

GOVERNMENT OF THE SOCIALIST REPUBLIC OF VIETNAM  
MINISTRY OF COMMUNICATION AND TRANSPORT

PROJECT EXECUTOR: VIETNAM RAILWAYS

OUTLINE OF FEASIBILITY STUDY

ON

"UPGRADING THE HANOI-TO CHI MINH RAILWAY  
LINE TO SPEED UP THE PASSENGER EXPRESS TRAINS  
TO AVERAGE SPEED OF 70 Km/h IN THE YEAR  
OF 2000."

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OUTLINES OF FEASIBILITY STUDY  
ON  
"UPGRADING THE HANOI-HO CHI MINH CITY  
RAILWAY LINE TO SPEED UP THE PASSENGER  
EXPRESS TRAINS TO AVERAGE SPEED OF 70  
Km/h IN THE YEAR OF 2000."

CONTENT.

I. BASIS AND SUPPLEMENTARY INFORMATION.

1.1-Project Justification:

Hanoi-HoChi Minh Railway is the most important railway line of VNR network connecting Hanoi Capital and Ho Chi Minh City with the length of 1730 Km among the total length 2600 Km of VNR. In comparison with the total transport volume of the whole VNR network, the rate of passenger and freight transport of this railway, "Reunification" by name, is very high. For a developing country as Vietnam, upgrading this railway to meet the need of transport, which is more and more increased, is extremely important and urgent, of the economical point of view, it's also very significant as on the technical and social point of view. The technical and economical problems of its actual condition that face us are very difficult to resolve. The complicated conditions of Formation, track, sleeper, fastening, bridges, tunnels, signaling and communication along its 1730 KM in length was given in the preliminary reports made by RITES in February -1990, by BCEOM in April-1991 and by JARTS in Mars -1992.

It was mentioned in "Vietnam Transport Sector Review" of BCEOM that: "In the first short period, it suffices that VNR will receive infrastructure investment in view of an equal competition with other transport modal for one reasonable part of the whole transport market, only for this, an investment of 301,6 million is indispensable." By this reason, VNR need the government investment and financing assistance of foreign countries for upgrading railway system, especially the Reunification line. The feasibility report on upgrading Hanoi-Ho chi Minh city railway is in view of a reasonable stage investment, which is very significant on technical, economical and social view points.

2. PROJECT TITLE AND ITS ACTIVITIES.

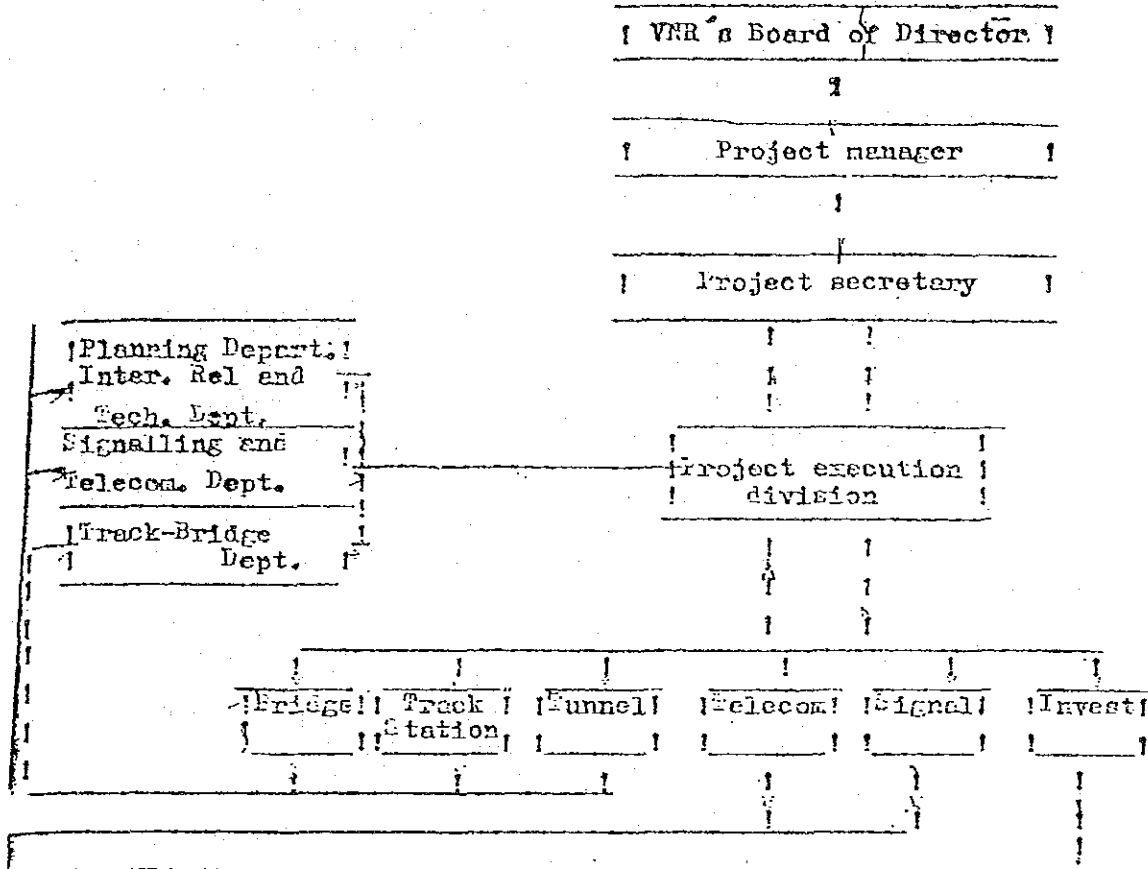
2.1-Project title: Feasibility Study on upgrading Hanoi-Ho Chi Minh Railway to speed up the passenger Express trains to average speed of 70 Km/h in the year of 2000."

