

JBIC ODA Loan Project Mid-Term Review

Time of Mid-Term Review Field Survey: June 2006

Project Name: Socialist Republic of Vietnam, “National Highway No.1 Bypass Road Construction Project” (L/A No. VNVIII-6)

Project Title: Socialist Republic of Vietnam, “Cuu Long (Can Tho) Bridge Construction Project” (L/A No. VNVIII-7)

[Loan Outline]

Loan Amount/Contract Approved Amount/Disbursed Amount:

VNVIII-6: 8,393 million yen/8,263 million yen/2,106 million yen (as of June 2006)

VNVIII-7: 24,847 million yen/22,195 million yen/7,260 million yen (as of June 2006)

Loan Agreement: Concluded March 2001 (5th year after conclusion of L/A)

Final Disbursement Date: April 2009

Executing Agency: Vietnam Ministry of Transportation/PMU My Thuan (My Thuan Bridge PMU)

[Objectives of both projects]

The projects involved the construction of a bridge crossing the Mekong River and its tributary the Hau River and a bypass road to connect to the Hau River in Can Tho City in order to facilitate traffic flow and increase traffic demand crossing the Hau River, and thereby contribute to the socioeconomic development of the Mekong Delta area.

Consultant: Nippon Koei (Japan), Chodai (Japan)

Contractor: (VNVIII-6): Civil Engineering Co.6 (Viet Nam/Civil Engineering Co.8 (Viet Nam)/Thang Long Construction Co. (Viet Nam), China State Construction (China)

Contractor: (VNVIII-7): Kajima Construction Services, Nippon Steel Corporation, Taisei Construction Corporation (Japan)

Item	Results of ex-ante evaluation (October 2000)	Ex-post evaluation results as estimated at time of mid-term review
[Relevance] (1) National policy level	(1) In Vietnam, road transport accounts for most transportation of freight and passengers (65% of freight and 81% of passengers in 1999). The road sector is considered highly important and occupies a position of high priority in the National Transportation Development Master Plan. In addition, the planned budget for the transportation sector accounts for one-fourth of the total in the Public Investment Program (1996-2000), the largest portion of which is investment in the road sector.	(1) The 10th Socioeconomic Development Strategy (2001-2010) calls for development of National Highway No. 1 and construction of a bridge over the Hau River as a development policy for the Mekong Delta. The 5th Socioeconomic Development Plan (2001-2006) also called for the development and expansion of the road transport network in the Mekong Delta, which is a key area for economic development in the southern region, as well as development of Can Tho City, which is the center for social and industrial economy in the southern region. The Comprehensive Poverty Reduction and Growth Strategy (CPRGS) emphasizes the need for development of roads, bridges and other infrastructure in order to alleviate poverty.
(2) Policy level	(2) National Highway No. 1, which runs north and south through Vietnam, is a main national highway extending a total distance of 2,300km. Development of this highway is	(2) Both the Vietnam Highway Transportation Development Plan (target year: 2010) and the National Transportation Development Strategy (target year: 2020) have continued to emphasize the development and expansion of National Highway No. 1

(3) Planning level

important to the growth of Vietnam's economy in that it will reduce disparities in income between the North and South and improve distribution between the North and South. Accordingly, this highway has been given a position of highest priority for the road sector up to 2010.

(3) Can Tho City is located at the southern end of National Highway No. 1 and is an important center for agricultural products in the Mekong Delta area. Since there are no bridges across the Hau River that flows through the city, and the use of ferries to cross the river is a bottleneck to smooth traffic flow on Highway No. 1. For this reason, the projects, which sought to eliminate this bottleneck, was a matter of high priority.

as a priority issue and call for the construction of large-scale bridges on key routes and the widening of National Highway No. 1.

(3) During peak hours, it takes nearly 50 minutes to cross the Hau River by ferry, and use of this ferry continues to be a bottleneck to smooth traffic flow along National Highway No. 1. In addition, projects including the National Highway No. 1 improvement project (World Bank) between the Can Tho and Namkan districts and the South Hau River Highway Construction Project linking Can Tho City and Bac Lieu Province (Vietnam government) are making investments for expanding road transportation through continued development of a highway network in the Mekong Delta area. Furthermore, the Can Tho City Urban Development Master Plan (Can Tho City) and the Binh Ninh Industrial Park Construction Plan (Bin Long Province) are currently in the planning stages, and highway traffic volume is expected to increase further with the development of the Mekong Delta Area. For this reason, both of these projects continue to have high priority.

