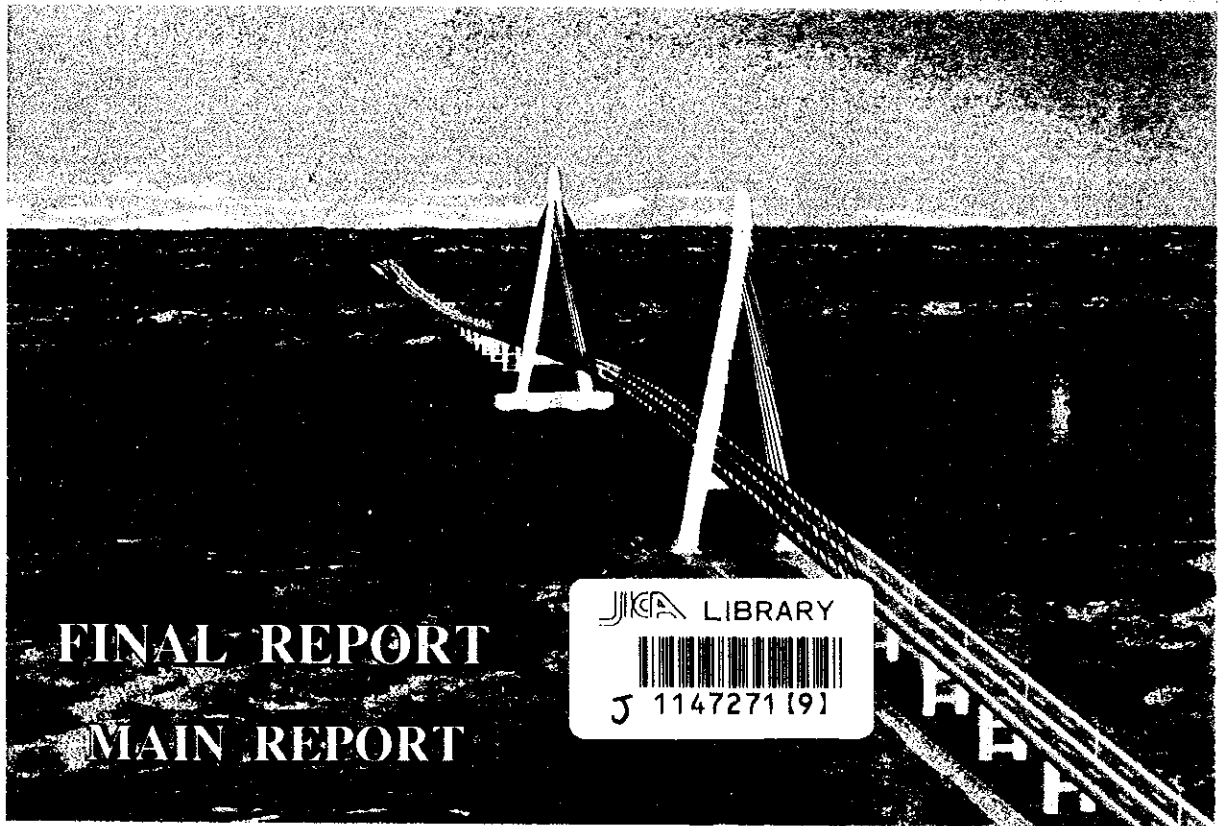


JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
MINISTRY OF TRANSPORT
SOCIALIST REPUBLIC OF VIET NAM

**THE FEASIBILITY STUDY
ON
THE CAN THO BRIDGE CONSTRUCTION
IN
SOCIALIST REPUBLIC OF VIET NAM**



**FINAL REPORT
MAIN REPORT**

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FINAL REPORT

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PREFACE

In response to a request from the Government of Viet Nam, the Government of Japan decided to conduct a feasibility study on the Can Tho Bridge Construction in the Socialist Republic of Viet Nam and entrusted to study to the Japan International Cooperation Agency.

JICA selected and dispatched a study team headed by Mr. Koji Enomoto and Mr. Katsufumi Matsuzawa of Nippon Koei Co., Ltd. and consist of Nippon Koei Co., Ltd. and PADECO Co., Ltd. to Viet Nam, three times between August 1997 and September 1998. In addition, JICA set up an advisory committee headed by Mr. Yoshinobu Hayashi, assistant auditor of Honshu - Shikoku Bridge Authority, between July 1997 and September 1998, which examined the study from specialist and technical points of view.

The team held discussions with the officials concerned of the Government of Viet Nam, and conducted field surveys at the study area. Upon returning to Japan, the team conducted further studies and prepared this final report.

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

Finally, I wish to express my sincere appreciation to the officials concerned of the Government of Viet Nam for their close cooperation extended to the study.

September 1998



Kimio Fujita

President
Japan International Cooperation Agency

September, 1998

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

Letter of Transmittal

Dear Sir:

We are pleased to submit you the report on the Feasibility Study on the Can Tho Bridge Construction in Socialist Republic of Viet Nam. The report contains the advice and suggestions of the concerned authorities of the Government of Japan and your agency as well as the comments made by the concerned authorities in Socialist Republic of Viet Nam. The report consists of a main report, an executive summary, an annexure and a drawing volume.

The feasibility study concludes that the proposed project to build a Can Tho Bridge will be technically and economically feasible and will be acceptable from the environmental aspects, and will contribute to the improvement of transportation network in Viet Nam.

We wish to take this opportunity to express our sincere gratitude to your agency, the Ministry of Foreign Affairs, the Ministry of Construction and Honshu Shikoku Bridge Authority of the Government of Japan. We also wish to express our deep gratitude to the Ministry of Transport, Project Management Unit My Thuan and other concerned agencies of the Government of Viet Nam for the close cooperation and assistance extended to us during our study. We do hope this report will contribute to the development of Viet Nam.

