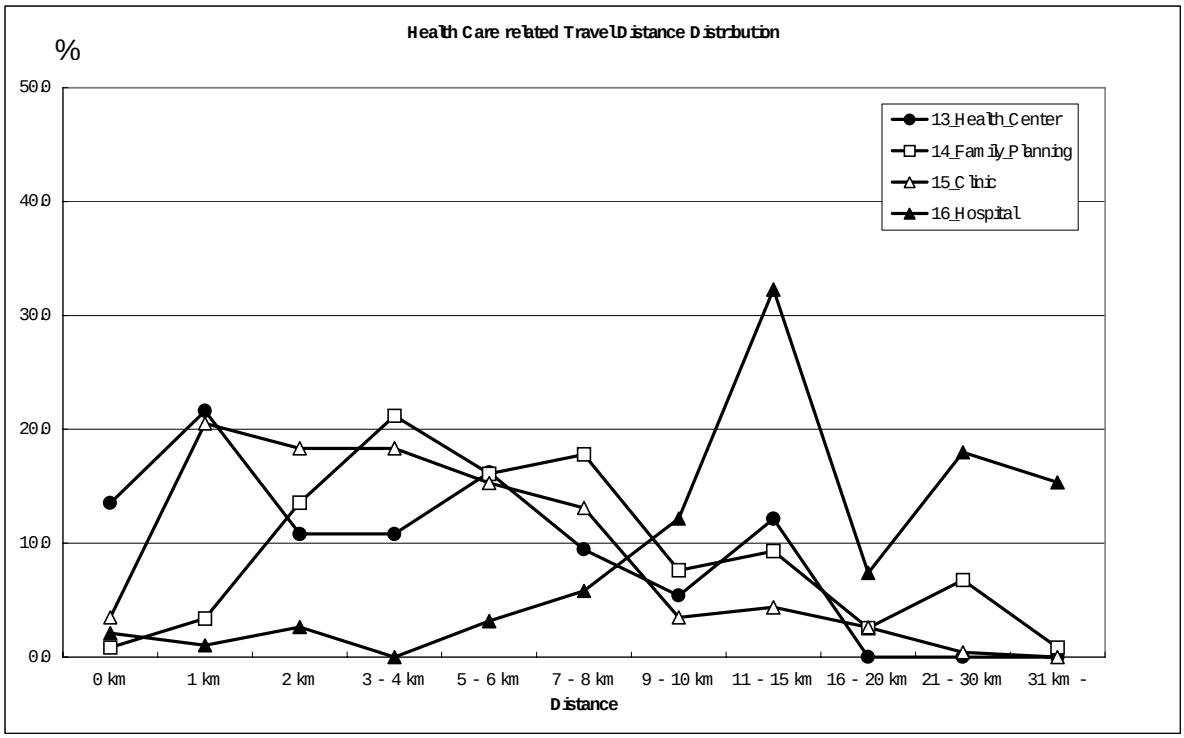
(unit: percent)

Trip Purpose	District	*1* 2 - 3 times a day	*2* Every day	*3* Once / 2 - 3 days	*4* once a week	*5* 2 - 3 times a month	*6* Once a month	*7* several times a year	*8* once/ twice a year
13_Health_Center	Dong Xuan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Tuy Hoa	0.0	0.0	1.4	5.7	10.0	**37.1**	17.1	28.6
	Moc Hoa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14_Family_Planning	Dong Xuan	0.0	0.0	0.0	0.0	28.6	**35.7**	7.1	28.6
	Tuy Hoa	0.0	0.0	0.0	0.0	1.4	4.1	11.0	**83.6**
	Moc Hoa	0.0	0.0	0.0	0.0	0.0	25.0	**37.5**	**37.5**
15_Clinic	Dong Xuan	0.0	4.6	4.6	1.5	21.5	15.4	**35.4**	16.9
	Tuy Hoa	0.0	1.6	1.6	0.0	16.1	**32.3**	9.7	38.7
	Moc Hoa	0.0	0.0	3.4	8.6	22.4	**32.8**	19.0	13.8
16_Hospital	Dong Xuan	0.0	0.0	0.0	0.0	6.3	9.4	**34.4**	**50.0**
	Tuy Hoa	0.0	0.0	0.0	0.0	0.0	11.9	27.4	**60.7**
	Moc Hoa	0.0	0.0	3.8	0.0	3.8	3.8	28.3	**60.4**

Source: VITRANSS Rural Transport Survey, Oct. & Nov. 1999

Distances to health care centre, family planning centre and clinic are relatively short compared with hospitals but the distances vary from 1 km to 7-8 km. On the other hand, more than 30 percent of households must travel over 11 to 15 km distance to a hospital.

Figure 3.3.6
Travel Distances to Health Care Facilities



4 DISCUSSIONS ON RURAL TRANSPORT ISSUES AND STRATEGIES

4.1 Problems and Issues in Rural Transport

Several studies identified the problems and issues in rural transport as follows;

(1) Poor Accessibility in Rural Areas

Some communes still have difficulties in access to district centers/commune centers by motor vehicles. In particular, in mountainous region and delta regions, there are many road sections impassable during rainy season so that considerable number of villages are often isolated from other.

(2) Lack of Basic Information

At local level basic information such as road inventory has not been stored in proper manner. Thus it is difficult to evaluate the needs of rural transport investment. Little information is provided from local governments to the Central Government, consequently the Central Government is not able to understand the situation of each province.

(3) Lack of a Development Plan for Rural Transport.

Many provinces have established a rural transport development plan, however necessity of infrastructure facility has not been well-documented and the criteria for giving priority on construction or improvement of infrastructure has not clearly been established. The common practice to give priority for the projects in Provinces is the priority projects are selected through discussion in the Districts. Thus each District has its own project list according to the priority and there seems no coordination between Districts at provincial level. There is no established method to evaluate rural transport development.

(4) Limited Funds for Rural Transport

Funds for rural transport development are extremely limited not only at the Central Government level but also at the local level. Due to the limited financial sources at Local level (Province, District, Commune), their development plan often lack of financial viability. Local governments expect the Central government to provide 30 to 40 percent of the funds required for the rural transport development

(5) Lack of Knowledge for Infrastructure Development at Local Level.

Persons in charge of transport development are limited at local level, and lack of knowledge makes delay and confusion of rural transport development.

(6) Necessary Technology Development

It is necessary to develop technology suitable for the needs and conditions of each province and for making most use of regional resources.

Rural transport development and improvement are the wheel on the other side of a vehicle. Without an efficient primary transport network, rural transport will still be handicapped. Without effective rural transport, the primary system will be underutilized. Although the rural transport should not be looked at from the transport sector alone and is not fully included in the VITRANSS scope of the study, it is initially worked out from the viewpoint how the rural transport and inter-provincial transport should be integrated.

1) Poor State of Accessibility in Most Rural Areas:

There are 606 communes, which have no access road to provincial capital by four-wheel motor vehicle. Especially Northern Mountainous, Central Highlands and Mekong River Delta areas lack accessibility due to difficult topographical features. Moreover, rural road network is not properly configured based on clear planning philosophy.

2) Lack of Infrastructure Development and Management Capabilities at Local Level

Although the government has recognized the necessity of rural road development, and placed policy priority as a forefront of its poverty alleviation efforts, with particular emphasis on the handicapped areas. Problems and issues related to management are further as follows:

- Lack of basic information
- Absence of plans and lack of planning capability
- Limited financial and human resources
- Unavailable clear policy and strategy for rural transport development

4.2 Objectives and Strategy for Rural Transport Development

Goals and Objectives

The goal of rural transport development is to promote socio-economic development and welfare of the people in the localities by providing adequate rural transport infrastructure and services. Long-term objectives on the rural transport limited to the scope in VITRANSS are as follows:

- To provide minimal accessibility to basic social and economic services (Equity)

As widely known, many people in remote area of the country do not have access to provincial capital by motorised mode of transport. This implies that people do no have access to basic social and economic services. Rural transport development should be not viewed merely from economic efficiency but from equity point of view. Thus rural transport network development plan should be established from the viewpoint of securing minimal accessibility for all the villages in the country.

- To develop rural transport network efficiently (Efficiency)

  Although equity viewpoint is important in improving accessibility in rural areas, efficiency should be also taken into account. Economically efficient way to develop rural transport network should be sought in construction method, technology, capability of planning, integration of road and inland waterway network.

- To provide affordable means of transport in order to increase mobility (Affordability)

  In addition to the development of rural transport network, provision of affordable mode of transport is also of great importance to increase mobility of people in rural area.

Strategies for Rural Transport Development

In the context of rural transport development, the major objective is improving access to social and economic services. The following strategies should be taken to achieve the objectives;

1) Combination of Various Countermeasures

In order to achieve improvement of access, development of transport network would not only cost expensive but also require a long time. Consequently, variety of countermeasures should be taken into count to tackle with the issue of rural access improvement.

Incorporation with other measures than rural transport development should be taken into consideration for improving accessibility in rural area

- by providing affordable transport services such as public transport and school bus to support rural poor.
- by providing or improving facilities such as educational and health-care facilities in the proximity of villages
- by providing opportunity in a different location from a remote village if adequate level of service cannot be provided. It implies that relocation for a certain period such as dormitory school.
- by providing moving services in remote areas such as travelling clinic or mobile library

Accessibility to services can be improved not only by improving physical transport network but also by construction of the facilities close to villages or other measures.

2) Integration of Rural Transport Network with Primary and Secondary Transport Network

Integration of rural transport network with primary and secondary transport network makes the whole transport network function efficiently. Systematic approach is required to establish an integrated network at provincial level. Thus it is important to improve planning capability at provincial level and at district level.

3) Sustainable Financial Sources

It is also of great importance to prepare sustainable financial sources by expansion of tax base at provincial level to develop rural transport network.

4) Adequate Design Standard

With regard to technical aspects, adequate design standard should be established and technology suitable to the need and situation of the locality should be studied.

For instance, in order to provide minimal level of accessibility, lower standard, such as reduction of pavement width from 3.5 meter to 2.5 meter, could be taken into consideration for short/intermediate term solution.

It is also important to utilise construction material produced locally as much as possible to reduce the investment cost.

5) Development of Local Transport Services

Entry of local transport entities into the transport market should be encouraged to provide poor people with alternative means of transport. Rural transport operator such as bus and truck transport companies should be encouraged to enter the local transport market at provincial level, to meet the local needs more effectively.

6) Provision of Credit System

Merely transport network development cannot solve the poor accessibility problem in rural area because poor people cannot afford to use any type of mode of transport.

Credit system should be created for purchasing intermediate mode of transport as well as motorised mode of transport, otherwise poor households are not able to enjoy benefits brought about from improvement of transport network.

7) Area-Specific Planning Approach

To make area-specific rural transport development plan taking into account terrain and climate and other factors, which differs from region to region.

It is apparent that area specific planning approach is essential because transport needs, available resources, and costs vary from region to region. Rural transport

development planning approaches for the following two regions illustrate differences in comparison with plain region.

a) Delta Region: It requires a huge amount of funds to develop road network due to enormous length of roads to be constructed or improved in the region as well as high unit cost of road construction due to relatively high base height for flood prevention. At least in short/intermediate term, inland waterways would play an important role in the region. Thus technical standard of road and bridge in the region should be established in accordance to the required clearance for inland waterways. Clearance of bridges should be determined according to the classification the inland waterways.

b) Mountainous Region: Some villagers inhabit dispersesively in mountainous region and their housings are not located along roads, rather they are located in the middle of mountain. Therefore it seems difficult to provide sufficient level of accessibility by road network. Furthermore terrain is steep and it makes road construction difficult and construction cost more expensive.

5. PRELIMINARY STUDY ON RURAL ROAD DEVELOPMENT NEEDS

5.1 Review of Rural Road Development Plan 2010 Prepared by MOT

Based on the rural road development plan up to 2010, the length of rural road required for new construction and upgrading by province is shown in Table 5.1.1. Total length of rural roads to be newly constructed amounts to 6,165km, while 21,715 km of rural roads will be upgraded up to 2010. Thus total length of rural roads either for new construction or upgrading accounts for 27,880 km.

Although the length of 27,880 km for improvement up to 2010 is enormously long, this amount to merely 16.5 percent of the entire rural road. Taking almost rural roads being in a bad condition at present, the improvement should be executed more quickly if financial condition is met.

In addition to the road improvement, total number of bridges to be constructed is 1,077 and the length accounts for 27,547 m.

Required Rural Road Development

The planned rural road development per population by province is shown in Table 5.1.2 and it is illustrated in Figure 5.1.1. Figure 5.1.2 also illustrates the length of bridges to be constructed per rural population by Province. High per capita improvement of rural roads are observed in the northern mountainous region and central highlands due to low level of the existing rural road network in the regions. In contrast, high ration of bridge construction per rural population are shown in Mekong Delta Region due to needs of new roads and accordingly needs of new bridges.

The relationship between requirement of upgrading and the existing rural road condition indicated by percent of earth road is depicted in Figure 5.1.3. The length of rural road required for upgrading is generally proportional to the percentage composition of earth roads in all the rural roads.