2.2-Location where the activities of technical cooperation take place: Head office of Vietnam Railways, 118 Le Duan Str.

Hanoi and along Hanoi- HoChi Minh Rail-way.

3. ORGANISATION CHART OF PROJECT;

The diagram of Project management and execution is presented as following :



4. PROJECT FINANCING BY THE GOVERNMENT.

This is the feasibility study project with the source of funds from the Government and foreign agencies. It will be the basis for obtaining the funds invested in the years to come, so all the formalities must be (completed) complied with the existing procedures and management scheme of the Government.

5. STUDY OBJECTIVE

- Study on upgrading the infrastructure of VNR consists of:
- Study on upgrading the track with attention to sleepers and fastening, and also to rail welding, in the aim of speed up to  $V_{max}=100-120$  Km/h in the year of 2000.
  - Study on Railway bridge evaluation, establish plan of investment for replacing girders and upgrading bridges to obtain  $V_{min}=35-40$  Km/h for passenger express trains on bridges.
  - Strengthening railway tunnels.
  - Review the location and construction of railway stations to meet the need of railway transport.
  - Improving the telecom. system, replace the existing system by the suitable new one.
  - Study on applying semi autoblocking system on HANOI-HUE city railway line, and auto blocking system on Hanoi-Vinh section.
  - Study on investment plan and select the optimal investment for obtaining the good economical effect on this railway line.

6. GENERAL PLAN OF EXECUTION:

6.1- General view point:

This is a strategic project for strengthening and improving Hanoi-HUE Railway and the whole network of VNR.

6.2 Scope of Study:

Study all aspects of infrastructure of Hanoi-HUE railway and make exact determination, best invest plan for each item of project.

6.3- Schedule of Study: 9 months

Schedule(...th month)	1	2	3	4	5	6	7	8	9
Work to be done									
Survey, make plan for upgrading Bridge		_____							
" " Track		_____							
" " Tunnel		_____							
" " Telecom		_____							
" " Invest		_____							

20 set of official report will be sent to VNR (each set consists of 1 English version and 1 Vietnamese version), they will be submitted to Vietnamese relevant authorities

7. SOURCE OF FUNDS

7.1 Foreignshare      USD 1,500,000

7.2 VN Government share      100,000 USD

PROPOSAL FOR TECHNICAL COOPERATION

1-Project title: Feasibility Study on Upgrading the Hanoi - Ho Chi Minh railway line to speed up the Passenger express trains to average speed of 70 Km/h in the year of 2000.

2-Location: Vietnam Railway Headoffice, 118 Le Duan Str. Hanoi and Hanoi Ho Chi Minh city railway.

3-Project Executor: Vietnam Railways.

4-Project Objective:

-Study on Hanoi-HCM Railway infrastructure upgrading consists of  
-Study on track upgrading, with attention to sleepers and fastening, and also to rail welding, in the aim of speed up to  $V_{max}$  = 100-120 Km/h in the year of 2000.

-Study on bridge evaluation, make investment plan for replacing girders and upgrading bridges to obtain  $V_{min}$  = 75-80 Km/h for passenger express trains on bridges.

-Strengthening railway tunnel.