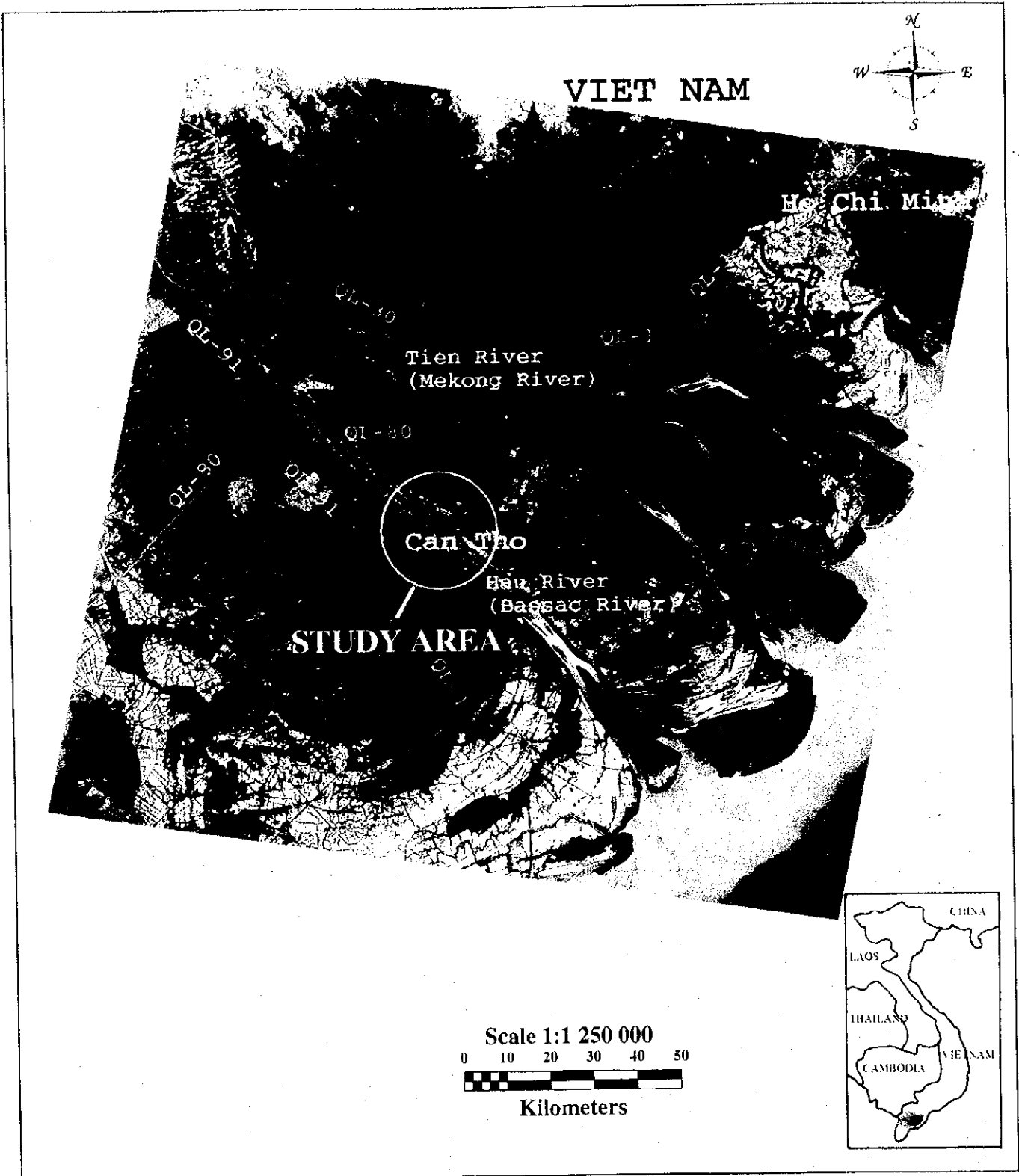
Very truly yours,

September, 1998



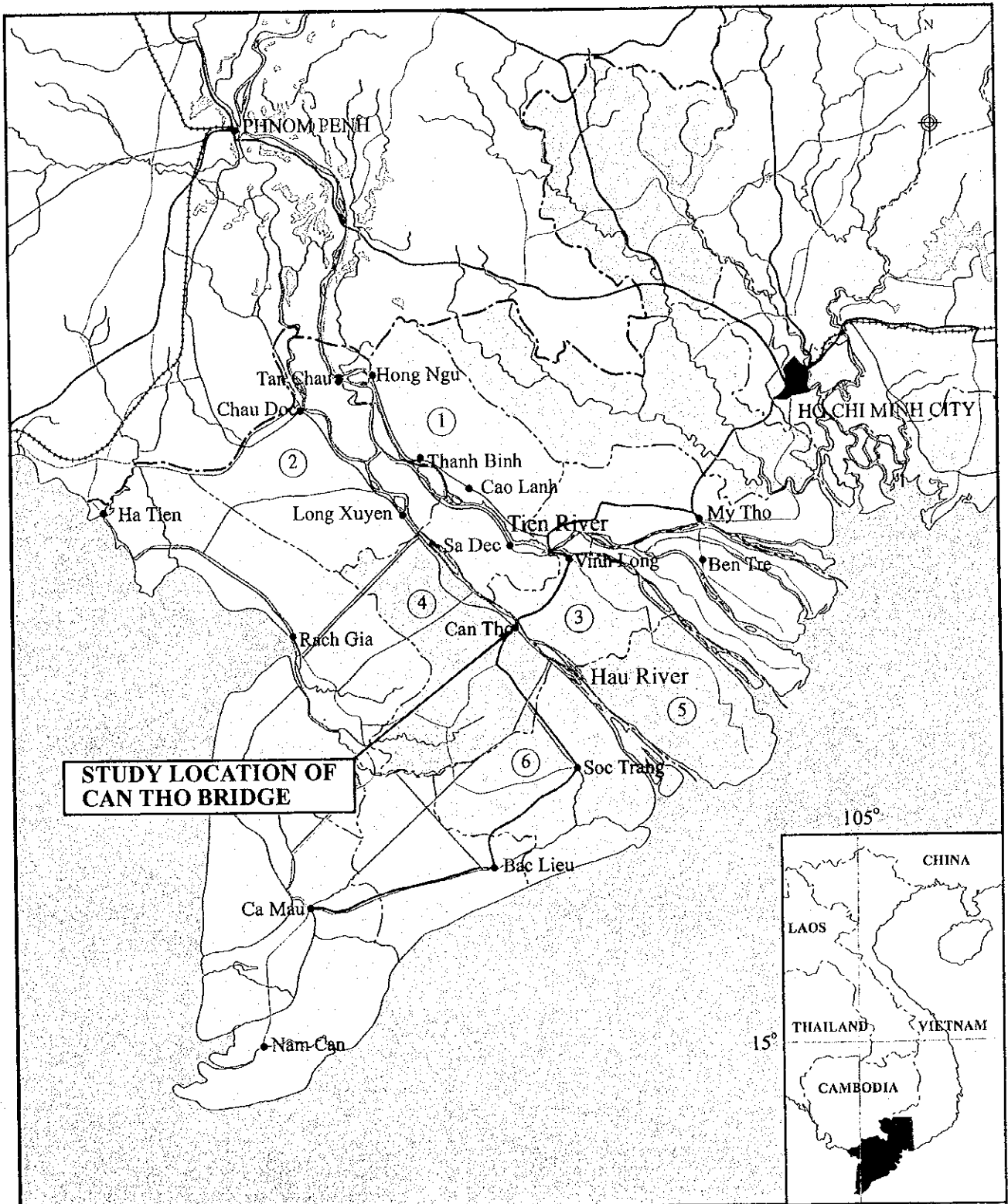
Katsufumi Matsuzawa

Team Leader
The Feasibility Study
on
the Can Tho Bridge Construction in
Socialist Republic of Viet Nam