Figure 5.1.1 Rural Road Development Intensity

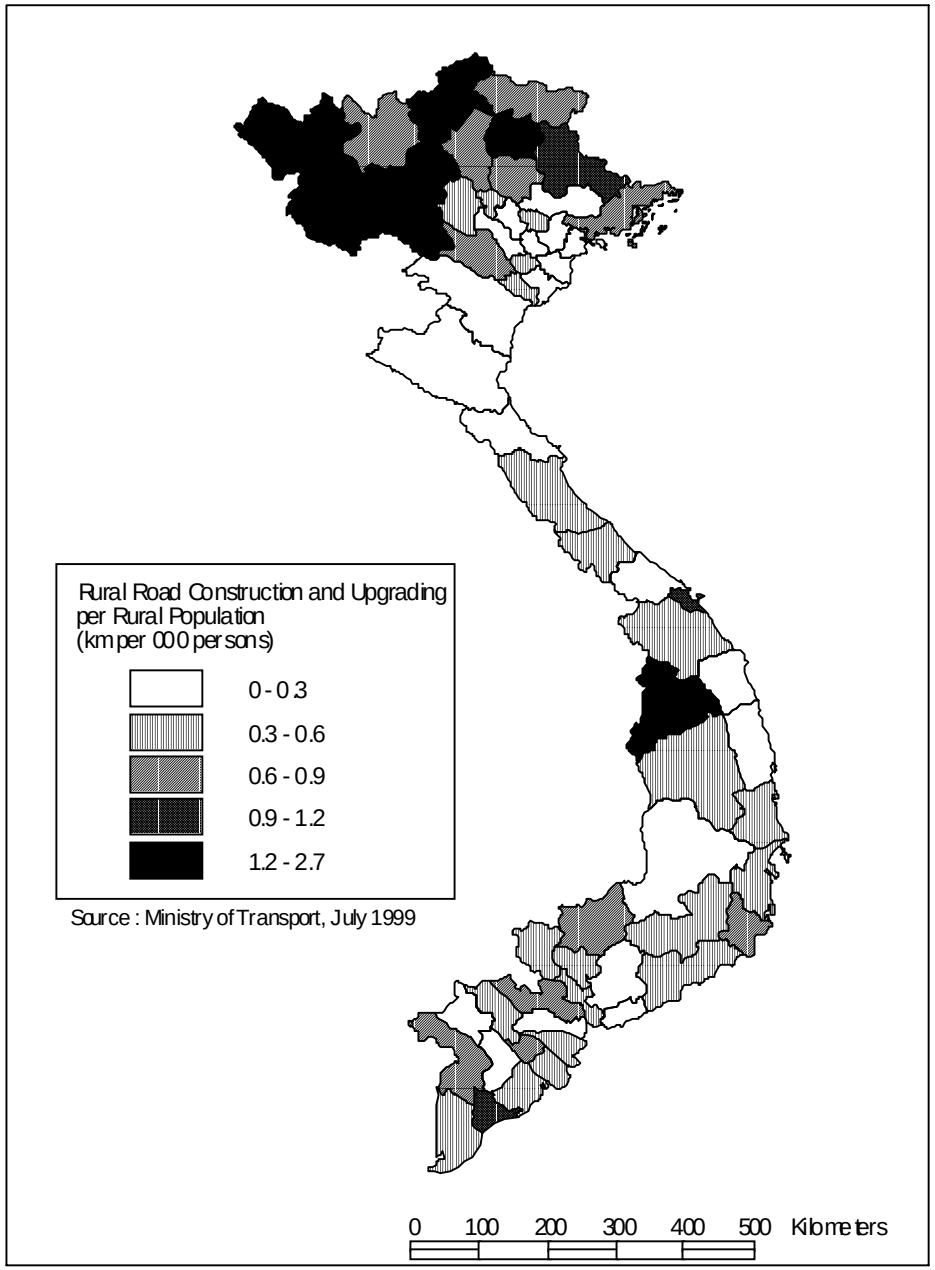


Figure 5.1.2 Bridge Construction Intensity in Rural Area

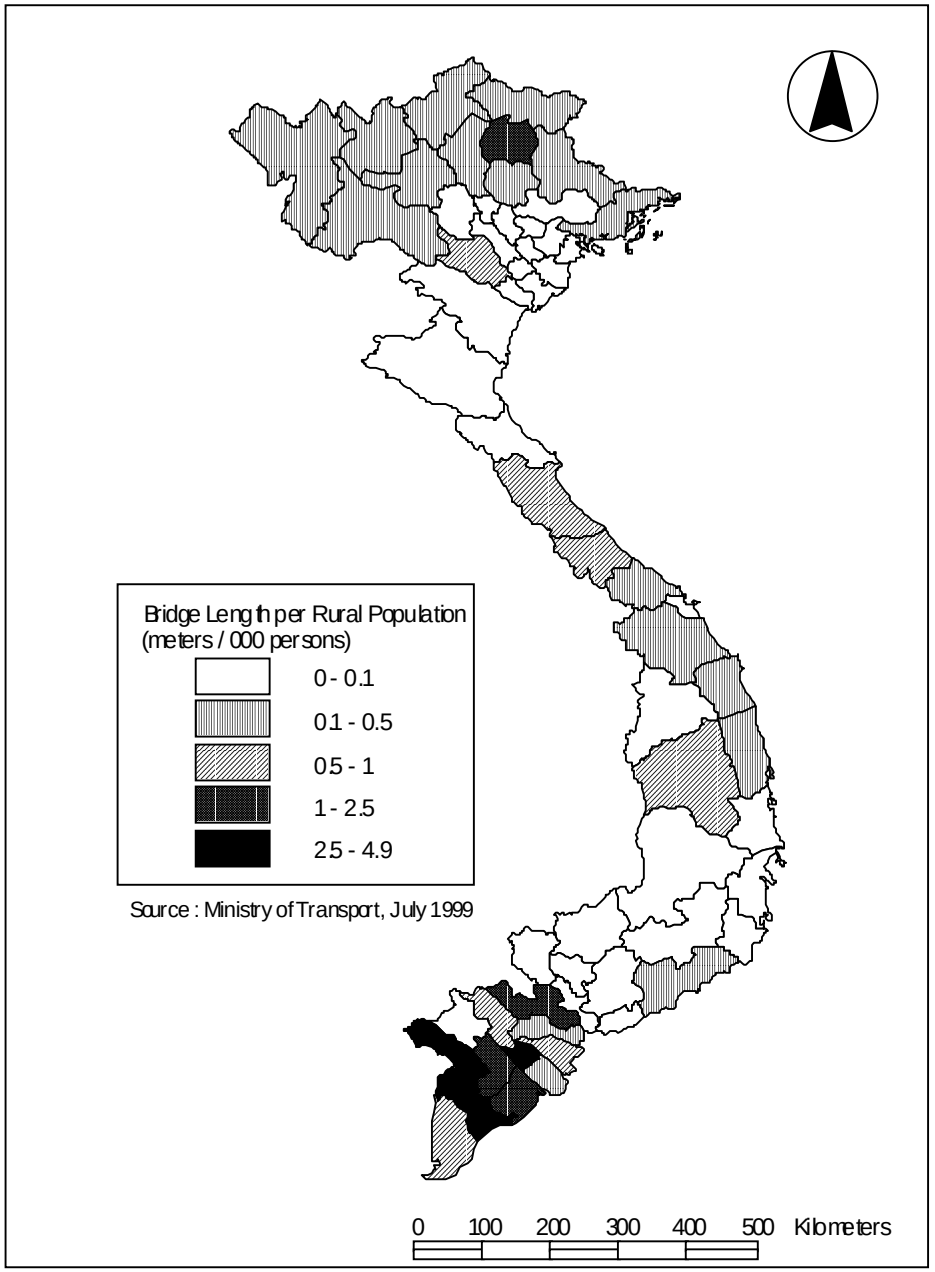


Figure 5.1.3
Upgrading of Rural Roads vs Existing Condition

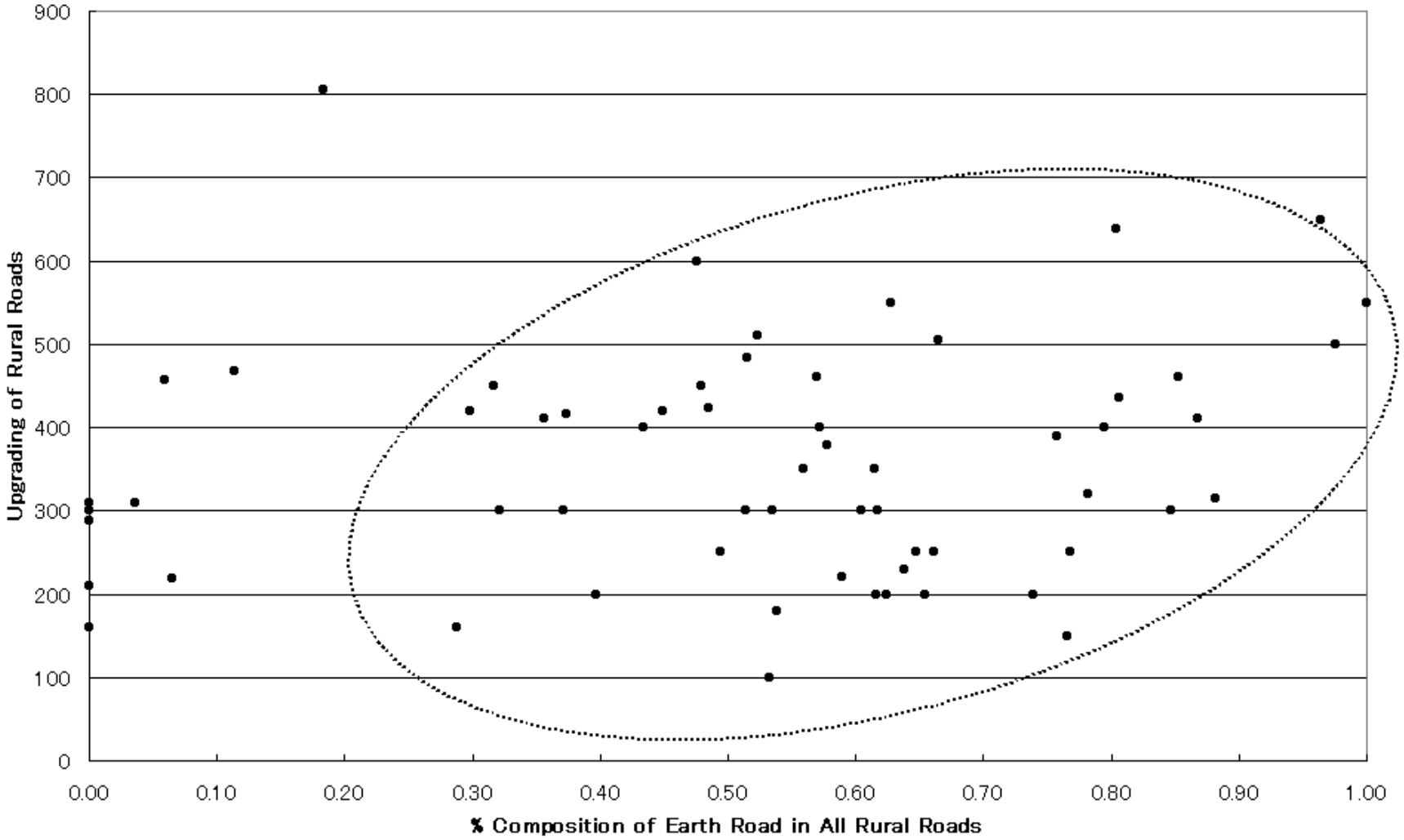


Table 5.1.1
Rural Road Development Plan by Ministry of Transport

	Province Name	Rural Roads			Bridges to be Newly Built	
		Newly Construct (km)	Upgrade (km)	Subtotal (km)		
		(A)	(B)	(A)+(B)	Number	Length (m)
1	Ha Noi	0	310	310	0	0
2	Ah Phong	0	289	289	0	0
3	Hai Duong	0	300	300	0	0
4	Hung Yen	0	160	160	0	0
5	Thai Binh	0	160	160	0	0
6	Nam Dinh	0	420	420	0	0
7	Ninh Binh	0	301	301	0	0
8	Ha Nam	0	460	460	0	0
9	Ha Tay	0	400	400	0	0
	Red River Delta	**0**	**2,800**	**2,800**	**0**	**0**
10	Cao Bang	231	200	431	10	220
11	Lang Son	0	650	650	12	120
12	Quang Ninh	26	410	436	11	121
13	Thai Nguyen	20	450	470	12	150
14	Bac Can	142	250	392	10	230
15	Bac Ninh	0	450	450	1	7
16	Bac Giang	0	410	410	11	140
17	Phu Tho	66	510	576	10	150
18	Vinh Phuc	0	600	600	0	0
19	Lao Cai	174	300	474	11	150
20	Yen Bai	412	390	802	12	100
21	Tuyen Quang	0	505	505	14	260
22	Ha Giang	333	500	833	12	240
	North East Region	**1,404**	**5,625**	**7,029**	**126**	**1,888**
23	Son La	530	460	990	12	160
24	Lai Chau	736	550	1,286	11	220
25	Hoa Binh	92	420	512	10	420
	North West Region	**1,358**	**1,430**	**2,788**	**33**	**800**
26	Thanh Hoa	98	350	448	0	0
27	Nghe An	328	550	878	0	0
28	Ha Tinh	100	250	350	0	0
29	Quang Binh	72	200	272	14	530
30	Quang Tri	22	150	172	21	266
31	Thua Thien Hue	26	180	206	6	115
	North Central Coast Region	**646**	**1,680**	**2,326**	**41**	**911**
32	Quang Nam	239	310	549	24	450
33	Da Nang	0	200	200	0	0
34	Quang Ngai	130	210	340	10	230
35	Binh Dinh	22	200	222	2	318
36	Phu Yen	0	300	300	0	0
37	Khanh Hoa	0	300	300	0	0
	South Central Coast Region	**391**	**1,520**	**1,911**	**36**	**998**

Table 5.1.1 (continued)

Province Name		Rural Roads			Bridges to be Newly Built	
		Newly Construct (km)	Upgrade (km)	Subtotal (km)		
		(A)	(B)	(A)+(B)	Number	Length (m)
38	Kon Tum	105	200	305	0	0
39	Gia Lai	79	230	309	2	550
40	Dac Lac	5	250	255	0	0
	Central Highlands	**189**	**680**	**869**	**2**	**550**
41	Tp Ho Chi Minh	0	806	806	0	0
42	Lam Dong	0	300	300	0	0
43	Ninh Thuan	20	250	270	0	0
44	Binh Phuoc	0	350	350	0	0
45	Tay Ninh	0	300	300	0	0
46	Binh Duong	0	300	300	0	0
47	Dong Nai	0	400	400	0	0
48	Binh Thuan	71	220	291	9	166
49	Ba Ria Vung Tau	0	100	100	0	0
	North East South Region	**91**	**3,026**	**3,117**	**9**	**166**
50	Long An	437	424	861	86	2,610
51	Dong Thap	74	416	490	49	1,038
52	An Giang	0	467	467	0	0
53	Tien Giang	11	484	495	7	279
54	Vinh Long	466	378	844	144	4,676
55	Ben Tre	75	435	510	20	1,024
56	Kien Giang	216	638	854	102	2,958
57	Can Toh	233	219	452	174	3,480
58	Tra Vinh	44	315	359	7	413
59	Soc Trang	180	458	638	88	2,112
60	Bac Lieu	240	400	640	134	2,892
61	Ca Mau	110	320	430	19	752
	Mekong River Delta	**2,086**	**4,954**	**7,040**	**830**	**22,234**
	Total	**6,165**	**21,715**	**27,880**	**1,077**	**27,547**

Table 5.1.2
Required Rural Road Development per Rural Population

Province Name		(A) Rural Road needed to Construct/ Upgrade	(B) Bridges to be newly built	(C) Rural Population 1997	(D)=(A)/(C) Road Length for Both New Construction and Upgrade / Rural Population	(E)=(B)/(C) Bridge Length for New Construction / Rural Population
		(km)	Length (m)	(persons)	(km / 000 persons)	(m / 000 persons)
1	Ha Noi	310	0	1,065,389	0.29	0.00
2	Hai Phong	289	0	1,121,290	0.26	0.00
3	Hai Duong	300	0	1,558,857	0.19	0.00
4	Hung Yen	160	0	1,014,079	0.16	0.00
5	Thai Binh	160	0	1,743,804	0.09	0.00
6	Nam Dinh	420	0	1,672,670	0.25	0.00
7	Ninh Binh	301	0	823,545	0.37	0.00
8	Ha Nam	460	0	737,422	0.62	0.00
9	Ha Tay	400	0	2,180,465	0.18	0.00
	Red River Delta	**2,800**	**0**	**11,917,521**	**0.23**	**0.00**
10	Cao Bang	431	220	589,862	0.73	0.37
11	Lang Son	650	120	632,917	1.03	0.19
12	Quang Ninh	436	121	535,291	0.81	0.23
13	Thai Nguyen	470	150	703,779	0.67	0.21
14	Bac Can	392	230	208,057	1.88	1.11
15	Bac Ninh	450	7	890,934	0.51	0.01
16	Bac Giang	410	140	1,402,527	0.29	0.10
17	Phu Tho	576	150	1,145,115	0.50	0.13
18	Vinh Phuc	600	0	1,035,992	0.58	0.00
19	Lao Cai	474	150	504,734	0.94	0.30
20	Yen Bai	802	100	563,475	1.42	0.18
21	Tuyen Quang	505	260	610,754	0.83	0.43
22	Ha Giang	833	240	513,948	1.62	0.47
	North East Region	**7,029**	**1,888**	**9,337,385**	**0.75**	**0.20**
23	Son La	990	160	736,235	1.34	0.22
24	Lai Chau	1,286	220	478,242	2.69	0.46
25	Hoa Binh	512	420	646,572	0.79	0.65
	North West Region	**2,788**	**800**	**1,861,049**	**1.50**	**0.43**
26	Thanh Hoa	448	0	3,222,380	0.14	0.00
27	Nghe An	878	0	2,636,233	0.33	0.00
28	Ha Tinh	350	0	1,278,339	0.27	0.00
29	Quang Binh	272	530	712,723	0.38	0.74
30	Quang Tri	172	266	465,258	0.37	0.57
31	Thua Thien Hue	206	115	774,659	0.27	0.15
	North Central Coast Region	**2,326**	**911**	**9,089,592**	**0.26**	**0.10**
32	Quang Nam	549	450	1,207,899	0.45	0.37
33	Da Nang	200	0	203,950	0.98	0.00
34	Quang Ngai	340	230	1,125,016	0.30	0.20
35	Binh Dinh	222	318	1,211,030	0.18	0.26
36	Phu Yen	300	0	626,724	0.48	0.00
37	Khanh Hoa	300	0	620,717	0.48	0.00
	South Central Coast Region	**1,911**	**998**	**4,995,336**	**0.38**	**0.20**

Table 5.1.2 (continued)

Province Name		(A) Rural Road needed to Construct /Upgrade	(B) Bridges to be newly built	(C) Rural Population 1997	(D)=(A)/(C) Road Length for Both New Construction and Upgrade / Rural Population	(E)=(B)/(C) Bridge Length for New Construction / Rural Population
		(km)	Length (m)	(persons)	(km / 000 persons)	(m / 000 persons)
38	Kon Tum	305	0	211,114	1.44	0.00
39	Gia Lai	309	550	655,155	0.47	0.84
40	Dac Lac	255	0	1,124,044	0.23	0.00
	Central Highlands	**869**	**550**	**1,990,313**	**0.44**	**0.28**
41	Tp Ho Chi Mi	806	0	1,388,775	0.58	0.00
42	Lam Dong	300	0	562,051	0.53	0.00
43	Ninh Thuan	270	0	365,723	0.74	0.00
44	Binh Phuoc	350	0	453,614	0.77	0.00
45	Tay Ninh	300	0	822,257	0.36	0.00
46	Binh Duong	300	0	494,681	0.61	0.00
47	Dong Nai	400	0	1,451,951	0.28	0.00
48	Binh Thuan	291	166	723,480	0.40	0.23
49	Ba Ria Vung Tau	100	0	477,922	0.21	0.00
	North East South Region	**3,117**	**166**	**6,740,454**	**0.46**	**0.02**
50	Long An	861	2,610	1,136,820	0.76	2.30
51	Dong Thap	490	1,038	1,311,155	0.37	0.79
52	An Giang	467	0	1,673,328	0.28	0.00
53	Tien Giang	495	279	1,517,234	0.33	0.18
54	Vinh Long	844	4,676	960,746	0.88	4.87
55	Ben Tre	510	1,024	1,291,034	0.40	0.79
56	Kien Giang	854	2,958	1,147,362	0.74	2.58
57	Can Toh	452	3,480	1,533,997	0.29	2.27
58	Tra Vinh	359	413	943,532	0.38	0.44
59	Soc Trang	638	2,112	1,048,374	0.61	2.01
60	Bac Lieu	640	2,892	595,951	1.07	4.85
61	Ca Mau	430	752	866,907	0.50	0.87
	Mekong River Delta	**7,040**	**22,234**	**14,026,440**	**0.50**	**1.59**
	Total	**27,880**	**27,547**	**59,958,090**	**0.46**	**0.46**

Table 5.1.3
Rural Road Development up to 2010

	Construction & Upgrading Cost	Maintenance Cost	Total Cost	1997 Rural Population	PerCapita Construction Cost	PerCapita Maintenance Cost	PerCapita Development Cost
	(000 US$)			(000 persons)	(000 US$ per 000 persons)		
Red River Delta	156,800	13,333	170,133	11,918	13.2	1.1	14.3
North East Region	487,695	33,471	521,166	9,337	52.2	3.6	55.8
North West Region	183,346	13,276	196,623	1,861	98.5	7.1	105.7
North Central Coast Region	124,081	11,076	135,157	9,090	13.7	1.2	14.9
South Central Coast Region	104,235	9,100	113,335	4,995	20.9	1.8	22.7
Central Highlands	60,100	4,138	64,238	1,990	30.2	2.1	32.3
North East South Region	178,982	14,843	193,825	6,740	26.6	2.2	28.8
Mekong River Delta	479,892	33,524	513,416	14,026	34.2	2.4	36.6
Total	1,775,131	132,762	1,907,893	59,958	29.6	2.2	31.8

Source : VITRANSS Estimate

5.2 Preliminary Rural Road Development Plan

Suggested Target for Rural Road Development

The primary development objective up to 2010 should be placed on securing the minimum accessibility for all the villages in the nation. This implies that villagers will be able to go to a commune center, a district center, and a provincial capital by motorised mode of transport.