-Review the location and construction of railway stations to meet the need of railway transport.

-Modernisation of telecommunication, replace existing telecom. system by the suitable new one.

-Study on applying semi autoblocking system on Hanoi-Ho Chi Minh city railway and applying auto blocking system on Hanoi-Vinh section.

-Study on investment plan and select the optimal investment to obtain the good economical effect on this railway line.

5-Project description:

The Hanoi-Ho Chi Minh Railway line is the most important line of VNR network. Generally, on view point of combustible economization of ecology..., the transport by rail has its superiority over other transport model, for that VNR can take its worthy part in competition of the market regulated by government. VNR needs the considerable investment of Government and financing assistance of foreign countries. This study consists of upgrading track, bridges, tunnel, renovate telecom. and signalling systems, in which we can determine the poor technical conditions of this railway, and the necessary investment from Government in view of the safety traffic for trains with average speed 70 km/h in the year of 2000.

6. Scale of aids required:

a- Technical Assistants:	USD 600,000.
b- Training of staff :	" 150,000.
c- Equipment :	" 750,000.
Total	1 500 000 USD

7- Other matter relating to the Project:

The required cost mentioned in item 6. is covered by foreign technical aids. Beside it, in order to execute this project, VRR have to require the Government investment of 100 000 USD, apart from that, VRR have to provide technical counterparts, relevant document, facilities and equipment at its own cost which is estimated about USD 500 000. Therefore, the total cost of the project is about 2.100.000USD (two million one hundred thousand US dollars).

附属資料 2. Scope of Work

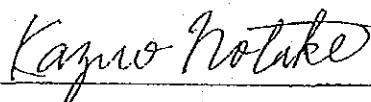
SCOPE OF WORK  
FOR  
THE FEASIBILITY STUDY ON THE REHABILITATION AND IMPROVEMENT  
OF THE RAILWAY IN VIET NAM  
AGREED UPON BETWEEN  
MINISTRY OF TRANSPORT AND COMMUNICATIONS  
AND  
JAPAN INTERNATIONAL COOPERATION AGENCY

HANOI, JULY 12, 1993



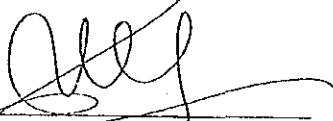
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DR. LE NHAT TIEN  
DEPUTY GENERAL DIRECTOR  
INTERNATIONAL RELATIONS DEPARTMENT,  
MINISTRY OF TRANSPORT AND COMMUNICATIONS



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MR. KAZUO NOTAKE  
LEADER  
PREPARATORY STUDY TEAM  
JAPAN INTERNATIONAL  
COOPERATION AGENCY



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DR. DUONG DUC UNG  
GENERAL DIRECTOR  
ECONOMIC AND FOREIGN RELATIONS DEP.,  
STATE PLANNING COMMITTEE



## I . INTRODUCTION

In response to the request of the Government of the Socialist Republic of Viet Nam (hereinafter referred to as "Viet Nam"), the Government of Japan has decided to conduct the Feasibility Study on the Rehabilitation and Improvement of the Railway in Viet Nam (hereinafter referred to as "the Study") in accordance with the relevant laws and regulations in force in Japan.

Accordingly, the Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of technical cooperation programs of the Government of Japan, will undertake the Study in close cooperation with the authorities concerned of Viet Nam.

The present document sets forth the scope of work with regard to the Study.

## II . OBJECTIVES OF THE STUDY

The objectives of the Study are:

- 1.To formulate a Master Plan with the target year of 2010 for rehabilitation and improvement of Hanoi - Ho Chi Minh railway line.
- 2.To carry out the feasibility study on high priority projects of Hanoi - Ho Chi Minh railway line, based on the results of the above Master Plan.
- 3.To carry out the feasibility study on high priority projects of Lao Cai - Cai Lan/Hai Phong and Hanoi - Lang Son railway lines, based on the results of the Master Plan of the transport development in the Northern part (in accordance with the agreement signed between MOTC and JICA dated March 22, 1993),

## III . SCOPE OF THE STUDY

### 1.Master Plan

#### (1) Review and Field Survey

- ① to collect and review of available information, reports and plans relevant to the Study;
- ② to study the traffic condition; and
- ③ to study and analyze the present railway situation of the following.



