

**IMPLEMENTATION REVIEW STUDY
ON
THE PROJECT
FOR
RECONSTRUCTION OF BRIDGES IN THE CENTRAL
DISTRICT (PHASE 2)
IN
THE SOCIALIST REPUBLIC OF VIETNAM**

May 2006

**JAPAN INTERNATIONAL COOPERATION AGENCY
GRANT AID MANAGEMENT DEPARTMENT**

PREFACE

In response to a request from the Government of the Socialist Republic of Vietnam, the Government of Japan decided to conduct a implementation review study on the Project for Reconstruction of Bridges in Central District (Phase II) and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Vietnam a study team from December 4 to December 24, 2005.

The team held discussions with the officials concerned of the Government of Vietnam, and conducted a field study at the study area. After the team returned to Japan, further studies were made. Then, a mission was sent to Vietnam in order to discuss the study results, and as this result, the present report was finalized.

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

I wish to express my sincere appreciation to the officials concerned of the Government of the Socialist Republic of Vietnam for their close cooperation extended to the teams.

May, 2006

Masafumi Kuroki
Vice-President
Japan International Cooperation Agency

May, 2006

LETTER OF TRANSMITTAL

We are pleased to submit to you the Implementation Review Study Report on Project for Reconstruction of Bridges in Central District (Phase II) in the Socialist Republic of Vietnam.

This study was conducted by Oriental Consultants Company Limited, under a contract to JICA, during the period from December, 2005 to May, 2006. In conducting the study, we have examined the feasibility and rationale of the project with due consideration to the present situation of Vietnam and formulated the most appropriate design for the project under Japan's grant aid scheme.

Finally, we hope that this report will contribute to further promotion of the Project.

Very truly yours,

Yoshiki Miyazaki

Chief Consultant,

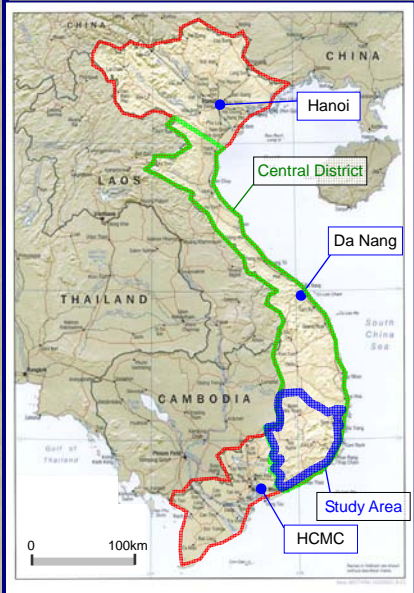
Implementation Review Study team on
the Project for Reconstruction of Bridges
in Central District (Phase II)

Oriental Consultants Company Limited



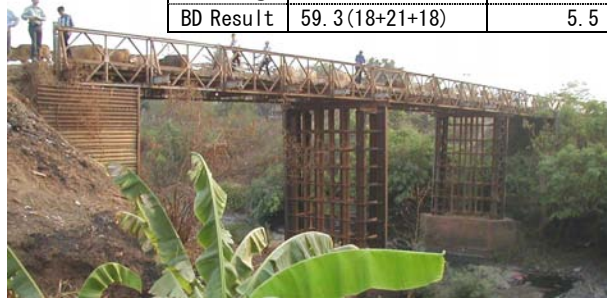
Socialist Republic of Viet Nam

Project Location Map



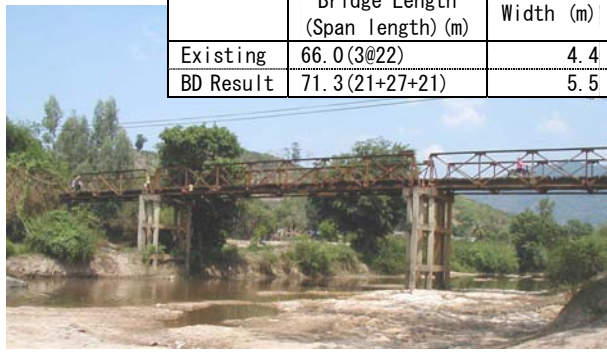
No.52 EA SOUP BRIDGE

	Bridge Length (Span length) (m)	Width (m)
Existing	46.0 (3@15.3)	4.4
BD Result	59.3 (18+21+18)	5.5