For long-term development objective, 40 percent of District roads and 30 percent of Commune roads should be asphalted. The remaining sections should be also upgraded to gravel roads.

Recommended Rural Road Standard

Since the total length of rural roads is enormously long and it seems difficult to develop all the rural roads in a short period. As analysed in Chapter 3, the two most popular modes of transport among villagers are motorcycles and bicycles, except delta region. These modes do not require wide paved surface and travel demand on the rural roads are not very heavy; thus it is recommended that paved surface is 2.5 meter wide for commune roads for short or medium term rural road development.

The recommended rural road standard is illustrated in Figure 5.2.1.

Figure 5.2.1
Pavement Section of Commune Road

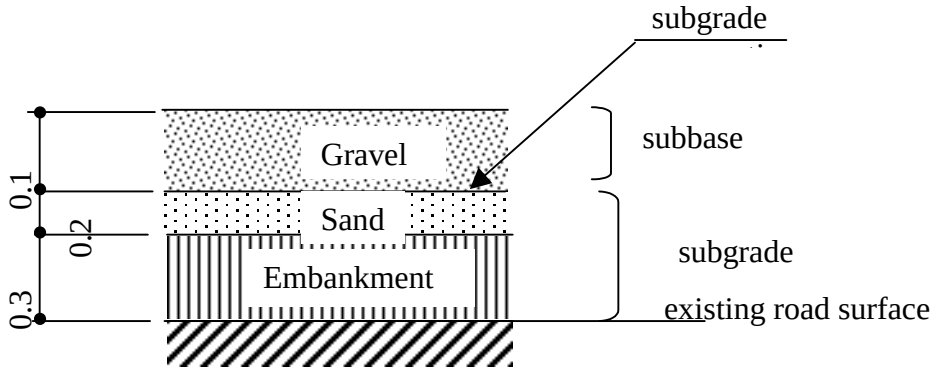


Figure 5.2.2
Pavement Section of District Road

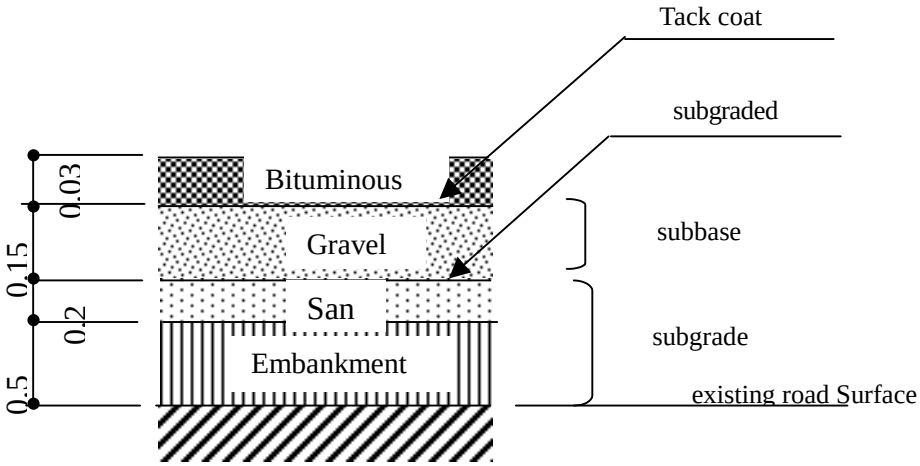


Table 5.2.1
General Assumption on Cost Estimate

Item	Unit Cost
• Embankment	2.0 US$ /m3
• Sand	2.0 US$ /m3
• Subgrade preparation	0.25 US$ /m2
• Gravel	2.2 US$ /m3
• Bituminous	0.35 US$ /kg
• Miscellaneous	5% of All construction
• Minor Bridge	309.0 US$ /m2
• General	10% of Direct Cost
• Contingency	5% of Direct Cost

Based on the assumed cost for each item indicated above, the unit cost for developing District Road and Commune Road are calculated as shown in Table 5.2.2 and 5.2.3 respectively.

Table 5.2.2
Unit Cost for Commune Road (US$ per km)

	Quantity	Unit cost	Cost USD/km
Embankment	1,200	2.0 US$ /m3	2,400
Sand	700	2.0 US$ /m3	1,400
Subgrade preparation	3,500	0.25 US$ /m2	875
Gravel	350	2.2 US$ /m3	770
Bituminous		0.35 US$ kg	0
	Sub-total		5,445
Miscellaneous			272
Minor Bridge	35	309 US$ /m2	10,815
	Sub-total		16,532
General	5%		827
Contingency	2%		331
	Total		17,690

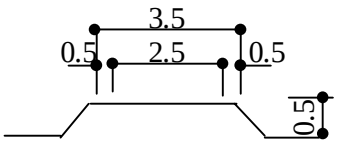
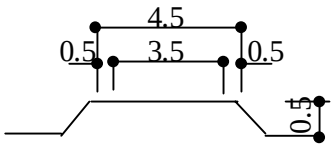


Table 5.2.3
Unit Cost for District Road (US$ per km)

	Quantity	Unit cost	Cost
Embankment	1,500	2.0 US$ /m3	3,000
Sand	900	2.0 US$ /m3	1,800
Subgrade preparation	4,500	0.25 US$ /m2	1,125
Gravel	405	2.2 US$ /m3	891
Bituminous	0	0.35 US$ kg	0
	Sub-total		6,816
Miscellaneous			341
Minor Bridge	45	309 US$ /m2	13,905
	Sub-total		21,062
General	5%		1,053
Contingency	2%		421
	Total		22,536



Estimated Investment Requirements.

The target for developing rural road network system up to the year 2010 is set to secure minimum accessibility for all the villages. In order to accomplish the target, about 75 percent of District roads should be upgraded to all weather type roads and about 40 percent of Commune roads should be upgraded to at least gravel type roads.

Thus total investment cost for the period from 2000 to 2010 would amount to 1.29 billion US dollars, while that from 2010 to 2020 would account for 1.86 billion US dollars.

Table 5.2.4
Rural Road Development Plan: 2000 - 2010

Road Classification	Type of Pavement	2000		2000 – 2010				2010	
		Length (km)	Percent Composition	Improvement	Length to be improved	Unit Cost (Mil. US$/km)	Cost (Mil. US$)	Length (km)	Percent Composition
District Road	Asphalt	3,611	9.9%					3,611	9.9%
	Gravel	4,976	13.7%					23,036	63.3%
	Laterite	12,956	35.6%	Laterite to Gravel	8,421	0.023	194	4,535	12.5%
	Earth	14,829	40.8%	Earth to Gravel	9,639	0.023	222	5,190	14.3%
	Subtotal	**36,372**	**100.0%**		**18,060**	**0.023**	**415**	**36,372**	**100.0%**
Communal Road	Asphalt	3,314	2.5%					3,314	2.5%
	Gravel	7,479	5.7%					49,711	37.8%
	Laterite	58,463	44.5%	Laterite to Gravel	20,462	0.018	368	38,001	28.9%
	Earth	62,199	47.3%	Earth to Gravel	21,770	0.018	392	40,429	30.8%
	Subtotal	**131,455**	**100.0%**		**42,232**	**0.018**	**760**	**131,455**	**100.0%**
New Construction	Gravel				6,165	0.018	111	6,165	
	Total	**167,827**			**66,457**		**1,287**	**173,992**	

Source: VITRANSS Estimate

Table 5.2.5
Rural Road Development Plan: 2010 - 2020

Road Classification	Type of Pavement	2010 - 2020				2020	
		Improvement	Length to be improved	Unit Cost (Mil. US$/km)	Cost (Mil. US$)	Length (km)	Percent Composition
District Road	Asphalt					14,549	40%
	Gravel	Gravel to Asphalt	14,549	0.005	73	21,823	60%
	Laterite	Laterite to Gravel	4,535	0.023	104	0	0%
	Earth	Earth to Gravel	5,190	0.023	119	0	0%
	Subtotal		**24,274**		**296**	**36,372**	**100%**
Communal Road	Asphalt					41,286	30%
	Gravel	Gravel to Asphalt	37,972	0.004	152	96,334	70%
	Laterite	Laterite to Gravel	38,001	0.018	684	0	0%
	Earth	Earth to Gravel	40,429	0.018	728	0	0%
	Subtotal		**116,402**		**1,564**	**137,620**	**100%**
New Construction	Gravel						
	Total		**140,676**		**1,860**	**173,992**	

Source: VITRANSS Estimate

PART II

CROSS-BORDER TRANSPORT

1 INTRODUCTION

Transport Linkages with Neighboring Countries

Vietnam and its neighboring countries have enjoyed a time of peace in the 1990s. International attention and initiative were reoriented from restoring political stability to the enhancement of economic development for a new growth center. Initial efforts were made in 1992 when the six nations comprising the Greater Mekong Subregion (Cambodia, Lao PDR, Myanmar, Thailand, Vietnam, and the Yunnan Province of China) began working out a joint development program with assistance from the Asian Development Bank (ADB).

Although it is true that individual transport development projects by each country in the subregion cannot match the pace of subregional economic growth, serious issues can be observed regarding the gap between the demand of cross-border trade and the supply of cross-border transport. These are:

1) Poor Infrastructure: In almost all locations, infrastructure and other facilities are poorly provided whereas improvement projects for the Phnom Penh-Ho Chi Minh City corridor and Danang-Savannakhet corridor are ongoing. Inadequate infrastructure and other facilities cause higher transport costs, as well as damage and security to cargoes and inconvenience to passengers.

2) Institutional Constraints: Procedures rationalizing cross-border and cargo traffic are not properly institutionalized. Nor are they practiced in such a way as to facilitate smoother movement. Cross-border transport users often add high transport costs to institutional problems like compulsory transshipment, time-consuming immigration/custom procedures, strict passport control, and expensive visa issuance fees.

3) Increase in Illegal Activities: Various illegal activities, such as smuggling, cannot be suppressed because of the import ban and taxation on trade. Opening of gates and improvement of cross-border transport infrastructure have contributed to the increase in such activities.

Cross-border Transport – A New Horizon

The importance of cross-border transport can be taken from both the national and local economic viewpoints. In addition to major transport corridors between the adjoining countries and major growth centers/transshipment points, there are a number of smaller cross-border routes that largely benefit specific localities. These are mostly located in places where accessibility is often limited. Due to this nature, cross-border transport needs a strong institutional support as well as infrastructure development. This is a new horizon in transport development for land-connected, less developed countries such as Vietnam and her neighbors.

The objective of this technical report is to develop cross-border transport in Vietnam. Subsequent chapters deal with different topics under the common objective, to wit:

Chapter 2: Describes existing cross-border conditions under the aspects of trade, traffic and infrastructure arrangements.

Chapter 3: Analyzes the role of Vietnam's cross-border transport in the course of regional/subregional economic development.

Chapter 4: Prioritizes projects and programs that should be undertaken in the future.

2 PRESENT CROSS-BORDER CONDITIONS

2.1 Cross-border Trade

Vietnam has more than 4,639 km of border with China, Lao PDR and Cambodia. It faces six northern Chinese provinces, 10 western Lao provinces and eight southwestern Cambodian provinces. Today it is said that Vietnam is open to cross-border transport at 16 border gates. Cross-border trade markets have mushroomed in Vietnam. About 40 such markets are in active operation in the nine central and southern provinces bordering Cambodia. The same situation probably exists on both the Vietnam-Laos border and the Vietnam-China border.

Since Vietnam's trade volume with its four neighboring countries was pegged at US$ 1,906 million in 1997, the magnitude of the cross-border trade is estimated at several million US dollars which is several percent of its national total (US$ 20,777 million in 1997). Most of the 24 border provinces are mountainous and generally underdeveloped. Although the share of the cross-border trade is small in the national scale, border-trade development provides significant economic impact on these mountainous provinces (refer to Table 2.1.1 and 2.1.2).

Cross-border trade helps overcome old difficulties and enhance location advantages and economic efficiency as well. The following are some experiences to affirm this trend:

- A number of domestic products which hardly entered foreign markets have now found buyers. They are low-heat-producing coal dust, low-quality rubber materials, aqua products, detergents, plastic wares, etc.
- Since 1997 Quang Ninh Province have been visited by Chinese tourists through the border town of Mong Cai. The town collected tax of some VND 200 million in 1997, which is sixfold over the 1991 levels and surpasses several other provinces' annual budgets.
- Since a border gate opened at Lang Son, the provincial economy has become active. The year 1997 saw an import-export turnover of fourteen-fold over 1991 levels. This development promotes services, including delivery, transport, processing, packing, and storage, that create more jobs.

Notwithstanding these positive results problems still exist, especially smuggling which is rampant in the area. Commodities imported illegally are tobacco, beverage, textile, eggs, etc., products over which the state has a monopoly but cannot adequately produce.

The exchange of goods have several forms including goods exchanged by border people, import and export activities on quota, etc. In recent years, the Vietnamese Government has liberalized cross-border trade through the following measures:

- To encourage spot production and trade by both parties, they can legally transact VND 500,000 worth of goods free from tax per capita per day at Vietnam-Laos border markets and VND 200,000 worth of goods at Vietnam-China border markets.
- A number of provinces, like Quang Ninh, Lang Son, Lao Cai, Hai Tinh, Quang Tri, and Kien Giang, have been recently licensed to pilot liberalization policies at some border-gate economic zones.

The following are common issues in current cross-border trade:

- Payment is mainly in cash. Letter of credit (L/C) or settlement of contracts is rarely done. This has resulted in the mushrooming of "exchange houses" near border gates. Confidence tricks, capital abuse and dumping are also on the rise.
- Despite the increasing cross-border trade, efficient cross-border traffic has not been secured. This includes interstate movement of goods and people and goods in transit due to poor infrastructure and inadequate institutional arrangements which results in higher unnecessary costs in cross-border trade.