- a) management
  - b) train operation
  - c) civil engineering facilities
  - d) electric facilities
  - e) rolling stock and workshop
  - f) maintenance
- (2) Analysis and Forecast
- ① to study the socio-economic aspects;
  - ② to forecast the total traffic demand for the period up to the year 2010;
  - ③ to forecast modal split of the total traffic demand; and
  - ④ to forecast the railway demand
- (3) Formulation of a Master Plan for rehabilitation and improvement
- ① to prepare the rehabilitation and improvement plan in the following fields;
    - a) train operation
    - b) civil engineering facilities
    - c) electric facilities
    - d) rolling stock and workshop
    - e) maintenance
  - ② to conduct an initial environmental examination
  - ③ to estimate preliminary cost ;
  - ④ to prepare an implementation plan;
  - ⑤ to conduct a preliminary economic and financial evaluation;
  - ⑥ to select priority projects; and
  - ⑦ to recommend management and operation systems
2. Feasibility Study on high priority projects
- (1) Supplementary demand forecast
  - (2) Natural condition survey
  - (3) Formulation of a rehabilitation and improvement plan
  - (4) Conduct of a environmental impact assessment
  - (5) Preparation of preliminary engineering design
  - (6) Cost Estimates
  - (7) Formulation of an implementation plan
  - (8) Economic and Financial Analysis
  - (9) Project evaluation and recommendation

#### IV . STUDY SCHEDULE

The Study will be carried out in accordance with the attached tentative schedule (Appendix).

## V . REPORTS

JICA shall prepare and submit the following reports to Viet Nam.

### 1. INCEPTION REPORT

Thirty(30) copies in English at the beginning of the study in viet Nam.

### 2. PROGRESS REPORT

Thirty(30) copies in English within 4 months after the beginning of the Study.

### 3. INTERIM REPORT

Thirty(30) copies in English within 10 months after the beginning of the Study.

### 4. DRAFT FINAL REPORT

Thirty(30) copies in English within 14 months after the beginning of the Study.

### 6. FINAL REPORT

Fifty(50) copies in English within two months after the receipt of the written comments on the Draft Final Report from Viet Nam.

## VI . UNDERTAKING OF THE GOVERNMENT OF VIET NAM

1. The Government of Viet Nam Shall facilitate the carrying out of the Study in accordance with the prevailing laws and regulations stipulated by the Vietnamese State, as follows:

- (1) to secure the safety of the Japanese study team;
- (2) to permit the members of the Japanese study team to enter, leave and stay in Viet Nam for the duration of their assignment therein, and exempt them from foreign registration requirements and consular fees;
- (3) to exempt the members of the Japanese study team from taxes, duties, fees and other charges on equipment, machinery and other materials brought into Viet Nam for the conduct of the Study;
- (4) to exempt the members of the Japanese study team from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the Japanese study team for their services in connection with the implementation of the Study;
- (5) to provide necessary facilities to the Japanese study team for remittance as well as utilization of the funds introduced into



Viet Nam from Japan in connection with the implementation of the Study.

- (6) to obtain permission for entry into special area for the purpose of implementing the Study;
- (7) to secure permission which is considered and issued by the relevant authorities for the Japanese study team to take out all data and documents including maps and photographs related to the Study out of Viet Nam to Japan; and
- (8) to provide medical services as needed. Its expenses will be chargeable on the members of the Japanese study team.

2. The Government of Viet Nam shall bear claims, if any arises, against the members of the Japanese study team resulting from, occurring in the course of , or otherwise connected with, the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or willfull misconduct on the part of the members of the Japanese study team.

3. Ministry of Transport and Communications shall act as a counterpart agency to the Japanese study team and also as a coordinating body in relation with other governmental and non-governmental organizations concerned for the smooth implementation of the Study.

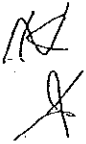
4. Ministry of Transport and Communications shall, at its own expense, provide the Japanese study team with the followings, in cooperation with other organization concerned:

- (1) available data and information related to the Study;
- (2) counterpart personnel;
- (3) suitable office space with necessary equipment in Hanoi, Da Nang and Ho Chi Minh; and
- (4) credentials or identification cards.

#### VII . UNDERTAKING OF JICA

For the implementation of the Study, JICA shall take the following measures:

1. to dispatch, at its own expense, the study team to Viet Nam; and
2. to pursue technology transfer to the Viet Nam counterpart personnel in the course of the Study.



VIII . OTHERS

JICA and Ministry of Transport and Communications, shall consult with each other in respect of any matter that may arise from or in connection with the Study.