[Effectiveness]	(1) Operation and Effect indicators Quantitative effects					(1) Operation and Effect indicators Quantitative effects 1) Traffic crossing the Hau River				
		At time of ex-ante evaluation	Target Figures 2006 (upon completion)	Target Figures (2010)	Target Figures (2020)		Actual at time of Mid-term Review		Revised Target	
	Average annual daily traffic (vehicles/day)	Not established	17,884	28,683	69,269		2006	Rate achieved	2010	2020
	Passenger Car Units* (PCU/day)	Not established	14,688	25,380	64,837	Average annual daily traffic (vehicles/day)	38,916	218%	No revision	
	Vehicle operating cost savings (1,000 yen/year)	Not established	-111,275	-215,240	-655,213	Passenger Car Units (PCU/day)	21,608	147%	30,357	94,284
	Time saving (1,000 yen/year)	Not established	887,675	1,831,000	6,713,700	(See attached table for details.)				
	Note: Indexes for both projects.									

* Passenger Car Unit (PCU) is the unit of traffic upon converting the number of operating vehicles of various types to the number of passenger cars.

2) Current traffic carried by ferry (by type of vehicle): See attached table for details.

3) Waiting time for crossing: Shortest 16 min., longest 49 min. (from the results of a traffic survey performed at time of mid-term review)

4) Population of Administrative District Concerned

(Unit: 1,000 persons)

	2000	2001	2002	2003	2004	2005*	2006*	Average growth rate 2000-05
Bin Long Province	1,018	1,023	1,033	1,036	1,045	1,054	1,063	0.7%
Can Tho City	1,110	1,112	1,114	1,114	1,123	1,131	1,139	0.4%
Mekong Delta	16,345	16,519	16,714	16,882	17,076	17,273	17,473	1.1%

Note: Figures for 2005 and 2006 are targets

5) Number of Registered Vehicles in Administrative District Concerned

(Unit: vehicles)

	2000	2001	2002	2003	2004	2005	2006*	Average growth rate 2000-05
Bin Long Province	2,072	2,276	2,287	2,353	2,685	2,976	3,056	6.7%
Can Tho City	4,245	4,664	4,625	4,996	5,549	6,520	6,749	8.0%
Mekong Delta	32,685	35,911	33,777	36,096	40,960	46,444	47,574	6.5%

Note: Number of registered vehicles as of the end of April 2006

6) Change in Economic Indicators (GRDP)

(Unit: Billion VND)

	2000	2001	2002	2003	2004	2005*	Average

							growth rate, 2000-2005
Bin Long Province	4,322	4,602	5,153	5,619	6,752	8,011	13.1%
Can Tho City	5,967	6,376	7,884	9,409	11,280	13,501	17.7%
Mekong Delta	71,677	77,409	90,344	102,583	120,939	141,474	14.6%

Note: 2005 figures are targets. GRDP: Gross regional domestic product.

- The 38,916 vehicles/day actual average annual daily traffic in 2006 compared with the target figure of 17,884 vehicles/day represents more than a two-fold increase. In terms of type of vehicle, motorbike traffic has increased nearly three times, large trucks 2.3 times, and mid-sized and small buses two times. The sharp increase in motorbike traffic has made a particularly large contribution to reaching a high average annual daily traffic target. On the other hand, the traffic volume of passenger cars, small trucks and large buses has not increased to the extent planned. A comparison in terms of PCU shows that the actual traffic volume for 2006 increased about 1.5 times over the initial target. Thus, actual traffic volume has substantially increased compared with initial targets. In addition, because vehicle registrations and GDRP have remained firm in the past six years, the targets for PCU in 2010 and 2020 based on actual traffic volume in 2006 have, as indicated above, been revised upward in this mid-term review. However, since growth in traffic varied considerably depending on type of vehicle, the targets for average annual daily traffic were not revised.
- In the F/S for the Cuu Long (Can Tho) bridge construction project, it is estimated that the daily permissible traffic volume of the Can Tho Bridge (4 lanes) would be above 60,000 PCU/day and the consultant employed by the project estimated 71,000-80,000 PCUs/day. The Can Tho Bridge has been designed with a width configuration whereby 3.25m non-motor lanes are provided on the outer side of the two lanes in each direction (3.50m + 3.50m = 7.00m), which provisionally could be opened to accommodate a future increase in traffic volume. Therefore, the bridge could easily accommodate the 2010 planned traffic volume of 30,357 PCU/day. Assuming the use of this provisional third lane on each side in the future, traffic volume of 94,284 PCU/day planned in 2020 could possibly be accommodated. For this reason, this project's design relating to future increases in traffic volume could be considered appropriate.