Table 2.1.1
Trend in Bilateral Trade with Neighboring Countries

(Million US$, at current prices)

	1992	1993	1994	1995	1996	1997	Ave. Annual Growth (1992-1997)
Export To:							
Cambodia	6.4	96.2	77.3	94.6	99.0	108.9	76%
China PR	95.6	135.8	295.7	361.9	340.2	474.1	38%
Lao PDR	16.0	14.4	20.9	20.6	24.9	30.4	14%
Thailand	71.5	71.8	97.6	101.3	107.4	235.3	27%
World	2,580	2,985	4,054	5,449	7,256	9,185	29%
4 Countries/World	7.3%	10.7%	12.1%	10.6%	7.9%	9.2%	
Import To:							
Cambodia	6.7	7.6	17.7	23.5	17.9	24.7	30%
China PR	31.8	85.5	144.2	329.7	329.0	404.4	66%
Lao PDR	7.7	24.8	102.9	84.0	68.1	52.7	47%
Thailand	41.2	99.5	225.7	439.7	494.5	575.2	69%
World	2,540	3,924	5,826	8,155	11,144	11,592	35%
4 Countries/World	3.4%	5.5%	8.4%	10.8%	8.2%	9.1%	

Table 2.1.2
Border Provinces in Vietnam

Area	Area (km^2)	Population 1997 (000)	GDP 1997 (bil. VND)	GDP Per Capita (mil. VND)
6 Border Provinces with China [1]	53,525	4,029	9,118	2.26
10 Border Provinces with Lao PDR [2]	91,231	13,924	28,898	2.08
8 Border Provinces with Cambodia [3]	64,136	10,033	32,084	3.20
24 Border Provinces in total (A)	208,892	27,986	70,100	2.50
Country Total (B)	330,992	75,665	273,966	3.62
(A)/(B)	63.1%	37.0%	25.6%	69.1%

Source: GSO
Note: [1] Cao Bang, Lang Son, Quang Ninh, Lao Cai, Ha Giang, Lai Chau.
[2] Son La, Thanh Hoa, Nghe An, Ha Tinh, Quang Binh, Quang Tri, Thua Thien Hue, Quang Nam, Quang Ngai, Kon Tum.
[3] Gia Lai, Dac Lac, Binh Phuc, Tay Ninh, Long An, Dong Thap, An Giang, Kien Giang.

2.2 Cross-border Traffic

Cross-border Road Traffic

Although many roads link up with neighboring countries, the cross-border traffic is limited and often uncertain. With China and Cambodia, vehicles are not allowed to cross except commuter traffic like interstate regular bus operations. With Lao PDR, government only allows state-owned truckers to enter. However, the three neighboring countries do not announce any statistical data, only the cross-border traffic by Vietnamese vehicles as shown in Table 2.2.1.

At the Vietnam-Cambodia border, the number of passengers is declining relative to air traffic. According to the Ministry of Public Works and Transport of Cambodia, before 1990, 60 to 80 trucks per day ply the borders and carry 50,000-70,000 tons of cargo a year. The Ministry estimates the same volume of cargo movement at present.

At the Vietnam-China border, road transport does not play an important role compared with railways and seaways. But the number of passengers is increasing.

At the Vietnam-Laos border, traffic is larger since the road transport arrangement is much liberalized compared with the other two countries. Within Vietnam is a considerable number of Laotian trucks exporting goods and carrying transit goods.

Table 2.2.1
Cross-border Road Traffic by Vietnamese Vehicles

Country	Year	Freight Traffic		Passenger Traffic	
		Ton	Ton & km	person	person & km
Cambodia	1995	0	-	70,287	Unknown
	1996	0	-	83,129	Unknown
	1997	0	-	61,464	Unknown
	1998	0	-	41,627	Unknown
China	1995	0	-	14,732	Unknown
	1996	0	-	14,811	Unknown
	1997	0	-	18,178	Unknown
	1998	0	-	24,169 (584)	Unknown
Lao PDR	1995	(139,312)	(28,851,710)	66,823	Unknown
				(11,519)	(6,039,800)
	1996	(148,497)	(45,510,185)	68,549	unknown
				(14,007)	(6,570,198)
	1997	(202,587)	(60,649,474)	55,649	unknown
				(16,722)	(7,069,411)
	1998	(154,185)	(57,733,887)	118,376	unknown
				(10,818)	(5,136,285)

Source: Ministry of Defense, Provincial Transport Departments, Ministry of Transport
Note: Figures in () refer to traffic volume by state-owned enterprises

Cross-border Rail Traffic

International trains are operated in the lines bound for Kunming via Lao Cai and Beijing via Dong Dang from Hanoi. It took three years since both lines were re-connected with China. Frequency is two return trips per week per line as of 1998.

The cross-border rail traffic during the 1996-98 period indicates a sharp increase, especially in freight. Vietnam imports industrial products such as plaster, salt and fertilizer from Yunnan Province, while it exports ore mined in Lao Cai Province. Meanwhile, via Dong Dang, Vietnam does not have a substantial export product and imports industrial products such as steel, machinery and chemicals.

Passenger rail service is not popular among traders and tourists. Compared with bus operation, the rail's frequency is minimal and the fare is relatively costly.

Table 2.2.2

Cross-border Rail Freight Traffic

(Via Lao Cai, tons/year)

	1996	1997	1998
Import	41,316	136,926	188,940
Plaster	2,770	77,258	96,241
Salt	n.a.	9,620	22,465
Fertilizer	n.a.	8,735	23,204
Chemical	n.a.	n.a.	9,405
Coal	n.a.	n.a.	2,123
Steel	n.a.	n.a.	3,152
Other Metal	n.a.	n.a.	3,036
Tobacco	n.a.	n.a.	153
Cement	31,007	11,033	0
Others	n.a.	n.a.	29,161
Export	n.a.	n.a.	n.a.
Ore	n.a.	36,035	87,200
Wood	n.a.	n.a.	4,050
Fire Wood	n.a.	n.a.	670
Chromium	n.a.	n.a.	1,200
Paper	n.a.	n.a.	757
Rubber	n.a.	n.a.	60
Lubricant	n.a.	119	0
Others	n.a.	n.a.	n.a.

(Via Dong Dang, tons/year)

	1996	1997	1998
Import	5,451	46,632	83,619
Steel,	665	30,499	56,143
Machinery			
Chemical	720	14,160	14,594
Rice	0	0	120
Sand	0	0	300
Cement	2,000	0	0
Brick	0	1,897	990
Others	2,066	76	11,472
Export	n.a.	600	n.a.

Source: Vietnam Railway

Table 2.2.3
Cross-border Rail Passenger Traffic

(persons/month)

		January 1998	June 1998	September 1998
Lao Cai:	Outgoing	67	82	102
	Incoming	138	91	42
Dong Dang:	Outgoing	106	205	362
	Incoming	227	192	304

Transit Cargo at Vietnamese Seaports

According to the VINAMARINE, Vietnamese seaports handled 3,601,000 tons of cargo in transit in 1998. The Study Team estimated that 2,639,000 tons or 73% of the total transit were connected with the three neighboring countries. It is specified by port as follows:

- Transit cargo to/from Cambodia
  - Vung Tau 1,634,933 tons
  - Qui Nhon 218,252 tons
  - Dong Nai 9,752 tons
  - Dong Thap 436 tons
  - Total 1,863,376 tons

- Transit cargo to/from China
  - Haiphong 356,193 tons
  - Quang Ninh 150,145 tons
  - Total 536,338 tons

- Transit cargo to/from Lao PDR
  - Danang 224,292 tons
  - Nge Tinh 16,307 tons
  - Total 240,599 tons

Mekong River is an important transit route for Cambodia. But the vessels going to Cambodia must drop by Vung Tau Port and request pilotage service up to the Vietnam-Cambodia border. Vung Tau Port counts the cargo loaded on these vessels as transit cargo. Meanwhile, Phnom Penh Port, the biggest river port in Cambodia, handled 650,000 tons in 1997. Direct trade with Vietnam accounted for 27%, the remaining 474,500 tons was regarded as transit cargo via Vietnam.

Northern Vietnamese seaports, like Haiphong and Cai Lan, handled transit cargo from neighboring Chinese provinces, Yunnan and Guangxi. Haiphong, a busy port with many ship calls, presently attracts such transit cargo to some extent.

Lao PDR owns two ocean-going vessels. Since their home port is Danang, most of Laotian transit cargo is shipped out and in at Danang Port.

2.3 Cross-border Transport Infrastructure

Today, six cross-border points are open to interstate as well as transit traffic: three with China (Dong Dang, Lao Cai and Mon Cai), two with Lao (Keo Nua and Lao Bao) and one with Cambodia (Moc Bai). It is reported that six other cross-border points with Lao and four others with Cambodia deal only with local traffic, whereas a third of national passengers cannot pass through and long-distance cross-border traffic is restrained.

The infrastructure accessible to such cross-border points is illustrated in Figure 2.3.1 and analyzed as follows:

- China: The Vietnam Railway (VR) network extends to the Chinese border. It has two connections: one-meter gauge at Lao Cai and one standard gauge at Dong Dang. Interstate operation services have been provided in recent years. Due to old equipment and poor efficiency, VR intends to rehabilitate both sections.

  Three national roads are linked with Chinese cross-border points: No. 1 at Dong Dang, No. 18 at Mon Cai and No. 70 at Lao Cai. Based on the Study Team's observation, No. 1 and No. 18 can serve heavy-vehicle traffic with

sectional improvement works, while No. 70 hardly receives traffic due to its narrow, winding and rolling alignment.

In Yunnan Province, the Study Team observed that since 1992 both governments jointly conducted surveys on how to utilize the Red River. However, the Vietnam Government has not concluded any initiative as a downstream country.

Yunnan Province is a land-locked province and therefore it must ship out its trading goods from a seaport outside the province. There are two alternatives:

Origin		Transfer Point		Transit Seaport
Kunming	-	Nanning	-	Fang Cheng/Bei Hai
Kunming	-	Hanoi	-	Cai Lan/Haiphong

Although the Vietnam route is 866 km shorter than the Chinese route (971 km), the roads and railways in China are much better than in Vietnam, and Fang Cheng Port and Bei Hai Port (under construction) are much bigger than the development plan of Cai Lan Port[1]. The Vietnam Route is considered less competitive.

- Lao PDR: A combination of road and seaport is effective to meet the traffic demand between Lao and Vietnam, and beyond. There are four possible alternatives:
  - Road No. 8 and Cua Lo Port
  - Road No. 9 and Danang Port
  - Road No. 12 and Vung Ang Port (under construction)
  - Road No. 19 and Qut Nhon Port

  Presently, Lao collects its transit cargo at Danang Port. Taking account of the volume (224,292 tons in 1998), one berth is enough to handle it. However, National Road No. 9 currently hardly allows heavy traffic, such as container trailers, and thus needs to be improved.

- Cambodia: In December 1998, ADB approved the Phnom Penh-HCM City Highway Project. Civil works to construct an intercapital four-lane highway commenced in 1999.

  For interstate water transport, river mouths, such as Cua Dinh An and Cua Tien, are critical points since large vessels (3 – 5,000 DWT) can enter into rivers only during high tide. In this connection, Belgium extended a technical

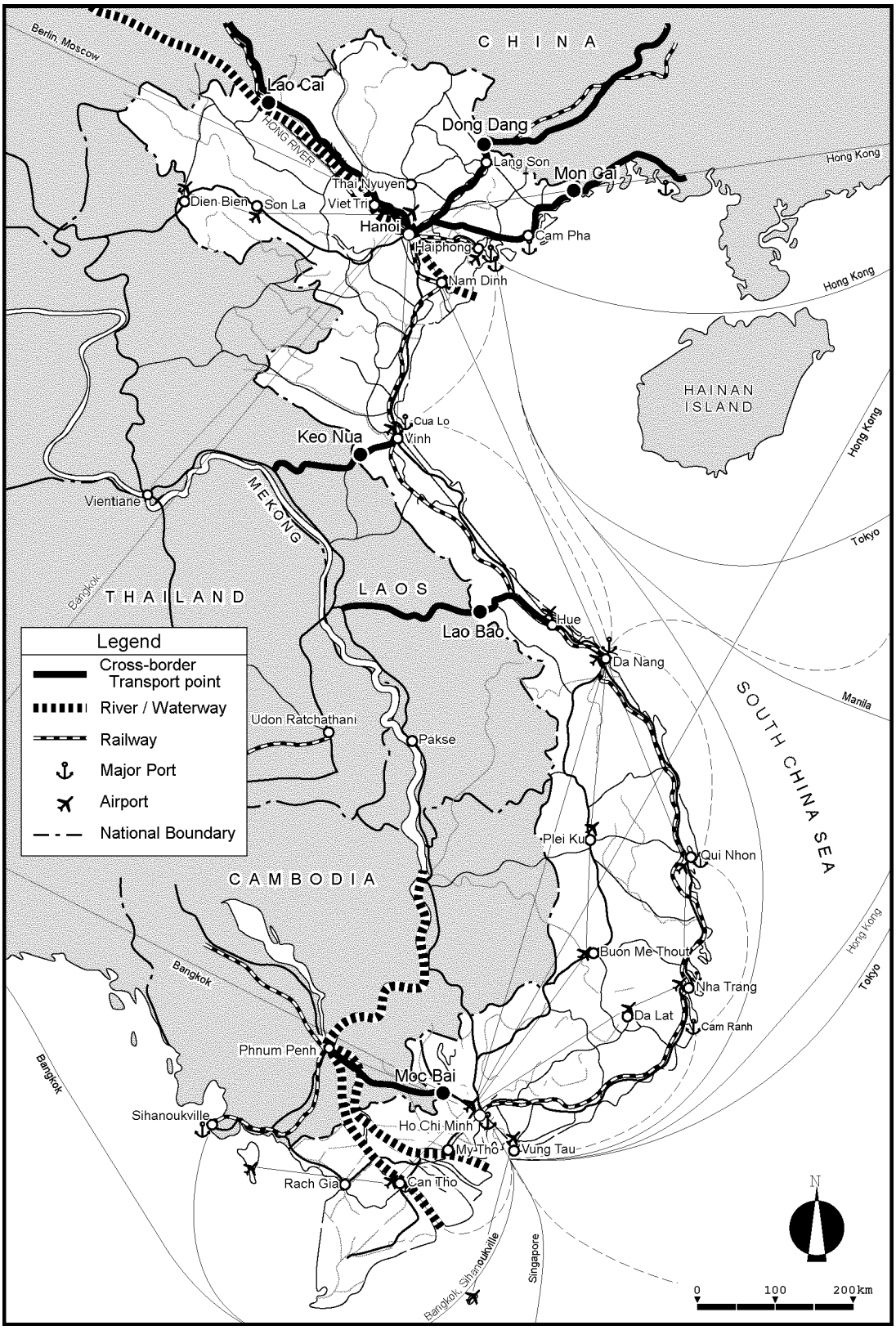
[1] Bei Hai Port will have 15-m deep berths to accommodate vessels of 100,000 DWT, while Cai Lan Port's 12-m deep berths are good for vessels of 30,0000 DWT (1st phase).

assistance[2] to expand the access channel to accommodate vessels of 10,000 DWT. However, project implementation is uncertain.

There is a missing railway link between VR and Royal Cambodia Railway: 280 km or 145 km in Vietnam and 135 km in Cambodia. This is a partial section under the Trans-Asian Railway Project monitored by the UN ESCAP as well as the Singapore-Kunming Rail Line Project initiated by the Association of Southeast Asian Nations (ASEAN). However, project implementation is quite uncertain.

[2] Feasibility Study for the Improvement of the Access Channel to the Basic River (1996-1998)

Figure 2.3.1
Cross-border Transport/Transit Routes and Points



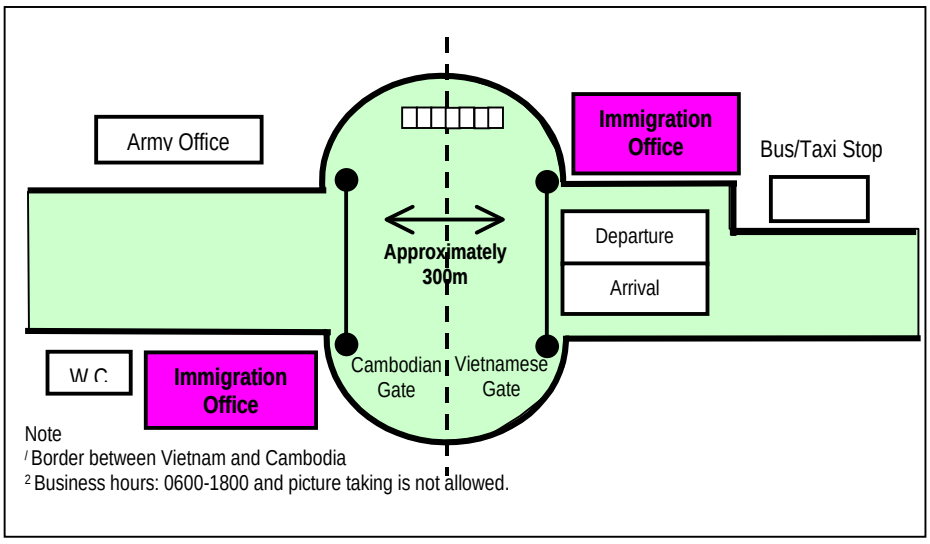
2.4 Cross-border Transport Arrangements

General

In addition to infrastructural development, institutional development is very important for an efficient, effective and reliable transportation system for goods and people. In particular, interstate traffic is always hampered by nonphysical barriers such as immigration, customs clearance, recognition of vehicle (ship, aircraft) certificates, insurance, and driver's licenses. In many cases, transit traffic is also restricted. To fully use the designed capacity of infrastructure, nonphysical barrier should be minimized or removed by coordinating and harmonizing related rules and regulations.