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*Ueda*  
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TENTATIVE SCHEDULE OF THE STUDY

Appendix 1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Work in Viet Nam		■	■	■				■	■	■		■	■			
Work in Japan																■
Reports		▲ IC/R		▲ P/R						▲ IL/R				▲ DF/R		▲ F/R

*Handwritten signature*


- IC/R : Inception Report
- P/R : Progress Report
- IT/R : Interim Report
- DF/R : Draft Final Report
- F/R : Final Report

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附属資料 3. Minutes of Meetings

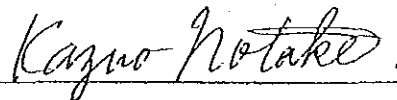
MINUTES OF MEETING  
ON  
THE SCOPE OF WORK  
FOR  
THE FEASIBILITY STUDY ON THE REHABILITATION AND IMPROVEMENT  
OF THE RAILWAY IN VIET NAM  
BETWEEN  
MINISTRY OF TRANSPORT AND COMMUNICATIONS  
AND  
JAPAN INTERNATIONAL COOPERATION AGENCY

HANOI, JULY 12, 1993



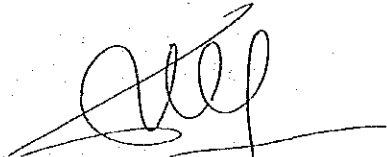
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ECONOMIC AND FOREIGN RELATIONS DEP.  
STATE PLANNING COMMITTEE

MINUTES OF MEETING

The Japanese Preparatory Study Team organized by Japan International Cooperation Agency, headed by Mr. Kazuo Notake visited the Socialist Republic of Viet Nam from June 30th to July 12th, 1993 for the purpose of discussing the Scope of Work for "The Feasibility Study on the Rehabilitation and Improvement of the Railway in Viet Nam" ( hereinafter referred to as "the Study").

The Japanese Preparatory Study Team exchanged views and had a series of discussions with representatives of the Ministry of Transport and Communications (MOTC), Viet Nam National Railways (VNR), Transport Engineering Design Institute (TEDI), Transport Economic Science Institute (TESI) and State Planning Committee (SPC). A list of the participants appears in Attachment I.

Through these discussions, both sides have completed the Scope of Work for the Study.

As a result, both sides confirmed the following points :

1. The Japanese side requested that the Vietnamese side should organize a Steering Committee among the Departments and Authorities concerned (SPC, MOTC, VNR, TEDI, TESI, etc) for the smooth implementation of the Study and provide counterpart personnel to each fields of the Japanese Study Team by coordinating of MOTC, the Vietnamese side agreed to the request.
2. The Vietnamese side requested that the Vietnamese counterpart personnel take advantage of training in Japan related to the Study to promote an effective technology transfer. The Japanese side promised to convey this request to JICA Headquarter in Tokyo.





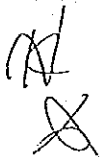
## Attendance List

Japanese sideJapanese Preparatory Study Team

Mr. Kazuo Notake	Leader	Director, Environment Office, Facilities Division, Railway Bureau Ministry of Transport
Mr. Tosio Ikari	Design of Railway Facilities	Deputy Director, Technology Department Office, Engineering Planning Division, Railway Bureau, Ministry of Transport
Mr. Masayuki Tsuji	Railway Planning	Special Assistant, General Affairs Div. Railway Bureau, Ministry of Transport
Mr. Yoshio Shimizu	Railway Facilities/ Environment Study	Toko Engineering Consultants Inc.
Mr. Fumio Ishikawa	Study Planning	First Social Development Study Div., Social Development Study Dept., Japan International Cooperation Agency


Embassy of Japan

Mr. Takahiro Sasaki Second Secretary



Vietnamese side

State Planning Committee

Mr. Duong Duc Ung            General Director  
Economic and Foreign Relations Department

Mr. Nguyen Ngoc Nhat        Director  
Transport and Communication Department

Mr. Cao Xuan Truong        Expert  
Transport and Communication Department

Ministry of Transport and Communications

Mr. Phan Van Danh          General Director  
International Relations Department

Mr. Le Nhat Tien            Deputy General Director  
International Relations Department

Mr. Nguyen Duy Son         Director  
Department of Science and Technology

Mr. Tran Doan Tho          Deputy Director  
Planning and Investment Department

Mr. Tran Phi Thuong        Project Officer  
International Relations Department

Ms. Tran Thi Minh Phuong   Interpreter  
International Relations Department

Mr. Nguyen Van Siem        Expert  
Department of Science and Technology

Viet Nam National Railway

Mr. Nguyen Trong Bach      Deputy General Director

Mr. Nguyen Ngoc Truy       Director  
Viet Nam Railway Research and Design Institute