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GENERAL LOCATION MAP



Provinces along the Hau River

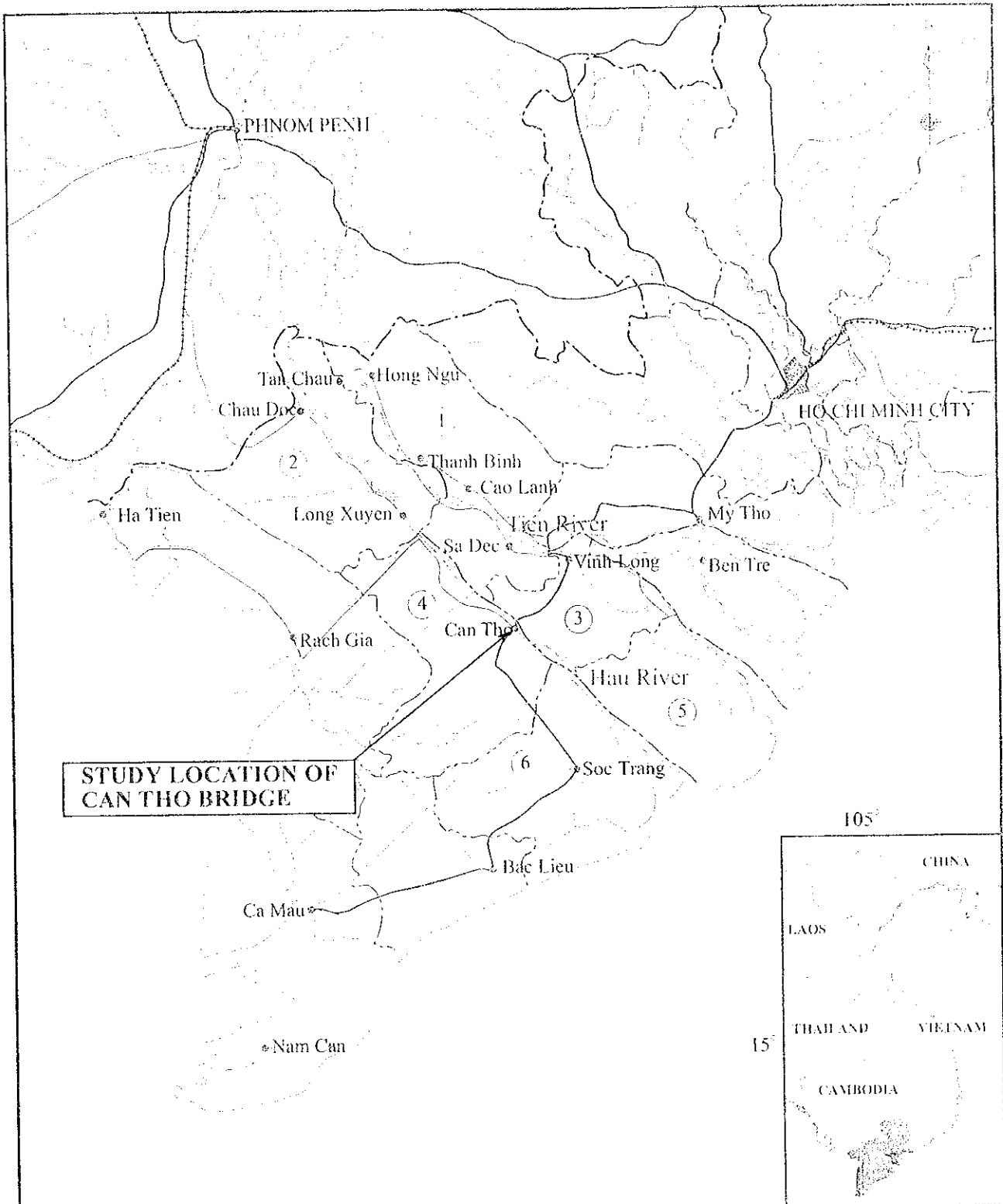
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|-------------|------------|-------------|
| ① Dong Thap | ② An Giang | ③ Vinh Long |
| ④ Can Tho | ⑤ Tra Vinh | ⑥ Soc Trang |

STUDY LOCATION



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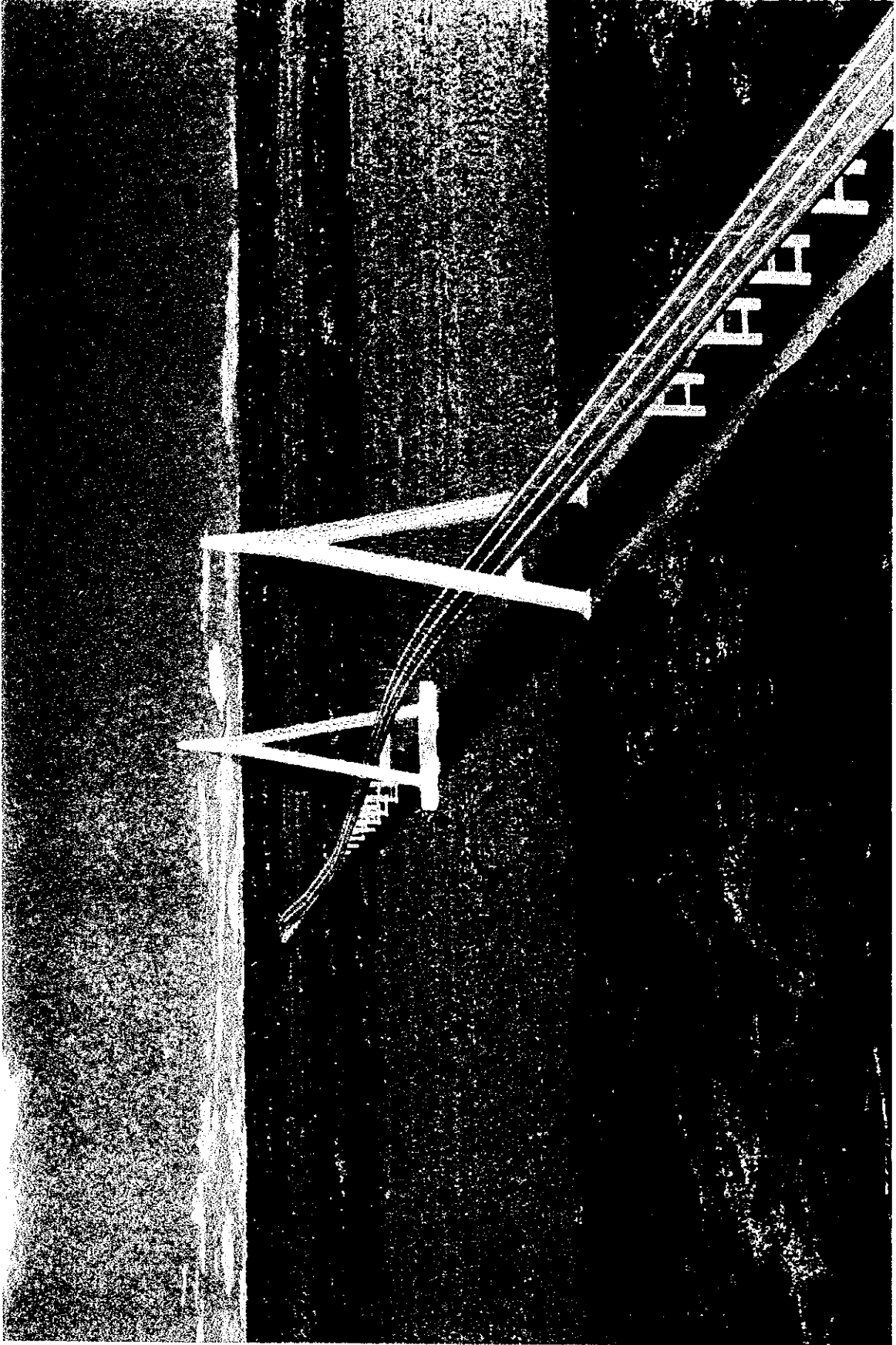
GENERAL LOCATION MAP