An example of nonphysical barrier is illustrated in Figure 2.4.1 which shows the facilities at a cross-border point between Vietnam and Cambodia (JTCA/TDSI 1999)[3]. Trucks from one country are not allowed to cross the border at this point. Instead, cargo is required to be transferred to a different truck located on the other side of the border approximately 300 m away. The transfer of cargo is done manually by workers either on foot or bicycle. The process is time-consuming and involves complicated formalities and strict customs procedure.

Figure 2.4.1
Illustration of Bavet-Moc Bai Border Facilities (Cambodia-Vietnam)



The achievement of institutional development can be gauged at bilateral, regional and global levels.

[3] JTCA/TDSI (1999): Seminar on the East-West Transport Corridor Development, Cambodia-Lao PDR-Thailand-Vietnam, January 1999

Bilateral Agreements

Vietnam has made efforts to engage in bilateral arrangements with neighboring countries for facilitation of cross-border transport.

- Vietnam – China

  It is said that Vietnam and China has signed agreements on railroads, roads and border trade. However, the implementation of this agreement is not as expected for numerous reasons.

- Vietnam – Cambodia

  - The Agreement on the Transit of Goods, April 1994
  - The Agreement on Road Transportation, June 1998
  - The Agreement on Inland Waterway Transportation, December 1998

- Vietnam – Lao PDR

  - The sub-agreement on Road Transport and the Protocol on the Management Inland Transport Vehicle Crossing, 1991
  - The Transit Agreement, 1994

With China, Vietnam has taken slow steps and has not developed a comprehensive framework for cross-border transport. Institutional building should be required. On the other hand, with Cambodia, the new road transportation agreement can minimize the nonphysical barrier depicted in Figure 2.4.1 and therefore, its early implementation is required.

Regional Arrangements

The aim of regional arrangements in cross-border transport is to enhance regional economic competitiveness and integration by way of transport facilitation. The merit is for countries to discuss regional issues with less political affection than discussions in the case of bilateral agreements.

In fact, intensive discussions have been made in this region in the late 1990s. As one of the achievements, ASEAN economic ministers signed the Framework Agreement on the Facilitation of Goods in Transit in 1998. In this connection, the Hanoi Plan of Action (1999-2004) directs the following regional cooperation agreements:

- Operationalize the ASEAN Framework Agreement on the Facilitation of Goods in Transit by year 2000

- Target the conclusion and operationalization of the ASEAN Framework Agreement on the Facilitation of Interstate Transport by year 2000
- Implement the ASEAN Framework Agreement on Multimodal Transport

On the other hand, ADB has been promoting economic operation in the Greater Mekong Subregion (GMS) since 1992. ADB, in cooperation with ESCAP, finalized a subregional framework for facilitation of the cross-border movement of goods and people in the GMS. ADB intends to use it as a condition when a country requests it to fund a cross-border transport project within the scope of the GMS Program.

Accession to International Conventions

Accession to international conventions is considered the most economical way to provide a stable basis for diplomatic discussions. However, it sometimes takes time to modify domestic legal framework. The accession status of Vietnam and its neighboring countries to the nine international conventions in relation to facilitation measures of land cross-border transport is indicated in Table 2.4.1.

Vietnam has not acceded to any of them while neighboring countries have little progress. According to the country report to the GMS forum[4], Vietnam's MOT translated the relevant conventions into Vietnamese to enlighten personnel of various ministries. The MOT is in the process of getting concerned agencies to accede and consider these conventions and report them to government.

[4] Proceedings of the Third Meetings of the Subregional Transport Forum (December 1996), GMS Economic Cooperation Program, ADB

Table 2.4.1
Accession Status of Vietnam and Neighboring Countries
to the International Conventions on Cross-border Land Transport

Country	Vietnam	Thailand	Lao People's Democratic Republic	China	Cambodia
Convention on Road Traffic (1968)		X			
Convention on Road Signs and Signals (1968)		X			
Customs Conversion on the International Transport of Goods under Cover of TIR Carnets					
Customs Convention on Temporary Importation of Commercial Road Vehicles (1956)					X
Customs Convention on Containers (1972)				X	
International Convention on the Harmonization of Frontier Control of Goods (1982)					
Convention on the Contract for the International Carriage of Goods by Road (CMR) (1956)					
Convention an Statue on Freedom of Transit (Barcelona, 1921)		X	X		X
Convention on Transit Trade of Land-locked States (New York, 1965)			X		

Source: ESCAP 1998
Note: "X" means acceded

3 FUTURE CROSS-BORDER PERSPECTIVES

3.1 International Cooperation Initiatives

Historical Background

It is nearly 40 years since the ESCAP (formerly the ESCAFE) first initiated intra-continental transport development dubbed as the Asian Highway and the Trans-Asian Railway. However, progress was limited during the period from the 1960s to the 1980s. The countries involved focused on meeting domestic demand for national economic growth. There was a general lack of emphasis on investing in roads and railways due to the following reasons:

1) A long confrontation between east and west and local conflicts occurred in Asia placing the discussion on a regional land transport network on hold;
2) There were no comprehensive regional agreements that promote cross-border movement and trade activities;
3) Clear national policies favoring regional land transport network was not instituted; and
4) There was a lack of funds to develop and maintain the needed facilities.

In the 1990s, most of the countries in Asia adopted various measures and policies to achieve a more open, market-based economy, resulting in more amicable resolution of international political disputes. The world economy itself has been seeking strong trade partners to boost its economy with the assurance of a larger market and accessibility to a wage-competitive and highly trained human resources as well as improved technologies and sufficient capital. This policy has created various schemes that has encouraged economic linkages all over the world. The most prevailing forms are regional trade zones, such as the European Union (EU), North America Free Trade Area (NAFTA) and ASEAN Free Trade Area (AFTA), and free or liberal trade agreements.

Vietnam has been admitted to the Asia-Pacific Economic Cooperation (APEC) and ASEAN in the mid-1990s and is now holding discussions on its World Trade Organization (WTO) membership and seeking a Most Favored Nation (MFN) status with the United States. Vietnam is a part of the GMS Economic Cooperation Program initiated by the Asian Development Bank (ADB). All these economic cooperation/integration schemes require the transport sector to facilitate international transport and liberalize transport services. The ASEAN and GMS are deemed important regional/subregional cooperation schemes in the coming years and will have a strong impact on Vietnam's transport system.

ASEAN Cooperation in the Transport Sector

The ASEAN has long years of collective cooperation in the transport sector since 1967. However, successful regional cooperation activities were mostly made in shipping and civil aviation subsectors due to the five founding countries' geographical configuration. During the Fifth ASEAN Summit (Bangkok, December 1995), the Agenda for Greater Economic Integration was adopted to facilitate multimodal transport and harmonize road transport. The ASEAN leaders also discussed the establishment of a railway link from Singapore through Malaysia, Thailand and to Kunming, Yunnan Province of China. After the summit, two regular meetings were officially launched: ASEAN Transport Ministers Meeting (ATM) and ASEAN Senior Transport Officials Meeting (STOM), developing regional transport infrastructure and building stable institutional environments to support the AFTA process. The Sixth ASEAN Summit (Hanoi, December 1998) acknowledged these activities and signed the ASEAN Agreement on the Facilitation of Goods in Transit. The member countries adopted the Hanoi Plan of Action 1999-2004, which directs the following actions with regard to the facilitation of cross-border traffic:

1) Develop the trans-ASEAN transportation network by the year 2000 as the trunk line or main corridor for the movement of goods and people in ASEAN
2) Operationalize the ASEAN Framework Agreement on the Facilitation of Goods in Transit by year 2000
3) Target the conclusion and operationalization of the ASEAN Framework Agreement on the Facilitation of Interstate Transport by year 2000
4) Implement the ASEAN Framework Agreement on Multimodal Transport
5) Adopt harmonized standards and regulations with regard to vehicle specifications, axle load limits, maximum weights, and pollution or emission standards
6) Develop and implement the Singapore-Kunming Rail Link and the ASEAN Highway Network projects

Implementation of the above infrastructure projects will be financed by the private sector, a joint private-public sector arrangement, by individual member countries, or official development assistance (ODA) as may be necessary. ASEAN keeps constant channels with dialogue partners such as Japan, EU, Australia, etc. In recent years, transport cooperation programs were effectively implemented in association with the assistance of dialogue partners.

The GMS Economic Cooperation Program

The GMS Program promotes closer economic ties and economic cooperation among the six countries that share the Mekong River: Vietnam, Cambodia, Lao PDR, Thailand, Myanmar, and the Yunnan Province of China. The GMS Program focuses on basic infrastructure that would help link the subregion and enable

development of its resource base. Transportation and energy infrastructure are the main priorities. In this manner, the GMS Program contributes to a freer flow of people and goods and to sharing of resources that are a key to industrial development and modernization.

The GMS Program has broadened and deepened over the 1992-1999 period. Transportation projects involving bilateral and multilateral agreements among GMS countries are now either being implemented or are close to implementation, complementing earlier projects that have benefited the subregion but were implemented on a national basis. Since the GMS Program began in 1992, the ADB has since been facilitating the program. There are other donor agencies helping the GMS Program such as Japan, France, Norway, Australia, Sweden, UN ESCAP, etc.

Comparative Analysis

The aforementioned international initiatives are all important for Vietnam to develop its cross-border transport system. By actively participating in those schemes, Vietnam will be able to gain necessary knowledge, insight from the experiences of other countries and opportunities for joint undertakings with neighboring countries, and to tap or arrange development capital. However, each scheme has distinct characteristics and they co-exist in the same region. As a summary, Table 3.1.1 attempts to compare their characteristics.

Table 3.1.1
Comparative Analyses of Present International Schemes
for Developing Cross-border Land Transport Infrastructure

Infrastructure Project	Asian Highway/ Trans-Asian Railway	ASEAN Highway Network Project/ Singapore – Kunming Rail Link Project	Transport Infrastructure Projects under GMS Program
Area Coverage	Asia and the Pacific	Southeast Asia	Greater Mekong Subregion
Promoting Agency	UN ESCAP	ASEAN	ADB
Capability of Financial Arrangement	None	Uncertain	High
Linkage with Institutional Development	• Accession to international conventions • Standardization of roads and rails	• Engagement of regional agreements • Technical harmonization in road and road transport	• Promotion of bilateral and multilateral agreements • Accession to international conventions
Linkage with Human Resources Development	• Conduct of seminar and professional training	• Conduct of seminar and professional training • Joint practice	• Conduct of seminar and professional training • Technical assistance

3.2 Infrastructure Development

Taking account of implementability, this section highlights ASEAN undertakings and the GMS Program while the ESCAP initiatives are only referred when necessary.

ASEAN Highway Network Project

Project Preparation

The proposal to establish the ASEAN Highway is a logical step following the admission of Lao PDR, Myanmar and Vietnam into the ASEAN family. The ASEAN Highway network will provide a more effective transport system for trade and tourism in ASEAN. It will facilitate regional integration, enhance economic cooperation among the ASEAN member countries and promote ASEAN's trade into the regional and world markets.

The criteria for admitting routes as links of the ASEAN Highway network are as follows:

- Roads that connect to capitals of the participating member countries;
- Roads that connect to major points such as airports, deep seaports and industrial areas;
- Roads that connect to border crossing points which are significant for trade and tourism.

There have already been two earlier proposals for regional road network covering much of the ASEAN region, namely the Asian Highway promoted by the UN ESCAP and the Study for the Development of the Economic Cooperation in the GMS. It has been decided that the proposed ASEAN Highway should use the proposed routes of these two studies as a blue print and building platform to add more links to promote trade and tourism in the ASEAN region. By complementing the Asian Highway and the GMS routes, the ASEAN Highway will be a useful network that will also enhance interregional trade of ASEAN member countries with China and the Indian subcontinental countries.

Three ASEAN Highway Experts Meetings (AHEM) have been held so far, the first in Bangkok on March 1998, and the second in Hanoi on August 1998 and the third in Bandar Seri Begawan on May 1999. The meetings worked out the network configuration and road design standard.

Ministerial Understanding on the Project

The Fifth ATM Meeting in Hanoi in September 1999 adopted the Ministerial Understanding on the Development of the ASEAN Highway Network Project. Its objectives are:

1) To provide the institutional mechanism to formalize the strategic route configuration and uniform technical design standards of the ASEAN Highway Network, being the major road (interstate highway) component of the overall trans-ASEAN transportation network;

2) To formulate the ASEAN Highway Infrastructure Development Plan consisting of priority highway projects of regional significance, for funding and implementation through ODA, project financing by the private sector or by joint public-private sector arrangement, or by individual ASEAN member countries, as may be necessary;

3) To promote cooperation with other international and regional organizations to ensure technical compatibility of ASEAN's road standards and road safety requirements and create stronger road transport links and connections within ASEAN and those with neighboring or adjoining regions; and

4) To intensify cooperation in the facilitation of international road traffic throughout the ASEAN region.

The Fifth ATM Meeting agreed on the network configuration, technical design standards and requirements, and phased development timeframe (refer to Figure 3.2.1 and Table 3.2.1 and 3.2.2, respectively).

With regard to Vietnam's road system, the following sections are designated part of the ASEAN Highway Network Project:

Route 1: Haiphong – Hanoi – Danang – HCM City – Moc Bai (to Phnom Penh)

Route 5: Hanoi – Dien Bien – Tay Trang (to Vientiane)

Route 7: Vinh – Keo Nua (to Laos, Thailand)

Route 7A: Vung Ang – Deo Mu Gia (to Thakhek)

Route 7B: Quang Ngai – Kon Tum – Bo Y (to Pakse)

Route 7C: Hanoi – Lao Cai (to Kunming)

Route 8: Dong Ha – Lao Bao (to Savannakhet)

Route 11: Danang – Buon Me Thout – HCM City (to Phnom Penh, Sihanoukville)

Table 3.2.1
Road Classifications under the ASEAN Highway Network

Classification	Description	Pavement Type	Recommended Design Speed
Primary	Access controlled motorway	Asphalt or cement concrete	80 – 100 kph
Class I	Highway of 4 or more lanes	Asphalt or cement concrete	70 –80 kph
Class II	2-lane roads	Asphalt or cement concrete	50 –60 kph
Class III	2-lane road (narrow)	Double bituminous treatment	40 – 50 kph

Table 3.2.2
Phased Development Timeframe

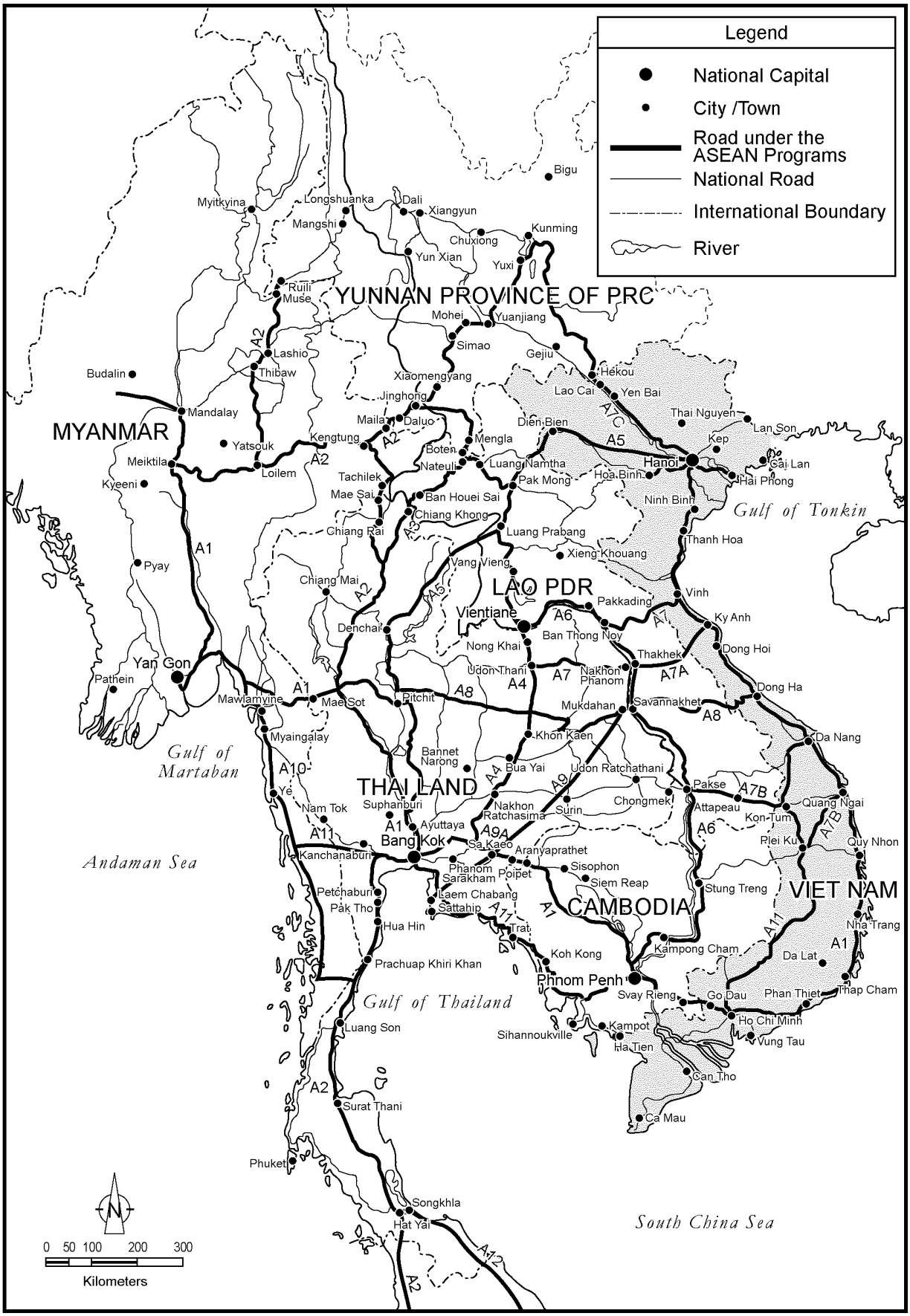
Phase	Tentative Completion Year	Technical Requirement
Stage 1	2000	Network configuration and designation of national routes to be completed.
Stage 2	2004	Road signs for all designated national routes to be installed. All designated national routes upgraded to at least Class II standards. All missing links to be constructed. All designated cross-border points to be operational.
Stage 3	2020	All designated national routes upgraded to at least Class I or primary road standards.