Mr. Phung Ba Hung          Expert  
Viet Nam Railway Research and Design Institute

Mr. Nguyen Cuong Tung      Expert  
International Cooperation Bureau

Transport Engineering Design Institute

Mr. Nguyen Van Luong       Vice Director General

Mr. Trinh Phuc Loi          Director  
Railway Survey Design and Construction Enterprise


Mr. Le Toan Thanh          Manager  
International Cooperation Section

Mr. Nguyen Quang Trung     Assistant Manager  
International Cooperation Section

Mr. Nguyen Tat Vinh         Railway Engineer  
Railway Survey Design and Construction Enterprise

Transport Economic Science Institute

Mr. Nguyen Dinh Dang       Deputy Director

  
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QUESTIONNAIRE

JAPANESE PREPARATORY STUDY TEAM  
THE FEASIBILITY STUDY ON THE REHABILITATION  
AND IMPROVEMENT OF THE RAILWAY IN VIET NAM  
IN  
THE SOCIALIST REPUBLIC OF VIET NAM  
June, 1993

VIET NAM NATIONAL RAILWAYS

1. QUESTIONNAIRE

JAPANESE PREPARATORY STUDY TEAM

THE MASTER PLAN STUDY

ON

THE TRANSPORT DEVELOPMENT  
IN THE NORTHERN PART

IN

THE SOCIALIST REPUBLIC OF VIET NAM

March, 1993

VIETNAM NATIONAL RAILWAYS

No	ITEM OF NECESSARY DATA	AVAILABILITY		NAME OF MATERIALS
		AVAILABILITY	PLACE OF DATA AVAILABLE	
1	1. Nationwide regional socio-economic data	+	TESI	
2	Organization chart of the Government	+	MOTC, TESI	
3	Organization chart, function and responsibilities of Ministry transport	+		
4	Government budget allocation	+	SPC	
5	Development strategy (1990-2000)	+	SPC	
6	5 years development plan (1990-1995)	+	SPC	
	Other development plans	+		
	a) Economic development plans	+	SPC	
	b) Transport development plans	+	MOTC	
	c) Industrial / free zone development plans	+	MOC and MOI	
	d) Agricultural development plans	+	MOAFI	
	e) Tourism development plans	+	MOT	
	f) Housing development plans	+	MOC	
7	Long term forecast of socio-economic indicators	*		
8	National statistical data	+	central statistic department + TESI	

No	ITEM OF NECESSARY DATA	AVAILABILITY		NAME OF MATERIALS
		AVAILABILITY	PLACE OF DATA AVAILABLE	
9	2. Transport data (1) General data Transport sector development plan (-2000)	+	TESI	
10	General view report of railway sector in the northern part (world bank)	+	VNR + TESI	
11	Report for rehabilitation and construction of port (world bank)	+	VN MARINE	
12	Basic study report for dredging of Hai Phong port (UNDP)	+	TEDI	
13	Master plan report of air transport sector development (UNDP)	+	VN AIRLINE	
14	Feasibility study report for Noi Bai airport improvement plan (UNDP)	+	VN AIRLINE	
15	List of consultants (road, railway, port)	+	TESI	
16	(2) road (bridge) Planning, construction and managing organization	+	MOTC	
17	National road network map including future road net work plan	+	TESI	
18	Inventory of facilities (Pavement/bridge type, dimension, land width, and existing condition)	+	TEDI	
19	Road(bridge) structure standard	+	TESI	
20	Road(bridge) construction budget (for last 10 year)	+	MOTC	
21	Road(bridge) maintenance budget (for last 10 year)	+	MOTC	
22	Road(bridge) construction /improvement plan	+	MOTC	
23	Typical road(bridge) construction cost	X		
24	Traffic volume	+	TESI	
25	Number of vehicle by type	+	TESI	
25b	Construction machine type, number	+	MOC + MOT C	
25c	TCVN 4054 - 85 Highway. Design standard	+	TESI	