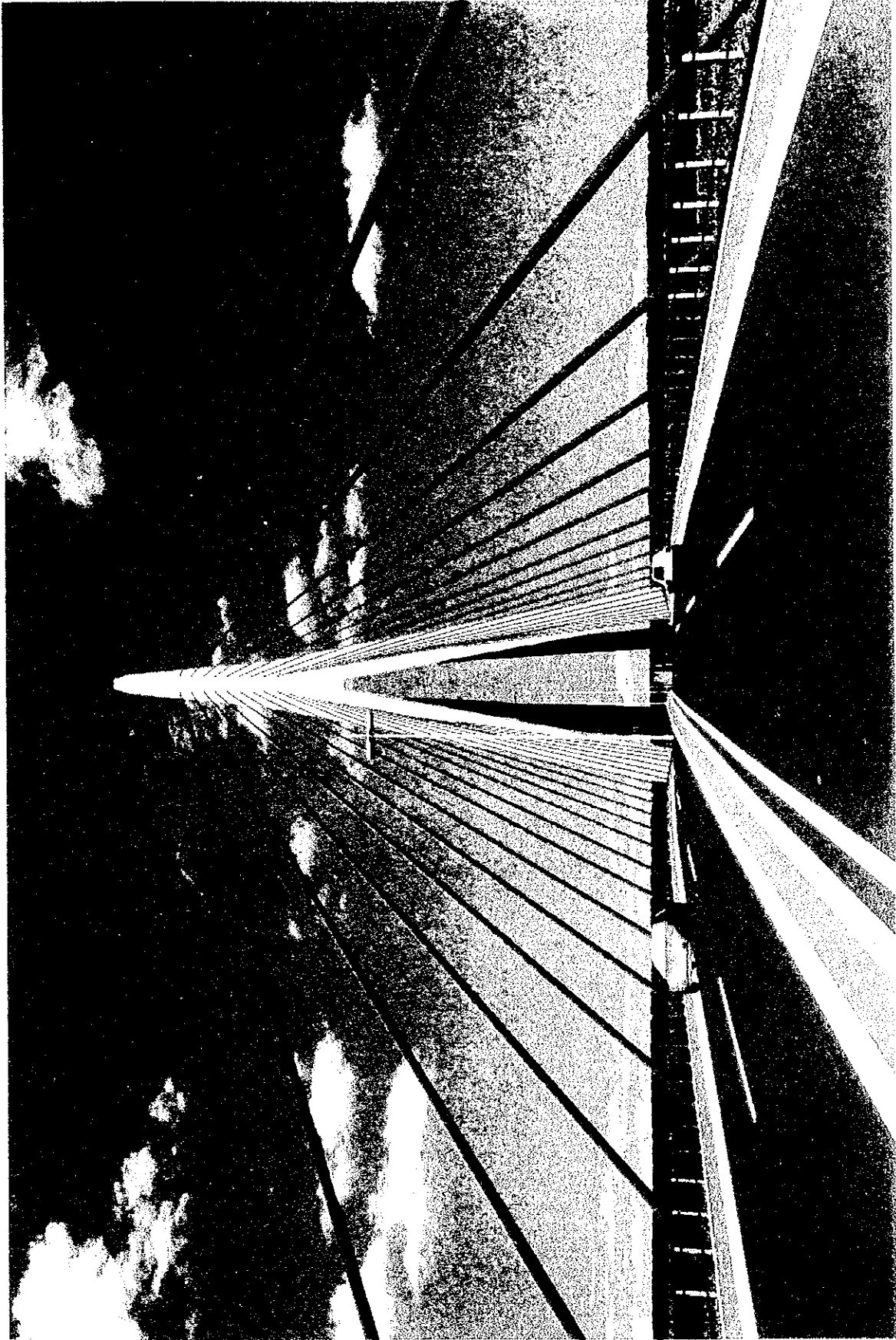
Provinces along the Hau River

- ① Dong Thap ② An Giang ③ Vinh Long
- ④ Can Tho ⑤ Tra Vinh ⑥ Soc Trang

STUDY LOCATION



PERSPECTIVE I



PERSPECTIVE II

SYNOPSIS

National Highway (N.H.) No. 1 is an arterial road running about 2,300 km through Viet Nam from the border with China in the north to Namcan in the south. The rehabilitation and improvement of N.H. No. 1 is the top priority project in the infrastructure development strategy of Viet Nam to the year 2010. Can Tho City is located 167 km southwest of Ho Chi Minh City, and it is the largest and most important city in the Mekong Delta. The Can Tho ferry, which crosses the Hau River and connects the cities of Vin Minh and Can Tho, experiences heavy traffic and is a bottleneck of N. H. No. 1. Therefore, the construction of a Can Tho Bridge is a must for improving transportation and promoting the development of the economy and society of neighboring areas and Viet Nam.

The objectives of this feasibility study were to assess the feasibility of Can Tho Bridge construction and to conduct technology transfer to Vietnamese counterparts.

The study was scheduled in two stages. In the first stage, the bridge location was studied, and in the second stage the feasibility of the project for the selected location was studied. The first stage comprised review and analysis of existing data and information, natural condition survey, traffic study, navigational condition survey, initial environmental examination, preliminary economic analysis, and selection of optimum route and bridge type. The items of the second stage were preliminary design, environmental impact assessment, construction planning and cost estimate, economic and financial analysis, preparation of implementation program, and comprehensive evaluation and recommendation.

For setting up the alternative routes, site visits and data collection were conducted at the beginning of the first stage of work in Viet Nam. Three alternative routes (called Routes A, B and C) and their several options were established, considering not only natural and environmental conditions but existing local transport plans: Route A and B entered directly into Can Tho City and Route C bypassed the central part of Can Tho City.

Planning conditions of the bridges, including high water level and design discharge, were established. In the hydrological and hydraulic survey, the flooding characteristics of the Mekong Delta, and erosion and sedimentation of the Hau River were investigated. The scouring depth was calculated as

32m and utilized to design the foundations of the main bridge. The required minimum center span length of the main bridge was determined to be approximately 600m for Route A and B, 500m for Route C. Route C has the most suitable hydrological condition for bridge location.

An Initial Environmental Examination (IEE) was conducted to clarify the impacts of each alternative route on the regional natural and socio-economic environment. The results of the examination reinforced Route C as superior to the other alternatives.

Geotechnical survey was investigated to certify the bearing stratum, especially for the design of the main bridge. Twelve bore holes were drilled and laboratory test of collected sample soil were done. As the results, the open caisson (L=90m) was adopted for the foundations of the tower of the main bridge, and cast-in-place piles (L=72m) and steel pipe piles (L=80m) were adopted for the other substructures.

Socio-economic framework and future traffic demand in consequence of traffic study were prospected. The future traffic volume was forecasted as 29,629 pcu/day in 2010 and it indicated that a four-lane facility (two lanes in each direction) will need to be designed.

Based on the above results, a preliminary economic evaluation was carried out and it showed Route C to be the most appropriate route.

Through the detailed examination of each route's conditions, an optimum route was selected among the derived options. Route C-2/3, which was located 2.9km downstream from the existing ferry line, was recommended and accepted as most suitable in terms of less compensation on land acquisition and resettlement of houses, traffic congestion in Can Tho City, and road alignment.

The required navigational (vertical) clearance under the main bridge was determined based on existing relevant data for the Mekong River, the navigable conditions of the Hau River, the characteristics of the existing and future Can Tho ports, and assessment of the case study including the dredging volume of riverbed. Navigational clearance of 39.0 m above the flood level with a 5% frequency (20-year return period) was concluded for the preliminary design at the Steering Committee Meeting held on 27 March 1998. This clearance satisfied the comments on the document sent by the

Mekong River Commission of Viet Nam on 8 April 1998, and was identified as the final design condition for the Feasibility Study in the Steering Committee Meeting held on 9 July 1998 in Hanoi.

In the second stage, the bridge was preliminarily designed based on analysis of the optimum span length, hydrodynamics, and economics. The recommended hybrid (steel and concrete) cable-stayed bridge design was accepted by the Vietnamese side.

The Environmental Impact Assessment (EIA) Study was also conducted in the latter part of second stage work in Viet Nam. The adverse impacts on the natural environment and socio-economic environment of the project area including resettlement due to land acquisition seemed to be of small scale and could be easily mitigated. However, a monitoring program was proposed to be implemented from the early stage of construction to ensure that all sources of contaminants generated by the construction sites could be appropriately controlled and managed, to minimize all adverse impacts on the existing ecosystem of the study area.

The construction planning schedule and cost estimates were developed based on the results of the preliminary design. The construction cost is estimated at 200.0 million USD consisting of bridges and approach roads, while the project cost is estimated at 239.8 million USD including costs for engineering services, administration, environmental monitoring, land acquisition, compensations and physical contingency. The tentative construction schedule is 45 months from 2001 to 2005.