Singapore-Kunming Rail Link Project

The Singapore-Kunming Railway Link (SKRL) is one of the projects designated in the Hanoi Plan of Action (1999-2004). This is the most important regional railway network planned to promote cross-border freight and passenger traffic in support of the expected regional trade development. Some member countries of ASEAN are also planning to expand and upgrade their respective national railway networks in line with the regional railway network development. Several major cities in the region have already embarked on the construction of rail-based mass rapid transit systems to improve the efficiency of their public transport services. The SKRL project, however, will be the single most important regional project that has direct impacts on the opening up of the economies in the region.

A study on the feasibility of establishing a Singapore-Kunming rail link was initiated in December 1995 at the ASEAN Heads of Government Meeting in Bangkok. This is a follow-up of the “UN ESCAP Trans-Asian Railway Study for Indo-China and the ASEAN subregion”. The objective of establishing the rail link is to promote regional economic growth by facilitating free movement of goods and passengers across participating countries’ border through efficient rail systems

.Figure 3.2.1
ASEAN Highway Network (Mainland)



The main considerations in the feasibility study on SKRL are to:

- plan rail linkages to complement existing alternative transportation modes and not to compete with them;
- identify issues relating to cross-border movements of passengers and goods, and make recommendations for eliminating/minimizing delays due to traffic policies and clearance procedures; and
- ensure environmental preservation with minimal adverse impact resulting from new construction of rail links.

As of March 1998, the study routes consist of Routes 1, 2A, 3A, 3B, 3C, and 3D, the details of which are given in Table 3.2.3. The total length of each study route and the lengths of non-existing links are indicated in Table 3.2.4, along with estimated construction costs. Figure. 3.2.2 presents a map that shows the study routes.

Table 3.2.3
Details of Study Routes of the Singapore-Kunming Rail Link

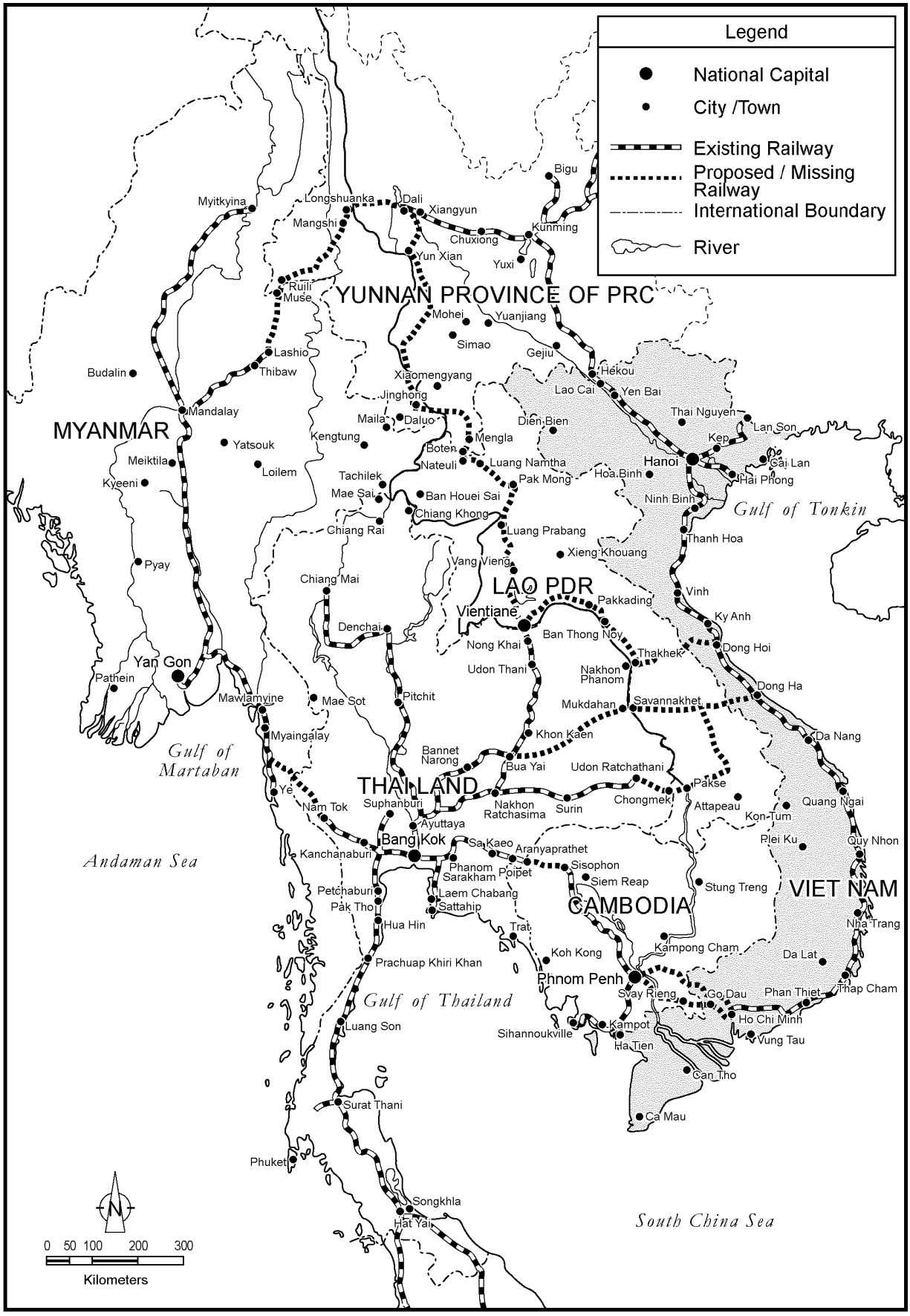
Route No.	Detailed Study Route
1	Bangkok-Aranyaprathet-Poipet-Sisophon-Phnom Penh**-Loc Ninh-Ho Chi Minh City-Hanoi-Lao Cai-**Hekou-Kuming
2A	Bangkok-Nam Tok-Three Pagoda Pass-Thambyuzayat-Yangon-Lashio-Muse-Rueli-Dali-Kunming
3A	Bangkok-Nong Khai-Vientiane-Thakhek-**Vung Ang-Hanoi-Lao Cai**-Hekou-Kunming
3B	Bangkok-Nong Khai-Vientiane-Boten-Kunming
3C	Bangkok-Ubon Ratchathani-Chong Mek-Pakse-Savannakhet-**Dong Ha-Hanoi-Lao Cai**-Hekou-Kunming
3D	Bangkok-Bua Yai-Mukdahan-Savannakhet-**Dong Ha-Hanoi-Lao Cai**-Hekou-Kunming

Table 3.2.4
Lengths of Study Routes of Singapore-Kunming Rail Link

Route No.	Length	Non-existing Link	Construction Cost (US$ mil)*	Construction Cost Per km (US$ mil)*
1	5,510 km	429 km	746	1.74
2A	4,898 km	1,121 km	6,498	5.80
3A	4,369 km	604 km	1,343	2.22
3B	4,154 km	1,232 km	7,848	6.37
3C	4,518 km	615 km	1,191	1.94
3D	4,292 km	588 km	1,128	1.92

*Based on prices prevailing in Malaysia/Thailand in June 1997
Source: Interim Report, Feasibility Study for the Singapore-Kunming Rail Link, K.L.Consult, March 1998

Figure 3.2.2
Location of Singapore-Kunming Rail Link Project



All the study routes share the same existing southernmost link of Singapore-Kuala Lumpur-Bangkok. Essentially, the main differences among the routes are the sector links connecting Bangkok to Kunming. Route 1 passes through Cambodia and Vietnam, Route 2 through Myanmar, Route 3B through Lao PDR, while Routes 3A, 3C and 3D through Lao PDR and Vietnam. With the exception of Routes 3C and 3D which do not call at Vientiane, all other routes would call at the capital cities of the ASEAN member countries they pass through. Route identification of non-existing links was generally based on geographical data. Routes 2A and 3B have the most kilometers of rail link that need to be constructed and have the highest construction costs per km. Each of these two routes also has more than half of its total length of non-existing link located within China.

The study assessed the capacities of the existing rail systems in each study route and established the minimum operational requirements. The works for preparing/upgrading the relevant sectors of existing railways to meet the minimum operational requirements were identified and costs estimated. The target standards and minimum standards assumed by the study are shown in Table 3.2.5.

Table 3.2.5
Technical Standards Assumed in the SKRL Study

Speed	Target -- 120 km/h for passenger trains 80 km/h for freight Facilitate for future 200 km/h
Curvature	Target -- straight Minimum (rolling) -- 800 m Minimum (mountainous) -- 150 m
Max. Gradient	Rolling terrain -- 1% Mountainous terrain -- 1.25%
Track Structure	Rail section -- UIC 54 Sleepers -- prestressed concrete Ballast depth -- 250 mm
Axle Load	-- 20 tons

Based on those study outputs, the ASEAN proposes the following phased development timeframe:

Stage 1 (by 2000)	–	Complete route configuration and designation
Stage 2 (by 2004)	–	Propose the implementation program for all missing lines
Stage 3 (by 2010)	–	Upgrade/improve existing lines according to SKRL Technical Standards
Stage 4 (by 2020)	–	Construct all missing lines and upgrade existing lines according to SKRL Technical Standards

Source: "National and Regional Workshops on the Role of Transport and Communications in the ASEAN Region in the 21st Century" under the Japan-ASEAN Cooperation Promotion Program (JACPP)

GMS Program in the Transport Sector

The GMS Program has identified 34 subregional transport projects, nine of which pertain to roads, eight to railways, 10 to water transport, six to air transport and one to institutional development. The status of subregional road projects monitored by the ADB as of February 1999 are depicted in Figure 3.2.3.

Vietnam's related projects are as follows:

1) R1: Bangkok-Phnom Penh-HCM City-Vung Tau Road Project

- The ADB conducted the feasibility study between 1995 and 1997. In December 1998, it approved its loan disbursement to the Phnom Penh-HCM City section, US$ 40 million for the Cambodia side and US$ 100 million for the Vietnam side.
- The Vietnam Government approved the business proposal submitted by a Korean company to construct the HCM City-Long Thanh-Vung Tau Expressway in a BOT scheme. The implementation of this US$ 590 million project is uncertain after the Asian economic crisis.

2) R2: Thailand-Lao PDR-Vietnam East West Corridor

- The ADB conducted the feasibility study between 1994 and 1997.
- The road section in Lao PDR is currently under improvement by JICA and ADB.
- The World Bank is funding the road section between Dong Ha and Danang.
- The OECF will fund the Second Mekong Bridge (Mukdahan-Savannakhet) project. Road No. 9 in Vietnam will be rehabilitated by the ADB.

3) R5: Kunming-Hanoi Road Improvement Project

- The road section between Kunming and Hekou (border town), with a total length of 430 km, has been recently improved as a second-class highway. All the bridges on the route have a load limit of 60 tons.
- The succeeding road section in Vietnam is very narrow, winding and cheaply paved, especially between Lao Cai and Doan Hung, Phu Tho Province. Many bridges have a load limit of 13 tons. But no road improvement project is committed so far.

4) R8: Lao PDR-Northen Vietnam Road Improvement Project

- It is reported that the road in both sides is in bad condition to accommodate heavy vehicles. The ADB estimated that road improvement

would cost US$ 99 million to both governments. But no project scheme is presently available.

5) R9: Northeastern Cambodia-Central Vietnam Corridor Project

- Today the cross-border gate allows only limited local traffic. The ADB estimated the road improvement cost to be US$ 61 million. A joint project scheme has not been proposed by Cambodia or Vietnam.

6) RW2: Yunnan Province-Vietnam Railway Project

- The governments of PR China and Vietnam have resumed international railway operation since 1996. The railway traffic is increasing significantly without additional investment in both sections.
- The ADB estimated US$ 65 million for its improvement. The AusAID will fund the project to upgrade communications and signaling systems within Vietnam.

7) RW3: Thailand-Cambodia-Vietnam Railway Project

- No significant movement can be observed except for the SKRL project reported in the previous section.

8) W2: Mekong River Navigation Improvement Project

- With regard to navigational aids and dredging channels, some improvements are moving toward implementation with the assistance of Mekong River Commission, Belgium and the World Bank.
- The Can Tho port rehabilitation project is underway with the assistance of World Bank fund.

9) W3: Red River Navigation Improvement Project

- The ADB completed the feasibility study on Red River waterways project in 1998.
- The OECF has been assisting the dredging of the navigational channel to Haiphong Port and the rehabilitation of port facilities since 1995.

10) W7: Central Vietnam Ports Improvement Project

- The ADB and JICA conducted port studies in central Vietnam.
- The OECF commits funds for Danang port expansion and access improvement.

11) W8: Cai Lan Port Development Project

- The feasibility study was done by JICA.
- Three new berths will be constructed by OECF fund (around US$ 300 million).

12) W9: Thi Vai-Vung Tau Port System Development

- The master plan was prepared by the Government of Vietnam.
- A foreign BOT investment for Vung Tau deep seaport was approved in 1996. According to the original plan, Phase I development will be completed by the year 2000 as a part of the US$ 638 million investment. But no civil work has started so far.

13) A5: Vietnam Airports Improvement Project

- CAAV has improved its international airports through its own fund without any ODA and FDI in the 1990s.