No.56 KRONG K'MAR BRIDGE

	Bridge Length (Span length) (m)	Width (m)
Existing	66.0 (3@22)	4.4
BD Result	71.3 (21+27+21)	5.5



No.46 TAN VAN BRIDGE



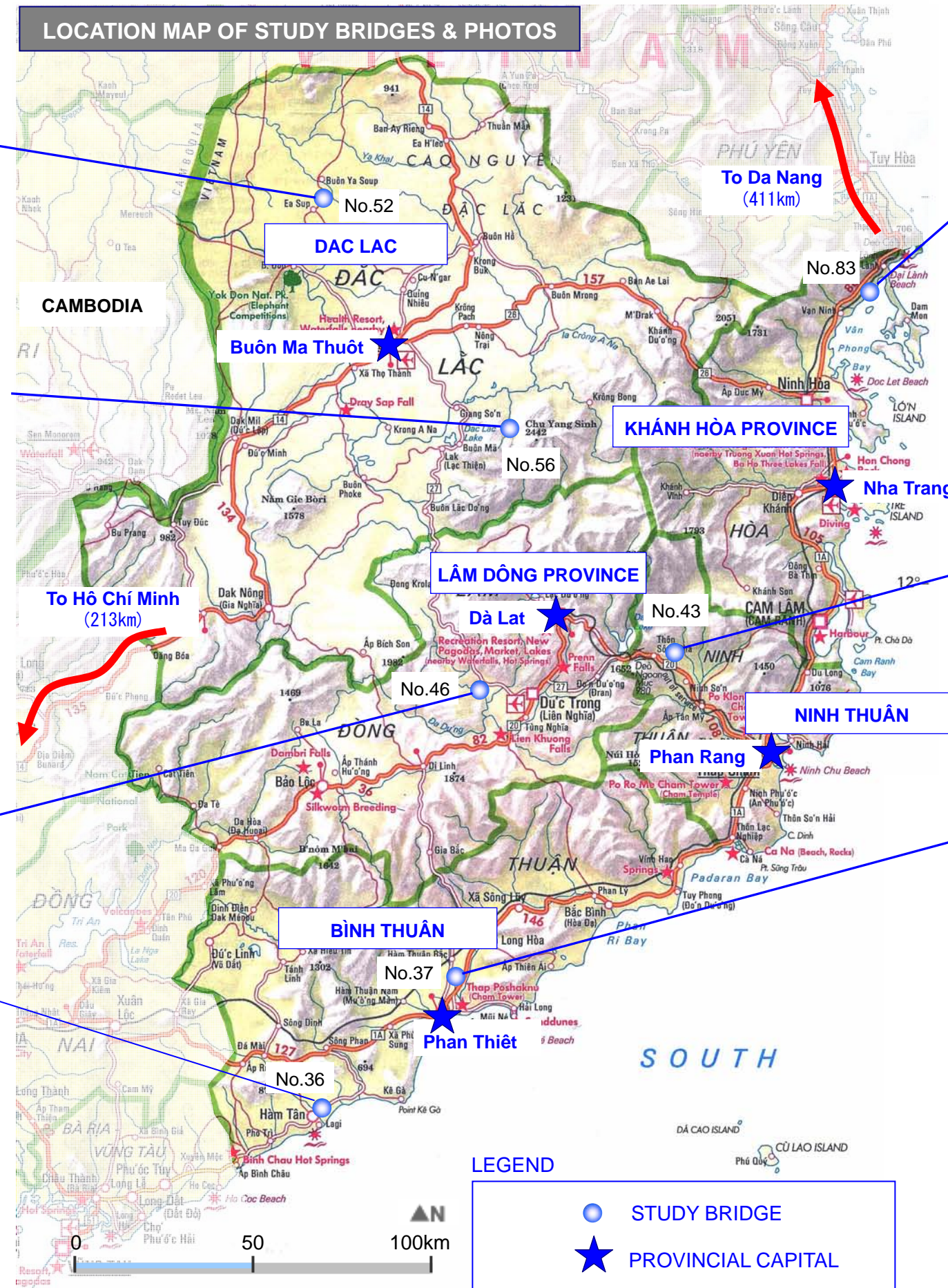
	Bridge Length (Span length) (m)	Width (m)
Existing	71.0 (6@11.5)	6.0
BD Result	80.3 (24+30+24)	5.5

No.36 DA DUNG BRIDGE

	Bridge Length (Span length) (m)	Width (m)
Existing	73.0 (13+3@20)	4.4
BD Result	92.3 (30+30+30)	5.5