The basic case for the Project has an EIRR of 13.5%. In addition to being economically viable, this case is both technically and environmentally sound. It is expected that the Project can be profitable with favorable financing conditions and government subsidies. It is recommended to select a long-term loan with generous financing conditions concerning the interest rate, grace period, repayment period, and applicable work items.

As a part of the technology transfer, a seminar and a video presentation was conducted. The seminar was conducted at the PMU My Thuan office on 21 January 1998, for the Vietnamese personnel involved in the Study. Topics of technology transfer at the seminar were, "Advanced Technology for Bridge Construction in Japan" and "Construction Methods for Deep Bridge Foundation". At a late stage, the Study Team produced a video

movie that contains the highlights of the respective activities of the Study Team as well as the study conclusion, and this video was presented on 9 July 1998 at the occasion of submission and discussion of the Draft Final Report.

In conclusion, the Study Team found that the construction of the Can Tho Bridge is technically and economically feasible under proper financing, and accordingly recommends that it should be immediately implemented.

Project Outline

1. Bridge Location : 2.9 km downstream from the existing ferry line
2. Bridges Feature
 - 1) Total Bridge Length: 2,615 m
 - Main span bridge: 1,040 m
 - Vinh Long side approach span bridge: 350 m
 - Can Tho side approach span bridge: 1,225 m*

*: inclusive 175 m of the substream bridge
 - 2) Bridge Width: 22.1 m (4-lane carriageway)
 - 3) Main Span Bridge
 - Superstructure Type: Hybrid (Steel and Prestressed Concrete) Cable-Stayed Girder
70 m+200 m+500 m+200 m+70 m = 1,040 m
 - Foundation Type: Reinforced Concrete Open Caisson
Cast-in-place RC Pile, Steel Pipe Pile
 - 4) Approach Span Bridge
 - a) Vinh Long Side
 - Superstructure Type: Prestressed Concrete Box Girder
7 @ 50.0 m = 350 m
 - Foundation Type: Cast-in-place RC Pile
 - b) Can Tho Side
 - Superstructure Type: Prestressed Concrete Box Girder
18 @ 50 m = 900 m
 - Prestressed Concrete Cantilever Box
50 m + 75 m + 50 m = 175 m
 - Prestressed Concrete Box Girder
3 @ 50 = 150 m
 - Total 1,225 m
 - Foundation: Cast-in-place RC Pile, Steel Pipe Pile

3. Approach Roads
- Total Length : 11,907 m
 - Vinh Long Side 4,990 m
 - Can Tho Side 6,917 m
4. Intersections
- 1) Vinh Long Side : Double-Y-shaped type (Grade Separation)
 - 2) Can Tho Side : T-shaped type (At-grade)
 - 3) Roundabout : Rotary type
5. Service Area : Vinh Long Side: 15,000m²
Can Tho Side: 15,000m²
6. Project Cost : 239,820.57 thousand USD
7. Economic Feasibility : EIRR = 13.5 %
8. Financial Viability : FIRR = 7.6% (Full Cost Recovery)
- * Loan Condition (Long-term):
 - interest rate: 1.8%
 - loan portion: 85% of the Project Cost
 - Toll Charge Level: at 1.5 times of Can Tho Ferry charge level
9. Construction Period : 45 months
10. EIA : Socio-economic environmental countermeasure
- Resettlement Area
 - Service Area
- Environmental countermeasure for ecosystem
- Environmental Monitoring Programs