(2) Qualitative effects

Through these two projects, the northern end and the southern end of National Highway No. 1 will be connected by a land

(2) Qualitative effects

Due to the growth in traffic exceeding initial targets, the importance of both projects in this region is high, and it is thought that the impact on the socioeconomic

	<p>route, and it is expected that this will contribute to the socioeconomic development of the Mekong Delta.</p> <p>(3) Factors which may influence the effectiveness and impact</p> <p>1) Land acquisition, relocation of residents Land acquisition: approx. 266ha Number of residents to be relocated: 533 households, 2,640 persons In accordance with Vietnamese domestic law (Decree22/1998/ND-CP), the land acquisition and the relocation will be implemented based on the Action Plan (December 1999) prepared by the Ministry of Transportation under the support of JICA.</p> <p>2) Environmental impact</p> <ul style="list-style-type: none"> • Because the bridge will be constructed across the Hau River, consideration must be given to the impact works will have on water quality and ecosystems when work is performed. 	<p>development of the Mekong Delta area continues to be large.</p> <p>(3) Factors which may influence the effectiveness and impact</p> <p>1) Land acquisition, relocation of residents Land acquisition: 207.3ha (Bin Long Province 103.4ha, Can Tho City 103.9ha) Number of residents relocated: 861 households (approx. 4,300 persons)</p> <ul style="list-style-type: none"> • The 58.7ha area of the land acquired was smaller than initially planned because the area of the land to be acquired was partially revised as a result of preparing a more detailed design (2001-2003). • The initially planned number of households and persons to be relocated of 308 and 1,660, respectively, was increased because during the period from the F/S (1998) up until the time that the final area of the land to be acquired was determined by the detailed design (2001-2003), the population increased due to new residents moving into the land scheduled for acquisition, and land ownership was fractionalized because of inheritance, etc. • For the 565 households that requested to be relocated as a group, four locations with electricity, water systems, and sewer pipes in Bin Long Province and Can Tho City were provided • Financial support for the purchase of real estate was provided to the 36 households which requested to be individually relocated. • For the 260 remaining households, new homes were built on the portion of remaining land that was not acquired, and these households continue to live in this previous land. • Procedures for acquiring lands and relocating residents of original 861 households were completed in February 2005. Afterward, however, an additional acquisition of 2,446m² of land (with 23 households of landowners) adjoining the land for construction of National Highway No. 1 Bypass Road in Can Tho City became necessary. Consequently, procedures for acquisition are currently in progress and are scheduled to be completed in August 2006. The above additional land acquisition will be used for some of the land for road shoulders, and will not affect the construction period. <p>2) Environmental impact</p> <ul style="list-style-type: none"> • In both projects, environmental monitoring (monthly) of the areas concerned has been performed since 2005. This environmental monitoring is divided into that concerning the natural environment (air, water quality, noise and vibration, settling of foundation near dikes, and ecosystems) and that concerning the socioeconomic environment (population, land use, and the living conditions and
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	<p>3) Social concerns</p> <ul style="list-style-type: none"> An administrative framework to secure a means of transportation for community residents (particularly pedestrians) is under consideration by the Ministry of Transportation and local government (the Bin Long Province Citizens' Council and the Can Tho Province Citizens' Council) Small shops that sell food and general merchandise are located near the ferry terminal. A plan exists to have shops likely to be affected by the project continue operation in a market scheduled for development in the residents' relocation area. <p>(4) Factors which may influence the sustainability</p> <p>1) Road toll levels</p> <p>The amount to be charged as toll is currently under consideration, and follow-up will be necessary.</p>	<p>household finances of residents in relocation area, etc.)</p> <ul style="list-style-type: none"> There are several items in addition to those covered under Vietnam's environmental standards for water quality, etc., that are being monitored (coliform bacteria count in ground water, etc.), and at present it is not clear whether these are due to the effect of these projects or due to waste water from homes and industry. With the exception of these items, it is deemed that there has been no particular impact on the environment during construction for these two projects. <p>3) Social concerns</p> <ul style="list-style-type: none"> At the mid-term review, no particular consideration has been given to means of transportation for community residents (especially pedestrians). The Bin Long Province Citizens Council believes that after the completion of these