Other Movements to Develop Cross-border Infrastructure

Vientiane-Son La-Hanoi

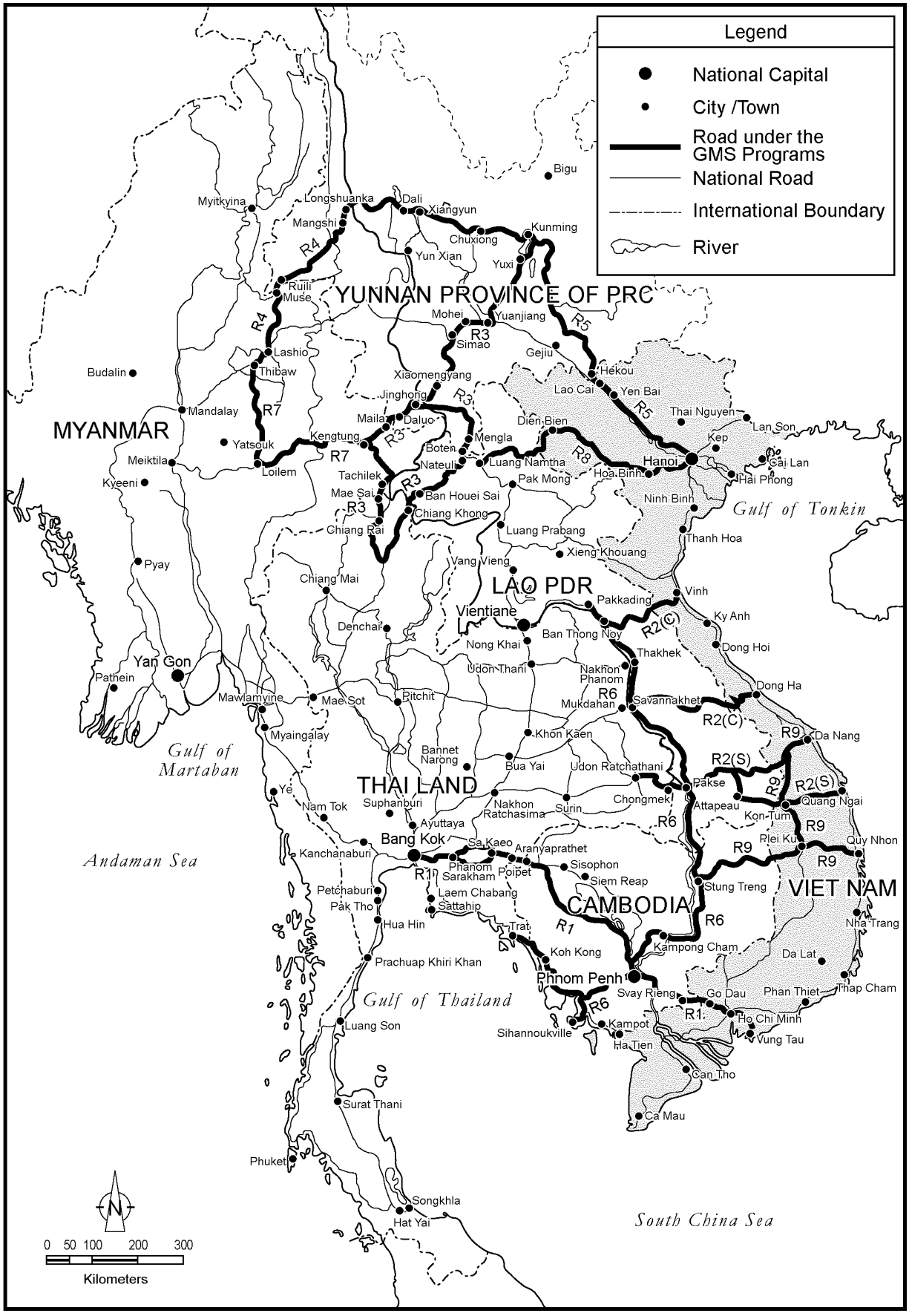
In the province of Son La, a local border gate is open to Laotian traffic at Pa Hang. This is the shortest route between Vientiane and Hanoi although steep mountains and valleys become physical barriers when improving the existing narrow road. Any regional/subregional development programs do not include this strategic route. However, the Laos Government is now improving some sections on the route with the assistance of Germany. It is worth reconsidering the priority of the connected road section in Vietnam (National Road 43) among substandard national roads.

Cambodia-Vietnam Coastal Road

There is an interstate coastal road between Sihanoukville, an emerging seaport in Cambodia and Can Tho, a representative river port of the Mekong Delta in Vietnam. The local economy along the route is active enough to export many commodities such as rice, shrimps, cement, etc. But the road is not built for constant and heavy vehicles flow due to its poor pavement condition and vulnerability to seasonal inundation

The Vietnamese Government prioritizes the road section between Can Tho and Ca Mau rather than the section between Can Tho and Ha Tien for urgent improvement. However, the latter is considered a strategic alignment open to international traffic in the long run.

Figure 3.2.3
Status of the GMS Road Projects (as of February 1999)



3.3 Traffic Demand

According to VINAMARINE, Vietnamese ports handled 3,151,000 tons in transit in 1997. However, the figure may include transit cargo to/from neighboring countries by land transport and inland waterways and transshipment cargo to/from a next port by ocean-going vessel. After examining each port statistics, transit cargo is estimated at 2,639,000 tons: Lao PDR 240,600 tons, Cambodia 1,863,400 tons and China PR 536,300 tons while transshipment cargo 512,000 tons.

As a whole, transit cargo is expected to increase with international infrastructure and institutional development to facilitate cross-border traffic. However, the magnitude of future cross-border traffic which will connect with Vietnamese seaports is quite uncertain. Supported by relevant studies, statistics and the results of the neighboring countries' survey, it is tentatively forecast as follows:

1) Lao PDR: Vientiane is 680 km away from Bangkok and 380 km away from Cua Lo. Xieng Khouang, Bolikhamsay and Khamouane provinces are in the range of 100 – 400 km from the sea in Vietnam. They have been designated as special development zones. Savannakhet and Saravance are undergoing socio-economic development based on local resources and the development effect of the East-West Corridor Development (Thailand: Laem Chabang-Savannakhet-Danang). Laos now uses Danang port as a transit as well as a home port of its two ocean-going vessels. With corridor development, Laotian cargo is expected to increase substantially, exporting sawn timber, rice and rubber and importing fertilizer and daily goods.

2) Cambodia-Mekong River: Sihanoukville Port, the only seaport in Cambodia, is growing rapidly, averaging 23% per year in cargo handling during the period 1992-1997. Meanwhile, Phnom Penh Port, the biggest river port, is steadily increasing its international cargo to/from and via Vietnam. The annual increase rate of 3.% between 1992 and 1997 may continue in future (refer to Figure 3.4).

3) Cambodia-Ho Chi Minh City to Phnom Penh Highway: It is now under construction with assistance from the ADB. The project anticipates considerable cross-border traffic, i.e., 1,385 trucks per day in 2010 and 2,536 trucks per day in 2020. Some of them will access HCM City ports or Vung Tau-Thi Vai ports. The project also estimates that conversion traffic from Mekong River is limited.

4) North Cambodia to Qui Nhon Port: The port used to handle Cambodian timber for export. The traffic pattern is quite unidirectional, from north Cambodia to Qui Nhon. With the improvement of National Road 13 and economic development in north Cambodia, future traffic will generate from

both sides. Therefore, the transit traffic will significantly increase after the year 2010 from the current level.

5) Yunnan Province, China PR: Yunnan is a land-locked province and thus it ships out trading goods from a seaport outside the province. Haiphong Port with many ship calls is convenient for such cargo. But the access railway, road or inland waterway are all problematic. Compared with the Chinese inland transport system (road and rail) and ports (Fang Cheng and Bei Hai), Vietnam is currently less competitive. With the improvement of railway and National Road 70, Vietnam may expect to receive substantial transit cargo from Yunnan after the year 2010. But in Guangxi Province two deep seaports are growing and therefore the transit cargo through Vietnamese seaports will be the same at best.

6) Transshipment: Vietnamese ports will not be suitable for transshipment since large vessels assigned on trunk trans-ocean routes do not frequently enter. As the number of ship calls increases, transshipment cargo will somewhat increase for the convenience of shipping companies. This forecast does not consider any exclusive transshipment ports.

Figure 3.3.1
Trend in Cargo Volume handled at Phnom Penh Port and Sihanoukville Port

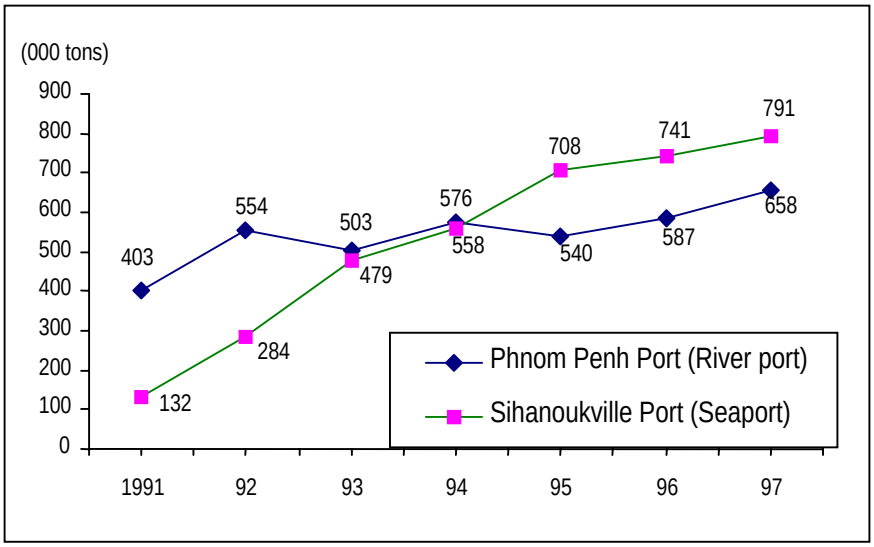


Table 3.3.1
Forecast of Goods in Transit/Transshipment at Vietnamese Seaports
('000 tons)

	1997	High Assumption		Low Assumption	
		2010	2020	2010	2020
Lao PDR	240.6	735	1,470	716	1,303
Cambodia	1,863.4	3,439	5,171	3,117	4,176
- Qui Nhon	218.3	220	358	220	326
- Mekong	1,645.1	2,573	3,630	2,316	2,904
- Road to HCM City Port	0	646	1,183	581	946
China	536.3	628	1,092	565	913
Transit Total	2,639	4,802	7,733	4,398	6,392
Transshipment	512	965	1,573	853	1,262
TOTAL	3,151	5,767	9,306	5,251	7,654

Source: VINAMARINE (1997 Data)
References: JICA / the Study on the Port Development Plan In the Key Area of the Central Region (1998), Transport Master Plan for the Central Region of Vietnam (1998) , Ho Chi Minh City To Phnom Penh Highway Improvement Project (ADB, 1997)

3.4 Institutional Development

Necessity for Regional/Subregional Cooperation

As stated in the previous chapter, there are three levels to develop the institutional framework to facilitate cross-border transport, i.e., bilateral, regional/subregional and global. Although bilateral cooperation is of utmost importance with neighboring countries, it is not stable and subject to political environments. On the other hand, the accession to relevant international conventions reflected in ESCAP Resolution 48/11 and others can provide solid and common basis to cope with this issue. However, it sometimes takes considerable time to modify domestic legal framework.

Of the three, regional/subregional cooperation is more flexible since countries in the same region/subregion may share similar cultural and historical background and specific cross-border issues. Relevant international conventions and their enforcement may support the technical and administrative aspects of regional/subregional cooperation as necessary. It is also an effective way to advocate relevant conventions to nonparticipating countries to form a more stable institutional basis.

Ongoing Framework Preparation

In the regional level, the ASEAN Framework Agreement on the Facilitation of Goods in Transit was signed in 1998 and is to be operationalized in 2000. The Agreement shall bring about an integrated and harmonized transit transport

system and a simplified and harmonized transport, trade and customs regulations for the facilitation of goods in transit in ASEAN and thus, hasten the implementation of the ASEAN Free Trade Area (AFTA).

At the same time, the Hanoi Plan of Action (1999-2004) supports this Agreement. With these two framework agreements, ASEAN in theory will be able to ensure a smooth cross-border traffic.

At the subregional level, the GMS countries finalized the Framework for Facilitation of the Cross-border Movement of Goods and People in 1998. This subregional framework also have two objectives: (i) to facilitate the cross-border movement of goods and people between and among the Contracting Parties, and (ii) to simplify and harmonize legislation, regulations, procedures, and requirements relating to the cross-border movement of goods and people. Although there is no schedule for the six GMS countries to adopt this framework within the subregion, it will become at least a condition when tapping ADB fund for constructing subregional transport infrastructure.

Both regional (ASEAN) and subregional (GMS) undertakings intend to establish transport coordination bodies at country and regional/subregional levels to facilitate and liberalize cross-border transport (refer to Table 3.4.1).

Establishment of a Vietnam Cross-border Transport Facilitation Committee

Both regional/subregional frameworks require the establishment of new national bodies: a National Transit Transport Coordinating Committee (NTTCC) in the ASEAN level and a National Transport Facilitation Committee (NTFC) in the GMS level.

At national level another organization is proposed; in Vietnam it would be called Vietnam Cross-border Transport Facilitation Committee (VCTFC). There are three objectives of this national-level body, as follows:

1) Facilitation: To provide a consultative forum on national level for the concerted simplification or harmonization of formalities, procedures and documentation used in cross-border transport and trade;

2) Regulatory: To propose, for Government approval, responsive cross-border transport and trade-related policies, rules, regulations, and practices; and

3) Capacity Building: To increase public awareness and acceptance of the practices, methods and benefits of cross-border transport operations in both public and private sectors.

Table 3.4.1
Profiles of Regional/Subregional Framework Agreements
for Facilitation of Cross-border Traffic

Title	ASEAN Framework Agreement on the Facilitation of Goods in Transit	Framework for Facilitation of the Cross-border Movement of Goods and People in the Greater Mekong Subregion
Contracting Parties	ASEAN Member Countries	Cambodia, China, Lao PDR, Myanmar, Thailand, Vietnam
Objectives	1) To facilitate transportation of goods in transit for AFTA 2) To simply and harmonize transit goods related regulations 3) To establish an integrated transit transport system in ASEAN	1) To facilitate cross-border traffic of goods and people by road and rail 2) To simply and harmonize regulations and procedures relative to cross-border movement
Features	1) Transit routes are designated based on the ASEAN Highway Project. 2) The Framework is guided and the following international / regional engagements made: <u>International Conventions:</u> ▪ Harmonization of Frontier Control of Goods (1982), ▪ Road Traffic (1968), ▪ Road sign and signals (1969), ▪ Simplification and harmonization of Custom Procedures ▪ <u>ASEAN Agreements:</u> ▪ Commercial Vehicle Inspection Certificate (1998), ▪ Domestic Driving License (1985)	1) Facilitation of border crossing formalities by means of single window inspection or single-stop inspection 2) A driving time regulation by 2004 on the designated routes and entry / exit points 3) Transport operators established in one Contracting Party may undertake any transport operation in, to, from or across the territory of another Contracting Parties except for the cabotage right on the basis of a special authorization.
Institutional Setting	▪ National Transit Transport Coordination Committees ▪ Regional Transit Transport Coordinating Board	▪ National Transport Facilitation Committees ▪ Joint Committees
Protocols	1. Designation of Transit Transport Routes and Facilities 2. Designation of Frontier Posts 3. Types and Quantity of Road Vehicles 4. Technical Requirements of Vehicles 5. ASEAN Scheme of Compulsory Motor Vehicle Third-Party Liability Insurance 6. Railways Border and Interchange Stations 7. Customs Transit System 8. Sanitary and Phytosanitary Measures 9. Dangerous Goods	1. Designation of Corridors, Routes, and Points of Entry and Exit (Border Crossings) 2. List of Operators Authorized to Undertake Cross-border Transport Operations 3. Frequency and Capacity of Services and Issuance of Quotas and Permits 4. Cross-border Railway Cooperation
Depository Agency	The ASEAN Secretariat	The ESCAP Secretariat
Status	Signed and to be operationalized in 2000	Finalized

Source: ASEAN Secretariat, ADB

The committee will be an interagency consultative and coordination body. Given the nature of the facilitation of cross-border transport, there is a need to ensure that all relevant parties in both the government and private sector are represented, as follows:

1) Transport authorities: MOT, VRA, VIWA, VINAMARINE, CAAV, Vietnam Ports Association
2) Other government agencies: MPI, Ministry of Trade and Industry, Ministry of Finance, Vietnam Customs Authority, DGPT, etc.
3) National association of banking institutions
4) National association of insurance companies
5) National associations of transport users: Vietnam Shippers' Council (proposed), Vietnam Freight Forwarders Association (VIFFAS), exporters, importers, etc.
6) National chamber of commerce
7) National association of transport service providers: VR, Vietnam Ship owners Association (VSA), truck operators, airlines, inland waterway operators, multimodal transport operators

The lead organization of the committee will be identified, in consultation with committee members. It may be desirable to give this responsibility to the MOT, which may also provide technical secretariat support. The Committee will designate a chairman, preferably the Deputy Minister of MOT. The committee should ensure that everybody, transport users and providers as well as private and public transport enterprises, will be accorded equal and fair treatment.

3.5 Cross-border Control

Frontier Post Development

To facilitate cross-border transport, connected countries are required to develop their frontier posts or points of entry and exit, which may include railway stations, maritime or river ports. Adequate facilities and related installations will be provided at frontier posts including control booths, terminal building (customs office, immigration office and others), vehicle repair facility, post and telecommunication facility, facilities for loading, unloading, break-bulk, transshipment and container, and inland clearance depot. Figure 3.5 shows the road and fence layout of the Cambodian frontier post which is designed under the Phnom Penh-HCM City Highway Improvement Project.