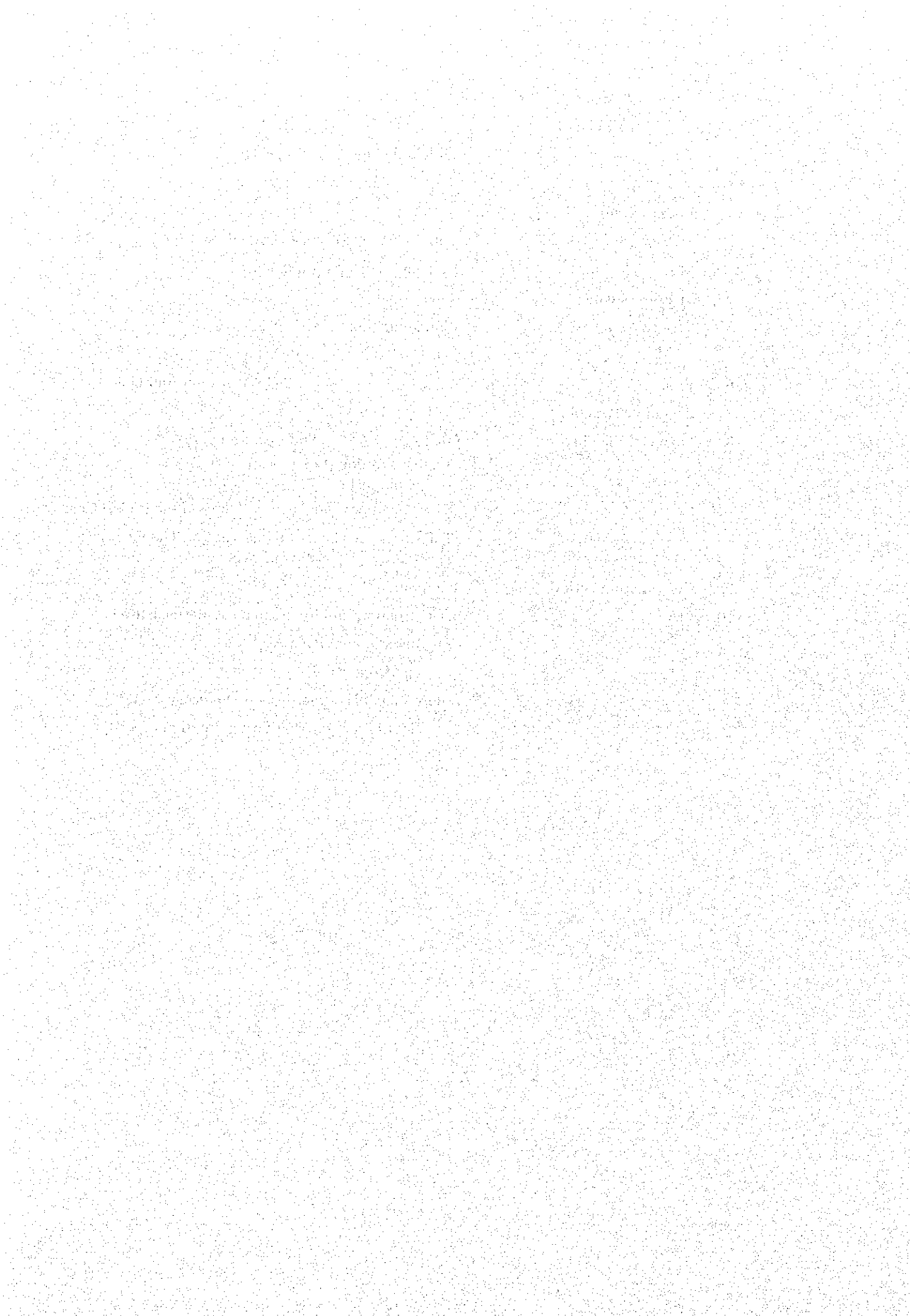


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Abbreviations and Acronyms

AASHTO	American Association of State highway and Transportation Officials
ADB	Asian Development Bank
ADT	Average Daily Traffic
B/C	Benefit Cost
BOT	Build-Operate-Transfer
CF	Cash Flow
DWT	Dead Weight Tonnage
DOSTE	Department of Science, Technology and Environment
EIA	Environmental Impact Assessment
EIRR	Economic Internal Rate of Return
E.L.	Elevation
EPZ	Export Processing Zone
FDI	Foreign Direct Investment
Fig.	Figure
fc'	Specified Concrete Design Strength
fp _{yk}	Yield Point Stress of Prestressing Cable
fp _{uk}	Ultimate Stress of Prestressing Cable
GD	Government Decree
GDP	Gross Domestic Product
GDRP	Gross Domestic Regional Product
GIS	Geographic Information System
GPS	Global Positioning System
GMS	Greater Mekong Subregion
HCMC	Ho Chi Minh City
HWL	High Water Level
IBRD	International Bank for Reconstruction and Development
IEE	Initial Environmental Examination
IP	Industrial Park
JICA	Japan International Cooperation Agency
LEP	Law on Environmental Protection
LL	Liquid Limit
LLW	Lowest Low Water
LWL	Low Water Level
MDMP	Mekong Delta Master Plan
MOC	Ministry of Construction
MOSTE	Ministry of Science, Technology and Environment
MOT	Ministry of Transport
MPI	Ministry of Planning and Investment
MRCS	Mekong River Commission Secretariat
MSL	Mean Sea Level
NEA	National Environment Agency
NGO	Non-Government Organization
N.H.	National Highway
NMV	Non-Motorized Vehicle

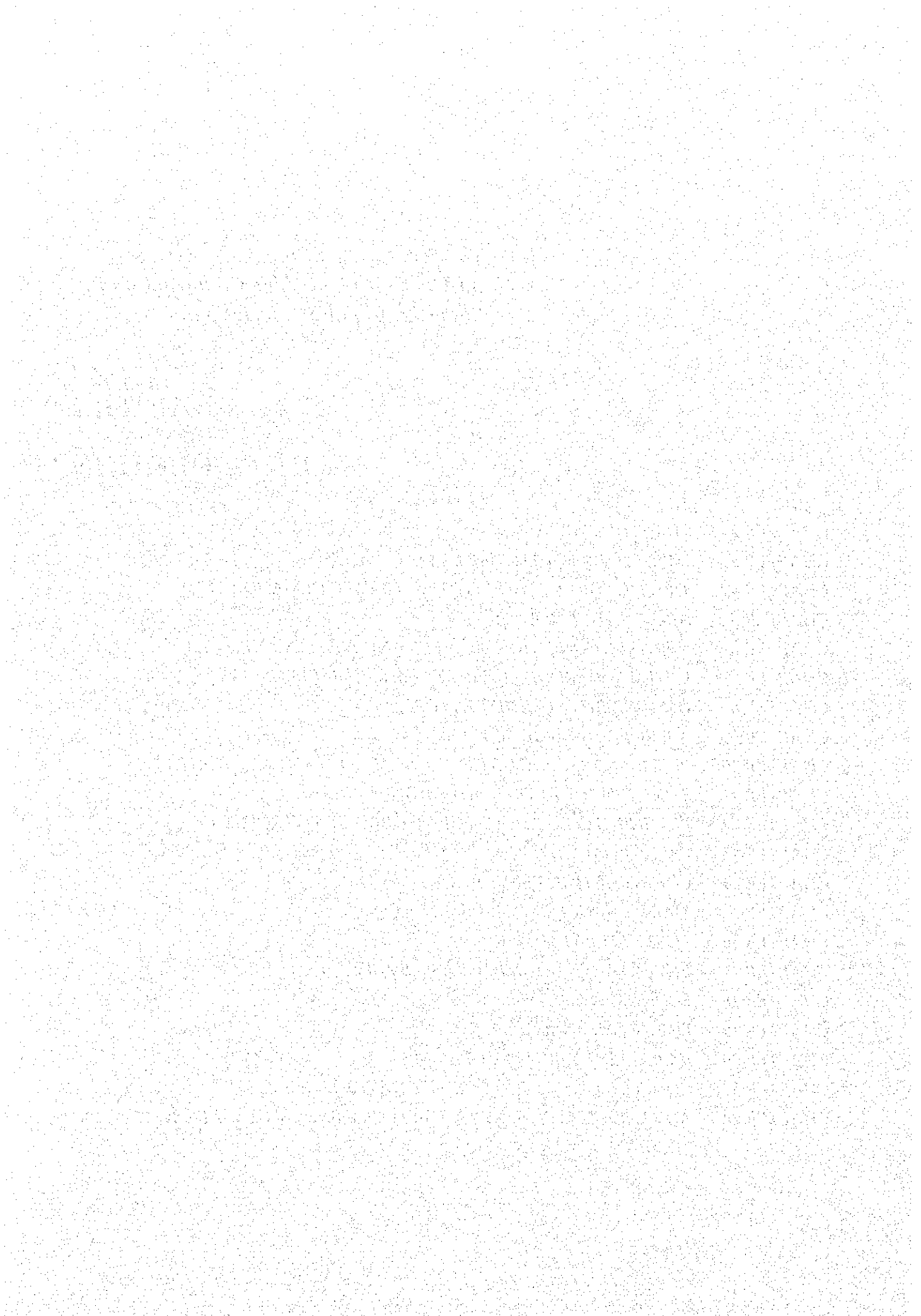
NPV	Net Present Value
NRPE	National Research Program on the Environment
OD	Origin-Destination
OECF	Overseas Economic Cooperation Fund of Japan
PAC	Project Appraisal Council
PC	Prestressed Concrete
PI	Plastic Index
PL	Plastic Limit
PMU	Planning Management Unit
PPC	Province People's Committee
p.a.	Per Annum
RAP	Project-Affected-People
RITST	Research Institute for Transportation Science & Technology
ROI	Return on Investment
R.O.W.	Right of Way
SCCI	State Committee for Cooperation and Investment
SCPA	State Council of Project Appraisal
SOSTE	Services of Science, Technology and Environment
SPC	State Planning Committee
TEDI	Transport Engineering Design Incorporation
TDSI	Transport Development Research Center
TOR	Terms of Reference
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
UNICEF	United Nations Children Funds
WB	World Bank
WHO	World Health Organization
WWF	World Wide Fund for Nature

*The Feasibility Study
on The Can Tho Bridge Construction in
Socialist Republic of Viet Nam*

CHAPTER 1

INTRODUCTION

CHAPTER 2	THE STUDY AREA
CHAPTER 3	IMPLICATION OF FUTURE DEVELOPMENT
CHAPTER 4	TRAFFIC SURVEYS AND FUTURE TRAFFIC DEMAND
CHAPTER 5	ALTERNATIVE ROUTES
CHAPTER 6	NATURAL CONDITION SURVEYS AND ASSESSMENT
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CHAPTER 8	DESIGN CRITERIA AND STANDARDS
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CHAPTER 10	PRELIMINARY EVALUATION FOR THE ALTERNATIVE ROUTES
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CHAPTER 1 INTRODUCTION

1.1 Background

National Highway (hereafter N.H.) No. 1 is an arterial road running approximately 2,300 km through Viet Nam from the north at the border with China to Namcan in the south. The rehabilitation and improvement of N.H. No. 1 is the top priority project in the infrastructure development strategy of Viet Nam to the year 2010. At present, the WB and ADB are providing funds to this road for both rehabilitation and improvement projects and OECF is providing funds for both bridge improvement and reconstruction projects. There still remain two unsolved large river-crossings in the southern section of N.H. No. 1, i.e. the My Thuan bridge crossing the Tien River and the Can Tho bridge crossing the Hau River. The My Thuan bridge construction was commenced in the middle of 1997, funded mainly by grant aid from Australia.