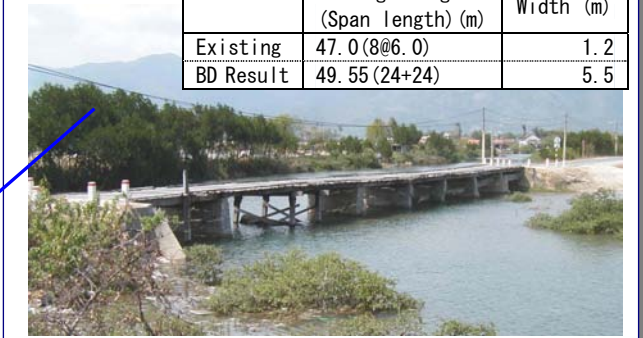


LOCATION MAP OF STUDY BRIDGES & PHOTOS



No.83 NGOI NGAN BRIDGE

	Bridge Length (Span length) (m)	Width (m)
Existing	47.0 (8@6.0)	1.2
BD Result	49.55 (24+24)	5.5



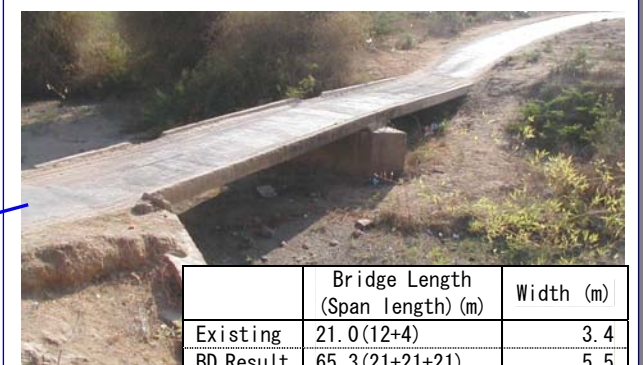
No.43 TAM NGAN BRIDGE

	Bridge Length (Span length) (m)	Width (m)
Existing	60.0 (60.0)	4.4
BD Result	71.3 (21+27+21)	5.5



No.37 TRANG BRIDGE

	Bridge Length (Span length) (m)	Width (m)
Existing	21.0 (12+4)	3.4
BD Result	65.3 (21+21+21)	5.5



LEGEND

- STUDY BRIDGE
- ★ PROVINCIAL CAPITAL

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Abbreviation

AASHTO	American Association of Stage Highway and Transportation Officials
ADB	Asian Development Bank
BD	Basic Design Study
CAS	Country Assistant Strategy
CPRGS	Comprehensive Poverty Reduction and Growth Strategy
CSP	Country Strategy and Program
DBST	Double Bituminous Surface Treatment
DD	Detailed Design
DFID	Department of International Development
EN	Exchange of Notes
FS	Feasibility Study
HWL	High Water Level
LWL	Low Water Level
IMF	International Monetary Fund
JBIC	Japan Bank for International Development
JICA	Japan International Cooperation Agency
MOT	Ministry of Transport
MP	Master Plan
PBD	Plastic Board Drain
PC	Pre-stressed Concrete
PCU	Passenger Car Unit
PDOT	Provincial Department of Transport
PMU	Project Management Unit
RRMU	Regional Road Maintenance Unit
VRA	Vietnam Road Administration
WB	World Bank

SUMMARY

The Government of the Socialist Republic of Vietnam (GOV) has various modes of transport, including road, rail, waterway, and air, with road transport accounting for approximately 70% and 80% of freight and passenger traffic, respectively. Total road network length is approximately 24,000km (2001) and road density is 0.36km/m², which is relatively higher than that of neighboring countries. However, investment in the road sector has concentrated up till now on trunk roads rather than rural roads.

As for bridge investment, although it has focused since 1975 on the rehabilitation of bridges damaged in the war, it has been obliged to replace them with temporary structures due to the lack of a sufficient budget. Those temporary bridges are now suffering from insufficient capacity and cannot handle heavy vehicles, and their relatively low height sometimes results in flooding and closure. These phenomena are hampering rural development in Vietnam.