Frontier posts may further collaborate on the following aspects to provide better services:

1) Priority clearance of goods in transit, registered vehicles and operators under relevant agreements;

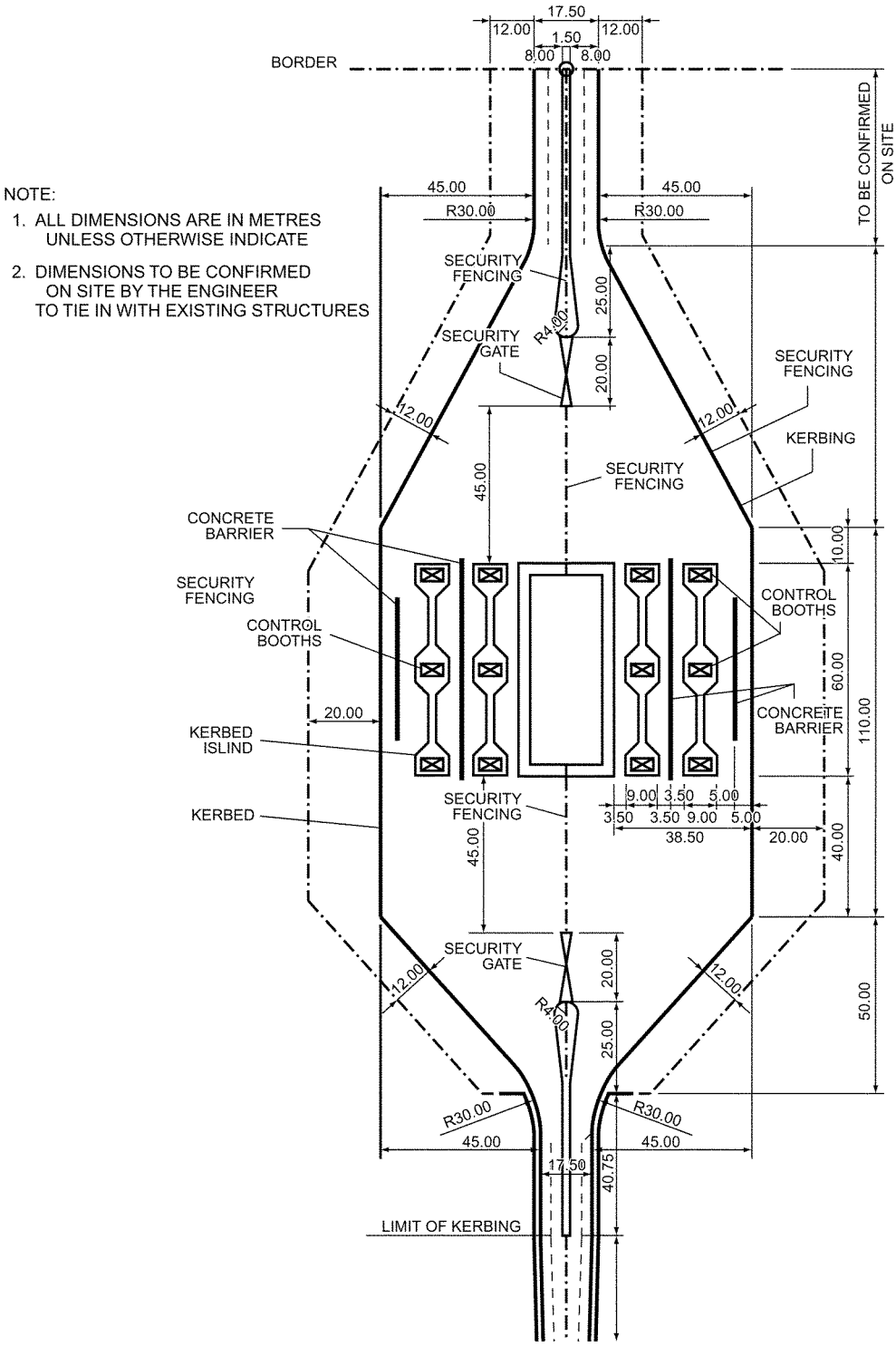
2) Arrangement for shared facilities and joint controls, i.e., by single-window or single-stop inspection;
3) Coordination of business hours and opening hours;
4) Limitation of inspection; and
5) Advanced exchange of information and clearance.

Customs System

Customs plays an instrumental role in the flow of goods across borders. Customs authorities in each country however require national documents and apply national controls and procedures, which vary from country to country. This system leads to considerable expense and delay, and thus there is a need to establish a regional/subregional customs system for cross-border freight. Among the major elements of a common Customs system are the following:

1) Customs seals and identification marks affixed by foreign customs authorities should be accepted.
2) Approved foreign containers in transit under Customs seal should be accepted.
3) Monitoring and automated systems to enhance customs control should be introduced.
4) Application and examination procedures should be simplified.
5) A common list of prohibited, restricted goods and dangerous goods should be available at each post.

Figure 3.5.1
Road and Fence Layout at a Cambodian Frontier Post
(Phnom Penh-HCM City Highway Improvement Project)



4 PROPOSAL FOR CROSS-BORDER TRANSPORT DEVELOPMENT

4.1 Proposed Cross-border Transport Routes

Besides shipping and air routes, international transport routes designated on inland transport consist of roads, rails and inland waterways. To meet traffic demand and develop a desirable regional transport network, they are further grouped into trunk routes and local routes (refer to Table 4.1.1).

- Since trunk routes are designed to serve not only bilateral traffic but also third countries' traffic, a regional consensus is very important to the physical design and operation of trunk routes. Road sections which form part of the ASEAN Highway Network Project are regarded as trunk routes. Although trunk routes are important to regional development, the early rehabilitation/improvement of all the routes is not necessary, because this depends on traffic demand. Cognizant of their regional significance, however, external funds through ODA or BOT must be sourced for the most important trunk routes.

- Since bilateral local traffic uses local routes, these should be developed to correctly meet local needs. Although they do not need to cope with large traffic volume, local road routes must be passable to medium-sized trucks under any weather condition. Available funding sources may come largely from local funds of central and local governments and to a limited extent from ODA fund under rural transport development schemes.

Table 4.1.1
Classifications of Cross-border Transport Routes

Type	Traffic Demand	Route Alignment
Trunk Route	• Goods in transit • Cross-border container cargo • Other interstate cargo and passengers in long-distance haulage	• Major cross-border points to large cities/large seaports/large airports
Local Route	• Interstate cargo and passengers in short-distance haulage	• Minor cross-border points to the nearest provincial capitals or access to trunk routes

This report identifies 12 trunk routes and 15 local routes for serving cross-border traffic in Vietnam toward the year 2020 (refer to Figure 4.1.1 and Table 4.1.2).

Figure 4.1.1
Future Cross-border Network towards the Year 2020

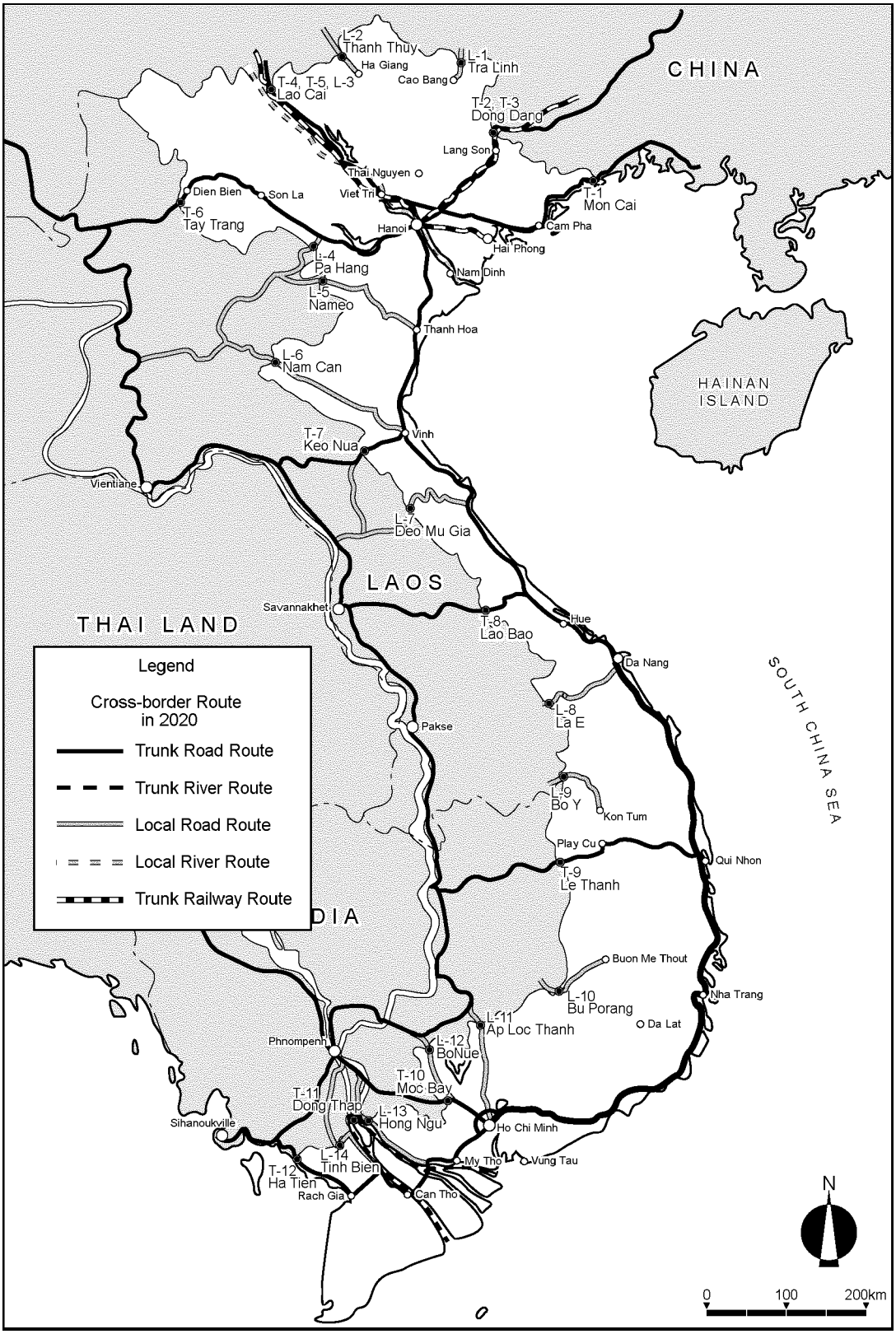


Table 4.1.2
Proposed Cross-border Transport Routes Toward the Year 2020

Route. No.	Mode	Route No. (VT/Oth)	Vietnam Side	Other Side	Existing Conditions
T-1	Road	18/-	Mon Cai, Quang Ning	Tong Hing, Guangxi, China	Open to International Traffic
T-2	Road	1/-	Dong Dang, Lang Son	Ping Siang, Guangxi, China	Open to International Traffic
T-3	Rail	-	Dong Dang, Lang Son	Ping Siang, Guangxi, China	Open to International Traffic
T-4	Road	70/-	Lao Cai, Lao Cai	Hokou, Yunnan, Chian	Open to International Traffic
T-5	Rail	-	Lao Cai, Lao Cai	Hokou, Yunnan, China	Open to International Traffic
T-6	Road	279/42	Tay Trang, Lai Chau	Sop Hun, Laos	Open to Local Traffic
T-7	Road	8/8	Keo Nua, Ha Tinh	Keo Nua (Na Pe), Laos	Open to International Traffic
T-8	Road	9/9	Lao Bao, Quang Tri	Ban Den Savan, Laos	Open to International Traffic
T-9	Road	19/19	Le Thanh, Gia Lai	An Dong Pech, Cambodia	Open to Local Traffic
T-10	Road	22A/1	Moc Bai, Tay Ninh	Svay Rieng, Cambodia	Open to International Traffic
T-11	River	-	Dong Thap/An Giang	Takeo/Svay Rieng	Open to International Traffic
T-12	Road	13/33	Ha Tien, Kien Giang	Kompot, Cambodia	Unknown
L-1	Road	3/-	Tra Linh, Cao Bang	Chinh Xi, Guangzi, China	Unknown
L-2	Road	2/-	Thanh Thuy, Ha Giang	Ma Li Po, Yunnan, China	Unknown
L-3	River	-	Lao Cai, Lao Cai	Hokou, Yunnan, Chian	Unknown
L-4	Road	43/6	Pa Hang, Son La	Sop Bau, Loas	Open to Local Traffic
L-5	Road	217/217	Nameo, Thanh Hoa	Ban Loi, Laos	Open to Local Traffic
L-6	Road	7/7	Nam Can, Nghe An	Nam Can, Laos	Open to Local Traffic
L-7	Road	12/29	Deo Mu Gia, Quang Binh	Thong Kham, Laos	Open to Local Traffic
L-8	Road	14D/	La E, Quang Nam	P. Xekong, Laos	Being Planning
L-9	Road	40/8	Bo Y, Kon Tum	Giang Gion, Laos	Open to Local Traffic
L-10	Road	14/14	Bu Porang, Dak Lak	O Raing, Cambodia	Open to Local Traffic
L-11	Road	13/74	Ap Loc Thanh, Binh Phuc	Snul, Cambodia	Unknown
L-12	Road	22B/13	Bo Nue, Tay Ninh	Snul, Cambodia	Open to Local Traffic
L-13	Road	30/-	Hong Ngu, Dong Thap	Peam Chor, Cambodia	Unknown
L-14	Road	91/33	Tinh Bien, An Giang	Phnomden, Cambodia	Open to Local Traffic

4.2 Identification of Short-term Priority Projects

Infrastructure Projects

Ongoing and committed projects deserve priority. These are:

- T-8 : East-West Corridor Project, especially the road improvement between Dong Ha and Lao Bao, probably with ADB assistance
- T-10 : Phnom Penh-HCM City Highway Improvement Project, with ADB fund
- T-11 : Dredging work along Bassac River and Can Tho port improvement, with World Bank fund

Since rail freight traffic across borders is rapidly increasing since 1996, the minimum improvement to be immediately done is the assigning of additional rolling stocks (T-3 and T-5).

With regard to new international railway alignments, Vietnam should carefully monitor the Singapore-Kunming Rail Link Project. With sufficient traffic demand and financial arrangement, a new railway will be viable.

Feasibility Studies

Besides the VITRANSS, regarded as the master plan on cross-border transport development, the ADB earlier conducted two interstate transport corridor studies, i.e., “F/S on GMS Infrastructure Improvement: Ho Chi Minh City to Phnom Penh” (1995) and “F/S on the Lao-Thailand-Vietnam East-West Transport Corridor” (1996). Feasibility studies will be necessary on the following transport corridors for which the MOT may seek technical assistance from the donor community:

- Kunming-Hanoi-Haiphong/Cai Lan corridor (T-4, T-5 and L-3)
- North Vietnam-Guangxi cross-border transport (T-1, T-2 and T-3)
- North Vietnam-North Lao corridor (T-6, L-4 and L-5)
- Qui Nhon-North Cambodia corridor (T-9)
- Vietnam-Cambodia south coastal corridor (T-12)

Concerned provincial governments will formulate the implementation programs of other local routes such as L-1 (Cao Bang), L-2 (Ha Giang), L-6 (Nghe An), L-7 (Quang Binh), L-8 (Quang Nam), L-9 (Kon Tum) , L-10 (Dak Lak), L-11 (Binh Phuc), L-12 (Tay Ninh), L-13 (Dong Thap), and L-14 (An Giang) under the technical supervision of the MOT.

Institutional Development

In order to protect and reflect the interests of all concerned in cross-border transport, not least those of government, it is important that the entire trade and transport sectors are consulted and that a close relationship is established between government and transport industries/users. It is recommended that a Vietnam Cross-border Transport Facilitation Committee with sufficient secretariat function be established.

As to bilateral cooperation, cross-border transport agreements with PR China and Cambodia will be liberalized like those with Lao PDR. Important issues include the following:

- With PR China: mutual recognition of vehicles for both passengers and goods
- With Cambodia: removal of the restrictions posed on international ships on international inland waterways

From a regional point of view, the implementation of the Hanoi Plan of Action (1999-2004) is very important. This document directs the following actions with regard to the facilitation of cross-border traffic:

- Operationalize the ASEAN Framework Agreement on the Facilitation of Goods in Transit by year 2000
- Target the conclusion and operationalization of the ASEAN Framework Agreement on the Facilitation of Inter-State Transport by year 2000
- Implement the ASEAN Framework Agreement on Multimodal Transport

The above three agreements will be able to ensure efficient cross-border transport and achieve the objectives of the GMS framework for the Facilitation of the Cross-border Movement of Goods and People.

Lastly, it is considered that the development of bilateral and regional agreements on the exchange of traffic rights will be a prerequisite for facilitating movement across borders and for preparing suitable ground for the effective implementation of relevant international conventions. Lao PDR acceded to the Barcelona and New York transit conventions, Cambodia to the former convention, while Vietnam was not a party to either. However, it had already acceded to the UN Convention on the Law of the Sea, thus it accepts the right of a landlocked country to have access to the sea. Problems that Vietnam still faces include a lack of information on the conventions as well as knowledge of the practical experience of international organizations. Since early accession would bring about bigger benefits on cross-border transport development, it is necessary for Vietnam to increase its pace toward the harmonization of its laws and regulations with international conventions on land transport facilitation.

APPENDICES