For the realization of a continuous N.H. No. 1 before 2010 as outlined in the Transport Development Strategy and to meet the transport demand for promoting socio-economic development in the Mekong Delta and Indochina, it is necessary to conduct a Feasibility Study on the Can Tho Bridge. Consequently, the Government of the Socialist Republic of Viet Nam (hereinafter referred to as "the Government of Viet Nam") made a request for the Feasibility Study on the Can Tho Bridge in December, 1996.

In response to the request by the Government of Viet Nam, the Government of Japan decided to implement the Feasibility Study on the Can Tho Bridge Construction in the Socialist Republic of 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 implementation of technical cooperation programs of the Government of Japan, will undertake the Study, in close cooperation with the relevant authorities of the Government of Viet Nam. The Project Management Unit My Thuan of the Ministry of Transport (hereinafter referred to as "MOT") has acted as the counterpart agency to the Japanese Study Team (hereinafter referred to as "the Team") and has also acted as the coordinating body with other relevant organizations for the smooth implementation of the Study on behalf of the

Ministry of Transport of the Socialist Republic of Viet Nam.

1.2 Objectives of the Study

The objectives of the Study are:

- 1) To conduct the Feasibility Study of the Project for the Can Tho Bridge construction including its approaches for a study appraisal period up to the year 2010.
- 2) To conduct technology transfer to the Viet Nam Government counterparts through the Feasibility Study.

1.3 Scope of the Study

The work on the Feasibility Study has been phased into four stages in Japan (including preparatory work), and three stages in Viet Nam as per the following scope of work. Fig. 1.1 shows the workflow of the studies.

I. 1st Year (1997 Fiscal Year)

[1] Preparatory Work in Japan

- (1) Collection and Analysis of the Relevant Data
- (2) Study Policy, Methodology, Work Schedule, etc.
- (3) Preparation of the Inception Report

[2] 1st Stage Work in Viet Nam

- (1) Submission and Discussion of the Inception Report
- (2) Review of the Existing Relevant Data
- (3) Collection and Analysis of the Relevant Data
- (4) Traffic Survey and Analysis
- (5) Forecast of Future Traffic Demand
- (6) Setting up of Alternative Routes
- (7) Natural Condition Surveys
- (8) Initial Environmental Examination (IEE)
- (9) Setting up of the Design Criteria
- (10) Preparation of the Progress Report (I)
- (11) Submission and Discussion of the Progress Report (I)

[3] 1st Stage Work in Japan

- (1) A study on Alternative Routes, based on the traffic demand and natural data collected in Viet Nam
- (2) Preliminary Cost Estimate for Each Alternative Route
- (3) Preliminary Economic Analysis
- (4) Selection of Optimum Route and Bridge Type
- (5) Preparation of Interim Report

[4] 2nd Stage Work in Viet Nam

- (1) Submission and Discussion of the Interim Report
- (2) Additional Natural Condition Survey
- (3) Preliminary Design
- (4) Construction Planning
- (5) Maintenance Programming
- (6) Cost Estimate
- (7) Environmental Impact Assessment (EIA)
- (8) Preparation of Progress Report (II)
- (9) Submission and Discussion of Progress Report (II)

II. 2nd Year (1998 Fiscal Year)

[5] 2nd Stage Work in Japan

- (1) Economic Analysis
- (2) Financial Analysis
- (3) Implementation Programme
- (4) Comprehensive Evaluation and Recommendations
- (5) Preparation of Video-Tape for the Draft Final Report
- (6) Preparation of the Draft Final Report