No	ITEM OF NECESSARY DATA	AVAILABILITY		NAME OF MATERIALS
		AVAILABILITY	PLACE OF DATA AVAILABLE	
	(3). Railway			
26	Planning, construction and managing organization	O	VNR	
27	National railway network map	+	TESI	
28	Existing condition of facilities (railway, platform, bridge, train, locomotive, operating system, signal maintenance factory etc.)	O, +	VNR	
29	Track layout of lines including passing track	+	VNR	
30	Operation accident (number, their cause, etc)	O	VNR	
31	List of decrepit structures and their age	X		
32	Tariff structure (passenger, freight)	O	TESI	
33	Railway facility structure standard	+	VNR	
34	Railway transport construction budget (for 85-92)	O	VNR	
35	Railway transport maintenance budget (for 85-92)	O	VNR	
36	Railway transport construction/improvement plan (investment program)	O	MOTC	
37	Typical railway facility construction cost	O	VNR	
38	Traffic volume (passenger, freight 85-92)	O	TESI	
38a	TCVN 4117-85 Railway gauge 1435. Disign standard (4). Port and inland waterway	+	TESI	
39	Managing organization (organization chart, number of workers in port and on merchant fleet)	+	MR	
40	Land transport Modal split of major cargo items (coal, timber, grain, etc.)	+		
41	Existing condition of facilities (quaywalls, cranes, sheds, navigational aids, access, etc.)	+	MR, Ports MR	

No	ITEM OF NECESSARY DATA	AVAILABILITY		NAME OF MATERIALS
		AVAILABILITY	PLACE OF DATA AVAILABLE	
42	Tariff structure	+	MR, Ports	
43	Inland waterway network	+	TESI	
44	Port facility structure standard	X		
45	Port and inland waterway construction budget (for last 10 year)	+	MOTC	
46	Port and inland waterway maintenance budget (for last 10 year)	+	MOTC	
47	Port and inland waterway construction/improvement plan	+	MOTC	
48	Typical port facility construction cost	X		
49	Cargo through-put of ports (cargo volume by items, number of calling by ship size)	+	Ports	
50	Land access traffic volume to ports	+	Ports	
51	Present condition of the Vietnamese merchant fleet and its future development plan (including small boats engaged in inland waterway transportation)	+	MR, local ports	



No	ITEM OF NECESSARY DATA	AVAILABILITY		NAME OF MATERIALS					
		AVAILABILITY	PLACE OF DATA AVAILABLE						
52	3. Natural condition of 17 provinces, Hai Phong and Cai Lan								
	provinces/place	1	2	3	4	5	6	7	
1	Ha Noi	+	+	X	+	+	+	+	1. Topographic map
2	Hai Phong	+	+	X	+	+	+	+	2. Aerephoto
3	Cao Bang	+	X	X	+	+	+	+	3. Topographic condition
4	Ha Giang	+	X	X	+	+	+	+	4. Heteographic condition
5	Tuyen Quang	+	X	X	+	+	+	+	5. Hydrographic condition
6	Lang Son	+	X	X	+	+	+	+	6. Geological condition
7	Lai Chau	+	X	X	+	+	+	+	7. Earthquake data
8	Lao Cai	+	X	X	+	+	+	+	O : Available
9	Yen bai	+	X	X	+	+	+	+	X : Not available
10	Bac Thai	+	+	X	+	+	+	+	+: Available but after bying or up - dating it
11	Son La	+	X	X	+	+	+	+	
12	Vinh Phu	+	+	X	+	+	+	+	
13	Ha Bac	+	+	X	+	+	+	+	
14	Quang Ninh	+	+	X	+	+	+	+	
15	Ha Tay	+	+	X	+	+	+	+	
16	Hoa Binh	+	+	X	+	+	+	+	
17	Hai Hung	+	+	X	+	+	+	+	
18	Thai Binh	+	+	X	+	+	+	+	
19	Nam Ha	+	+	X	+	+	+	+	
20	Ninh Binh	+	+	X	+	+	+	+	
21	Thanh Hoa	+	X	X	+	+	+	+	
22	Hai Phong port	+	X	X	+	+	+	+	
23	Cai Lan port	+	X	X	+	+	+	+	

No	ITEM OF NECESSARY DATA DATA AVAILABLE MATERIALS	AVAILABILITY		NAME OF
		AVAILABILITY	PLACE OF	
	4. Environmental data			
53	Planing and managing organization	+	MOTE	
54	Laws relevant to environmental issues (name and rough description)	+	MOTE	
55	Law/guidelines initial environmental examination	X		
56	Law/guidelines on environmental impact assessment	X		
57	Environmental quality standards	+	MOTE	
57 b	TCVN 4253 - 85 Foundation of hydraulic projects. Design standard	X		
58	Cultural prosperity or archaeological sites	X		
59	Vegetation map	+	MOTE	
60	Areas affected by soil erosion	+	MOTE	
61	Areas such as mangrove forest, wetland, tideland	+	MOTE	
62	Protected area such as national parks and natural parks	X		
63	Species of valuable animals and plants	X		
64	Distribution of important landscape or scenery for tourism or religion	X		
65	Distribution of indigenous people	X		
66	regulation on emission gas	X		
67	Regulation on effluent	X		
68	Regulation for prevention of soil contamination	X		
69	Regulation for prevention of noise and vibration	X		