Considering this situation, the Seventh 5-Year National Development Plan, which covers the period from 2001 to 2005 and has been prepared by the GOV, states its concern for the widening disparity in the standard of living between urban and rural areas in Vietnam. Note that this topic is originally from the Sixth 5-Year National Plan and, together with the revitalization of rural villages, is considered an important issue in national development. In response to the National Development Plan, the Ministry of Transport established in 1998 the “Strategy for Transport Development in Vietnam by the Year 2020”, which focuses on developing three areas of the road network: (1) the northern mountainous area, (2) the central mountainous area, and (3) the Mekong Delta area.

The Government of Japan (GOJ), in response to a request from the GOV, has been supporting the rural development of Vietnam by providing projects for the reconstruction of rural bridges via Japan’s Grant Aid scheme, including “The Project for Reconstruction of Bridges in the Northern Area (1995-98)” and “The Project for Reconstruction of Bridges in the Mekong Delta (2001-03)”.

Subsequent to the above, the GOV requested that the reconstruction of 72 high-priority bridges in the central 18 provinces of the country be carried out via Japan’s Grant Aid Scheme. In response to this request, the GOJ conducted a basic design study (the BD study) for *The Project for Reconstruction of Bridges in the Central District* in 2001. As a result of the BD study, 45 bridges were selected to be reconstructed or newly constructed under Japan’s Grant Aid Scheme, with 22 of the bridges to be newly constructed via facility construction type work and 23 to be improved via girder supply type work. Note that the 23 bridges were completed in Phase 1 of the Project, while 14 of the 22 bridges requiring new construction were completed at the end of March 2006 in Terms 1 and 2 of Phase 2. As for the remaining 7 bridges (one

bridge was withdrawn in 2003), as three years have already passed since the BD study of 2001, it became necessary to consider adjustments due to changes on site and/or to the socio-economy, as well as to recent hikes in steel and oil product prices worldwide by undertaking additional site reconnaissance and re-estimating project cost.

Considering this situation, the Japan International Cooperation Agency (JICA) decided to carry out an Implementation Review Study (the Study), and dispatched a Study Team to Vietnam from December 4th to 12th in 2005. The Study Team confirmed the need for changes in Project content via a meeting with the Vietnamese side, changes in site conditions, and the execution of an additional geotechnical survey. Based on the results of site reconnaissance, the Study Team executed a review of the BD, the detailed level design work, verification of the appropriateness of Project implementation, and a re-estimation of project cost. The Study Team was then dispatched from April 12th to 20th in 2006 to explain the Study results and a consensus was reached with the Vietnamese side. At the time of this discussion, the Study Team confirmed the progress of various undertakings by the Vietnamese side, including land acquisition and resettlement.

The Study confirmed that the remaining seven bridges should still be implemented via Japan's Grant Aid scheme, because firstly their importance grew since the BD stage due to an increase in traffic volume as well as to the improvement in access roads to the proposed bridges, and secondly because there is no assistance planned for rehabilitating these bridges by other donors or the GOV.

As for the design standard/specifications for the new bridges, although the basic concept of bridge improvement established in the BD stage is still to be applied, partial specification modification, at the request of the Vietnamese side, is necessary due to changes in site conditions that include the establishment of a regional plan, an increase in traffic volume, the improvement of access road conditions, etc. For example, bridge formation was widened to have a dual carriageway in response to increases in traffic in order to secure the smooth and safe passage of vehicles. Furthermore, the live-load level was raised for a bridge having a high ratio of heavy vehicles carrying agricultural products with no alternative routes to provincial centers in order to prevent damage from heavy loads. The project cost was re-estimated to reflect present conditions after examining the construction and procurement plans. In consideration of the improvement in the procurement conditions of the domestic market as a result of the development of the industrial sector, changes to the source of procurement for both materials and equipment, together with changes to the type of materials, was made.

Study results are as shown in the table below. Note that enclosed values indicate revisions to previous BD values. In addition to the contents of the table, a steel railing for all bridges, the

installation of an approach slab for five bridges, and the adoption of soft soil treatment for one bridge are to be incorporated.