[6] 3rd Stage Work in Viet Nam

- (1) Submission and Discussion of the Draft Final Report

[7] 3rd Stage Work in Japan

- (1) Preparation and Submission of the Final Report

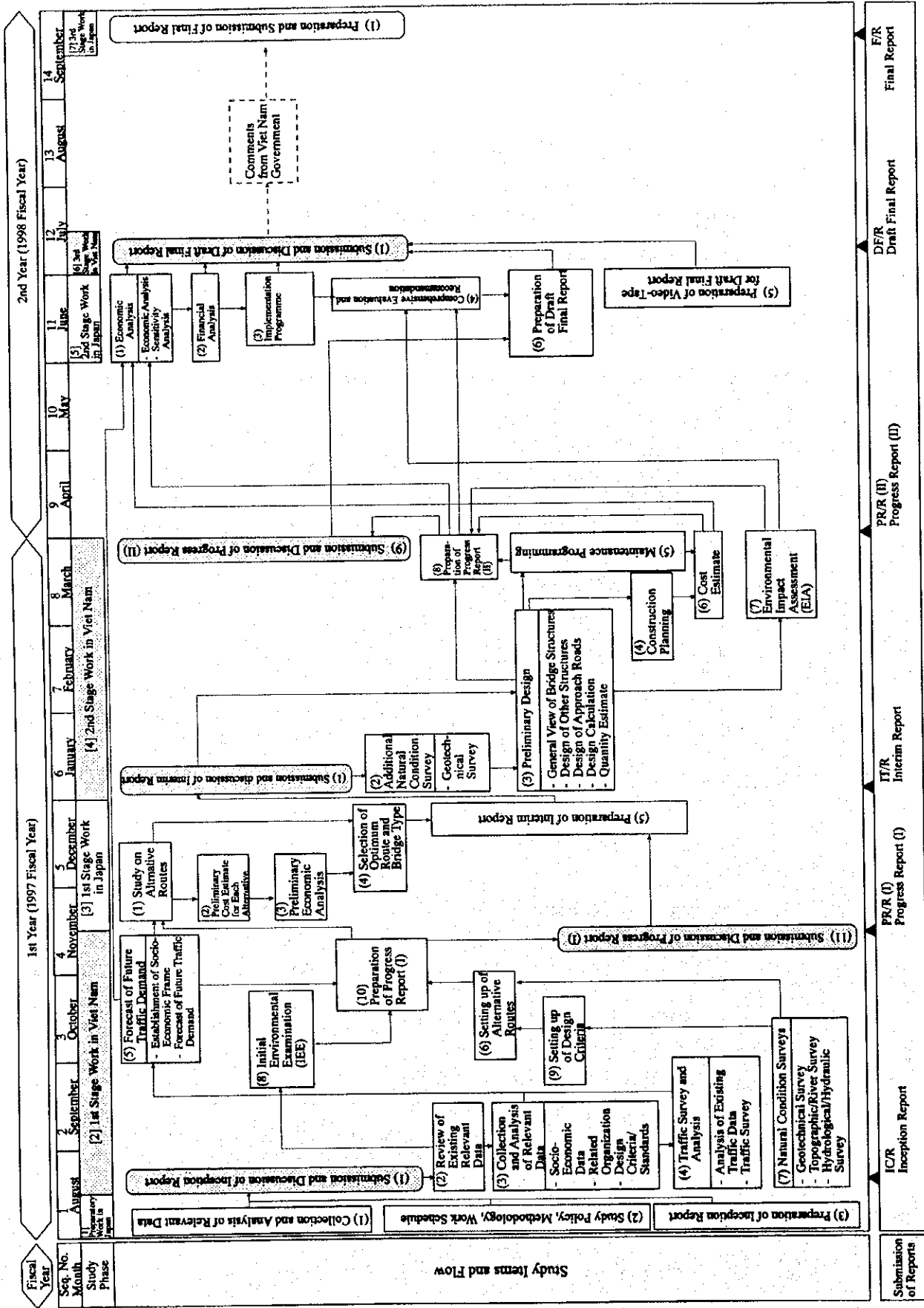


Fig. 1.1 Work Flow Chart of the Studies

1.4 Progress of the Study and Outline of the Report

- Inception Report:** The Inception Report was submitted to the Vietnamese side prior to the Steering Committee Meeting held on 25 August 1997. The contents and schedules of the Study were explained by the Study Team in the presence of the JICA Advisory Committee and JICA and then accepted by the Vietnamese side. After this meeting a joint visit to the Study site with the Vietnamese counterparts was conducted.
- Chapter 1:** Background, Objective of the Study and Scope of the Study are summarized.
- Chapter 2:** Review and analysis of data relevant to the Study, such as natural conditions, transportation system, and socio-economic conditions, were carried out. A review of results of existing data of the site and of its future development are summarized.
- Chapter 3:** The Study Area and Implication of Future Development are summarized.
- Chapter 4:** Traffic surveys consisted of a Road-based Traffic Survey and Inland Waterway Traffic Surveys. The Road-based Traffic Survey includes an OD survey and a traffic count survey which were conducted at six locations along the existing roadsides and at ferries. The survey results and future traffic forecasts are summarized.
- Chapter 5:** Three selected alternative routes were set up to solve a traffic bottleneck on N.H. No. 1 caused by the ferry crossing. The first one is situated about 3.3 km upstream from the existing ferry port and the second and third are about 750 m and 2.9 km downstream respectively. The detailed conditions of each alternative are summarized.
- Progress Report (I):** Progress Report (I) was submitted to the Vietnamese side for discussion and the acceptance of the three alternative routes was finalized at this stage. These three routes were then further analyzed for selecting the optimum route and bridge type.

- Chapter 6: Field surveys of the natural conditions, topographic and riverbed survey, geotechnical survey, hydrological and hydraulic survey, were carried out by a local firm selected by bid. Flood condition surveys and the planform change analysis were carried out by the Study Team. The flood planform change was analyzed by the Study Team using the Landsat data available between 1972-73 and in 1993. The details of the riverbank erosion are analyzed and summarized.
- Chapter 7: The initial examination of the environment of the study area was carried out by an expert of the Study team. Both natural and socio-economic environments, including the resettlement of inhabitants were investigated.
- Chapter 8: Based on the reviews on the existing standards and specifications in Viet Nam, adopted standards and specifications for the Project are summarized.
- Chapter 9: After due consideration of the study results on the hydrodynamic and geotechnical conditions, an appropriate bridge type among the possible bridge types was selected. Further hydrological and hydraulic issues and the selection process for the recommended bridge types are described.
- Chapter 10: Economic viability was preliminarily assessed for determining economic indicators (EIRR) as the major condition for the optimum route selection. The conditions of assessment including the preliminary cost estimate are summarized.
- Chapter 11: The most desirable alternative route for the Can Tho Bridge Construction is recommended based on engineering, economic and environmental aspects. A detailed comparison study for each alternative is summarized in this Chapter. The selected desirable route is accompanied by suitable options of connecting points (intersections) to N.H. No. 1.
- Interim Report: The Interim Report was submitted for discussion with the Vietnamese side. The contents of the Report and the Study results were accepted in general among the participants at the Steering Committee Meeting held on 8 January 1998.

- Chapter 12: Major planning conditions for the bridge design and construction are summarized. Specifically, the required vertical navigation clearance to be adopted is discussed in detail. Discussions of other hydrodynamic and geotechnical conditions, etc., which affect the basic configuration or scale of the bridge structure, are also summarized in this chapter.
- Chapter 13: The necessary study for the preliminary design is carried out in Chapter 13 and includes the effect of wind forces and local scouring.
- Chapter 14: Discussions of fundamental condition concepts for construction planning, including procurement of construction materials, construction methods, utilization of waterway and river, and advance technology are summarized.
- Chapter 15: Existing maintenance organizations and budget allocation are introduced. This chapter also introduces inspection methods for general maintenance and in particular for Cable-stayed bridges.
- Chapter 16: Based on the information available including relevant laws and decrees and obtained data, the cost estimate procedure was set up, and then cost estimate conditions were established. The source of construction materials is discussed, and the construction cost estimation is compared with the economic costs for the economic evaluation.
- Chapter 17: With respect to the Environmental Impact Assessment, a field investigation was conducted by the Study Team, while the observation survey (including the interview survey) was carried out by a local firm with expertise in this field. This firm was selected by bid. This Chapter was prepared by the Study Team based on the above mentioned surveys and assessment of the field observation results.
- Progress Report (II): The Progress Report (II) was submitted for discussion with the Vietnamese side. The final decision of 39.0 m (for 15,000 DWT vessel) for the vertical navigational clearance, and also the appropriate bridge type was concluded at this

stage.

- Chapter 18 The economic analysis was conducted based on the benefits analysis and costs estimates. The analysis was carried out for the possible cases basically on Route-C. Discussion of the study conditions, economic costs and economic analysis are summarized.
- Chapter 19: The financial analysis was carried out focusing on the possible level of investment, desirable procurement of investment and appropriate charge level. The detailed discussion on the financial analysis is summarized.
- Chapter 20: The implementation and budgetary schedules were studied based on the project condition of the Can Tho Bridge Construction and its construction cost.
- Based on the entire study input and analysis, the conclusions and recommendations on the Can Tho Bridge Construction are summarized from the technical, economic and environmental points of view.
- Chapter 21: Technology transfer (seminar) in the Scope of Work was carried out on 21 January 1998. The details are described in Chapter 21 and the Annexure to this report.
- Draft Final Report: The Draft Final Report was prepared based on the results of the studies for each stage, and submitted in June 1998 for discussion with the Vietnamese side.
- Final Report Based on the comments on the Draft Final Report from the PMU My Thuan dated 28 July 1998 and the Ministry of Transport dated 15 August 1998, the Final Report was prepared in August to September 1998.

1.5 Study Organization

Listed hereunder are the study organization and the members of the organization.

MINISTRY OF TRANSPORT

JAPAN INTERNATIONAL
COOPERATION AGENCY (JICA)
Social Development Study Division
Project Officer : Mr. Makoto ASHINO
Mr. Koichi KITO

COUNTERPART (PMU - MY THUAN) ADVISORY COMMITTEE

Team Leader	: Mr. Doan Quang Hung	Team Leader	: Mr. Yoshinobu Hayashi
Member	: Mr. Nguyen Anh Tuan	Member	: Mr. Hideto Hatakeyama
Member	: Mr. Nguyen Xuan Hiep	Member	: Mr. Masayuki Karasawa

STEERING COMMITTEE

Chairman	: Mr. Nguyen Tau Mau
Member	: Mr. Nguyen Manh Kiem
Member	: Mr. Nguyen Ngoc Nhat
Member	: Mr. Vu Van Tri
Member	: Mr. Tran Quang Minh
Member	: Mr. Do Huu Tri
Member	: Mr. Tang van Lam
Member	: Representative of Can Tho People's Committee
Member	: Mr. Le Long Dinh

STUDY TEAM

Team Leader	: Mr. Koji Enomoto
(2 nd Year)	Mr. Katsufumi Matsuzawa
Member (Co Team Leader)	: Mr. Akio Nakamura
Member	: Mr. Yasuo Masaki
Member	: Mr. Derek D. Bell
Member	: Mr. Kiminori Matsumoto
Member	: Mr. Shigeyoshi Kiguchi
Member	: Mr. Takashi Kametani
Member	: Mr. Seiju Ikeda
Member	: Mr. Kazuo Nakagawa
Member	: Mr. Koichi Hyogo
Member	: Mr. Tomohisa Shiosaki

1.6 Meetings held during the Study

During the study period, the following meetings were held in Viet Nam of which details are shown in the Appendix to this report.

Meeting	Date/Place	Main Subjects
- Steering Committee	25 August 1997	Inception Report
- Progress Meeting	12 November 1997	Progress Report (I)
- Steering Committee	8 January 1998	Interim Report
- Steering Committee	27 March 1998	Progress Report (II)
- Steering Committee	9 July 1998	Draft Final Report