Note

SPC : State planning committee  
MOC: Ministry of construction  
MOT: Ministry of trade  
MOAFI: Ministry of agriculture and food industry  
MOI: Ministry of Industry  
MOF: Ministry of Forestry  
VN MARINE: Viet Nam Marine  
VN AIR LINES: Viet Nam Air lines  
VNR: Viet Nam Railway  
MOTE: Ministry of technology and Environment

## 2. ADDITIONAL QUESTIONNAIRE

○ 持参 × ないもの  
+ ある

1. National regional socio-economic data	
1. Administrative district map	○ TEDI
2. Transport data	
(1) General data	
2. Preliminary Report on Hanoi-Ho Chi Minh . Hites(1990-2)	+ VNR
3. Preliminary Report on Hanoi-Ho Chi Minh . BCEDM(1991-4)	○ TEDI
(2) Road	
4. Traffic Volume by OD and by type of Vehicle (bus, private car, truck etc)	+ TEDI
5. Travel Time and fare/charge between major modes of road network	+ TESI
(3) Railway	
6. Train operation diagram	+ VNR
7. Location of train speed slow down, slow down speed, causes	+ VNR
8. Records of major natural disaster	+ VNR
9. Existence Railway Development Plan at Delta zone of south Vietnam	×
10. Project of connection Railway into Ho Chi Minh ~ Vung Tau	×
11. Railway Traffic OD(states to states(passenger and kinds of goods))	○ TEDI
12. Electric power supply network and capacity of supply.	+ M. O. E
(4) Air Transport	+ V. N. Airline
13. managing organization	+ "
14. traffic Volume(passenger and goods)between airports	+ "
15. location, capacity of major airport	+ "
16. Travel Time and fare/charge between major airports	+ "
17. Annual investment for construction and maintenance of airport and airplane	+ "
18. Number of air-craft by type	+ "
19. Future development plan	+ "
20. Network of air transport	+ "
(5) Coastal Shipping	
21. managing organization	+ V. Main. B.
22. traffic Volume (passenger and goods)between ports	+ "
23. Travel Time and fare/charge between major ports	+ "
24. Number of ships by kind	+ "
25. Coastal Shipping(routes/network)	+ "
3. Environmental data	×
26. Area affected by flood	+ TEDI
(6) Additional natural condition of provinces	

○ : Available  
× : Not Available  
+ : Available but after bying  
or up-dating it

No	ITEM OF NECESSARY DATA		AVAILABILITY							NAME OF MATERIALS	
			PLACE OF DATA AVAILABLE								
52	3. Natural condition of 17 provinces. Hai Phong and Cai Lan		1	2	3	4	5	6	7		
	provinces/place										
1	Thanh Hoa	+								+	1. Topographic map
2	Nghe Tinh	+	×							+	2. Aerophoto
3	Quang Binh	+	×							+	3. Topographic condition
4	Quang Tri	+	×							+	4. Meteorographic condition
5	Thua Thien Huc	+	×							+	5. Hydrographic condition
6	Quang Nam-Da Nang	+	×							+	6. Geological condition
7	Quang Ngai	+	×							+	7. Earthquake data
8	Binh Dinh	+	×							+	
9	Phu Yen	+	×							+	
10	Khanh Hoa	+	×							+	O: Available
11	Thuan hai	+	×							+	X: Not Available
12	Gia Lai-Kong Tum	+	×							+	+: Available but after bying or up-dating it
13	Dac Lac	+	×							+	
14	Lam Dong	+	×							+	
15	T. P. Ho Chi Minh	+	×							+	
16	Song Be	+	×							+	
17	Tay Ninh	+	×							+	
18	Dong Nai	+	×							+	
19	Vung Tai-Con Dao	+	×							+	
20	Long An	+	×							+	
21	Dong Thap	+	×							+	
22	An Giang	+	×							+	
23	Tien Giang	+	×							+	
24	Ben Tre	+	×							+	
25	Cuu Long	+	×							+	
26	Hau Giang	+	×							+	
27	Kien Giang	+	×							+	
28	Minh Hai	+	×							+	









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