Bridge Name Location : Province	Bridge Length (Span Arrangement) (m)	Clear Width (m)	Super- structure	Found ation	Live Load Level	Approach Road (m)	
						RB	LB
Da Dung Bridge Binh Thuan Province	92.3(3x30)	7.0	PC Tgirder	Sprea d	H-13	152	172
Tran Brige Ninh Thuan Province	65.3(3x21)	5.5	Ditto	Ditto	H-13	116	119
Tam Ngan Bridge Ninh Thuan Province	71.3(21+27+21)	5.5	Ditto	Ditto	H-13	22	187
Tan Van Bridge Lam Dong Province	80.3(24+30+24)	7.0	Ditto	Ditto	H-13	105	93
Ea Soup Bridge Dac Lak Province	59.3(18+21+18)	7.0	Ditto	Ditto	H-18	125	98
Krong K'Mar Bridge Dac Lak Province	71.3(21+27+21)	7.0	Ditto	RC pile	H-13	125	116
Ngoi Ngan Bridge Khanh Hoa Province	49.5(2x24)	5.5	Ditto	RC pile	H-13	94	92

Note) RB: Right Bank, LB: Left Bank

In the case that the Project is implemented with Japan's Grant Aid scheme, total Project cost is estimated at approximately JY1.149 billion, with the GOJ to bear JY1.098 billion and the GOV JP51.3 million. The Project implementation period is estimated to be about 22 months (including tendering).

Although Project Management Unit 18 (PMU18) is responsible for managing the implementation of the construction of the proposed seven bridges, the relevant Provincial Department of Transport (PDOT) will be responsible for the operation and maintenance of all bridges after completion. Major maintenance activities are assumed to include:

- (1) Routine maintenance of both bridges and approach roads
- (2) Periodic overlays for the approach roads approximately every 10 years

Based on observations of actual bridge maintenance, it is expected that these activities will be carried out properly by each PDOT. In addition, it has been judged that the necessary maintenance budget for the proposed bridges can be secured, as the average maintenance cost for a new bridge in a province accounts only for 0.6-2.1 percent of the total road maintenance budget.

The following direct and indirect positive impacts are expected with the implementation of the Project. The beneficiaries of the Project are expected to consist of people living within the districts where the proposed bridges are located, and it is estimated that this will be approximately 680 thousand people.

(1) Direct Positive Impacts

- ① Reduction in the amount of time the proposed bridges are closed due to flooding from approximately 1 week per year to zero.
- ② Reinforcement of the transport capacity of the proposed bridges. For instance, at maximum, from a one-way structure with an 8-ton limit to a two-way structure with a 30-ton limit.

(2) Indirect Positive Impacts

- ① Revitalization of regional economic activities.
- ② Reduction in the maintenance cost of the proposed bridges.

Note that the validity of the Project was re-confirmed at the Study same as at the BD stage from the viewpoint of contributing to the effectiveness of the regional road network, economic development, and the improvement of the standard of living of potential beneficiaries.

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CHAPTER 1

BACKGROUND OF THE PROJECT

Chapter 1 Background of the Project

The Government of the Socialist Republic of Vietnam (hereinafter referred "GOV") has been focusing to build temporary bridges in order to rehabilitate the ones mainly damaged by the war since 1975 due to lack of sufficient budget. Those temporary bridges are now suffering insufficient capacity to pass heavy vehicles, and their lower bridge surface level sometimes cause closure of the bridge by flood. Those phenomena have been hampering rural development in Vietnam.

Considering this situations, the Government of Japan(GOJ) has been providing support to rehabilitate rural bridges through " the Project for Reconstruction of Bridges in the Northern Area (1995-98) ", which comprises 8 bridges with Steel Girder Supply type with 21 bridges with Facility Construction type, and " the Project for Reconstruction of Bridges in the Mekong Delta Area (2001-03)", which comprises 17 bridges with Steel Girder Supply type with 21 bridges with Facility Construction type. Followed by those two projects, in March 2001, the GOV made a request to the GOJ for grant aid for "the Project for Reconstruction of Bridges in the Central District (the Project)". The GOJ then entrusted the Japan International Cooperation Agency (JICA) to execute a study to examine the viability of the Project. Note that JICA is the official agency for implementing the Japanese Government's technical assistance and expediting the proper execution of Japan's Grant Aid.

In response to the above, JICA decided to conduct a basic design study and sent a study team to Vietnam from August 2001. The study team eventually selected 45 bridges and steel girders for 23 bridges were supplied in 2003 (Steel Girder Supply Type). Six bridges were then constructed in 2004 (Facility Construction Type, Stage-1) and 8 bridges have just completed in March 2006 (Facility Construction Type, Stage-2). As for the remaining 7 bridges (one bridge was withdrawn in 2003), JICA decided to carry out an Implementation Review Study, as three years have already passed since the basic design study of 2001. That is, the purpose of this Study is to make any necessary adjustments due to changes on site and/or to the socio-economy by undertaking additional site reconnaissance, and re-estimation of the project cost.