projects, operation of the existing ferry will end. In order to lessen the negative impact on residents who make a living by operating businesses (such as stores and service provision), the following measures to promote new employment and opportunities to acquire income for ferry users are in planning: <ul style="list-style-type: none"> (1) Construction of a market about 200m away from the ferry terminal. (2) Construction of a market near the relocation area (Dong Binh District) on the Bin Long Province side. (3) Measures such as expansion of the existing market in the downtown area of the Binh Minh District are in planning It is expected that re-employment of the approximately 100 employees of the ferry company when operation of the existing ferry ends will be a problem, and as of the mid-term review, no effective measures to deal with this problem have been developed. <p>4) Measures against HIV/AIDS</p> <p>During the two years from February 2006 to January 2008, an HIV/AIDS prevention program will be implemented for the Cuu Long (Can Tho) Bridge construction project through the cooperation of an NGO (Care International). This program consists of workshops and educational activities for approximately 800 workers and residents in the community surrounding the project.</p> <p>(4) Factors which may influence the sustainability</p> <p>1) Road toll levels</p> <ul style="list-style-type: none"> With the exception of BOT managed by the government, the Vietnam Ministry of Transportation sets a uniform nationwide bridge toll. Tolls are set giving priority to the socioeconomic concerns of the area rather than
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	<p>2) Operation and maintenance structure Because the Can Tho Bridge will be the built to the highest standard of any bridge in Vietnam, the construction management consultant will establish the necessary training program in the executing agency, PMU My Thuan, with a view to improving the capabilities of staff engaged in implementation and administration of this project.</p>	<p>basing tolls on the amount of investment. According to Regional Road Management Unit No.7 (RRMU7) which is in charge of the operation and maintenance of both projects, the toll system revised in 2004 (Circular No. 90/2004/TT-BTC dated September 07, 2004 of the Ministry of Finance) will be applied to the My Thuan Bridge and other bridges. If this toll system is revised by 2008 when the Can Tho Bridge is completed, the same system as the current one will be applied. Under the current toll system, there is no toll for pedestrians, motorbikes, and bicycles.</p> <p>2) Operation and maintenance structure</p> <ul style="list-style-type: none"> For both projects, project planning and implementation is handled by PMU My Thuan; operation and maintenance, including collection of tolls on facilities following completion, will be handled by RRMU7. However, information sharing and collaboration between these two entities is not always smooth. With respect to the operation and maintenance of a cable-stayed bridge like the Cuu Long (Can Tho) Bridge, RRMU7 only has experience with the My Thuan Bridge, and it is believed that simply transferring the operation and maintenance manual from PMU My Thuan to RRMU7 will be inadequate. RRMU7 has indicated that it will be necessary to provide training and instruction by specialists with the cooperation of PMU My Thuan for operation and maintenance during implementation of the project. PMU My Thuan plans to offer the necessary technical support to RRMU7 through operation and maintenance seminars in addition to providing an operation and maintenance manual. 																																		
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<p>[Efficiency] (1) Outputs <u>National Highway No.1 Bypass Road Construction Project</u></p>	<p>(1) Outputs</p> <table border="0"> <tr> <td><u>[Bin Long side]</u></td> <td><u>(Package 1)</u></td> </tr> <tr> <td>Extension</td> <td>5,410m</td> </tr> <tr> <td>Secondary bridges</td> <td>3 (two at least 200m, one at least 80m)</td> </tr> <tr> <td>Interchange infrastructure</td> <td>Combined Y-type multi-level crossing, diamond-type</td> </tr> <tr> <td>Service area</td> <td>21,000m²</td> </tr> <tr> <td><u>[Can Tho side]</u></td> <td><u>(Package 3)</u></td> </tr> <tr> <td>Extension</td> <td>7,690m</td> </tr> <tr> <td>Secondary bridges</td> <td>7 (three 100m-260m, two at least 90m, two less than 50m)</td> </tr> </table>	<u>[Bin Long side]</u>	<u>(Package 1)</u>	Extension	5,410m	Secondary bridges	3 (two at least 200m, one at least 80m)	Interchange infrastructure	Combined Y-type multi-level crossing, diamond-type	Service area	21,000m ²	<u>[Can Tho side]</u>	<u>(Package 3)</u>	Extension	7,690m	Secondary bridges	7 (three 100m-260m, two at least 90m, two less than 50m)	<p>(1) Outputs</p> <table border="0"> <tr> <td><u>[Bin Long side]</u></td> <td><u>(Package 1)</u></td> </tr> <tr> <td>Extension</td> <td>Same as at left</td> </tr> <tr> <td>Secondary bridges</td> <td>Same as at left</td> </tr> <tr> <td>Interchange infrastructure</td> <td>Addition of entrance and exit connecting the Binh Ninh industrial park site</td> </tr> <tr> <td>Service area</td> <td>Same as at left</td> </tr> <tr> <td><u>[Can Tho side]</u></td> <td><u>(Package 3)</u></td> </tr> <tr> <td>Extension</td> <td>Same as at left</td> </tr> <tr> <td>Secondary bridges</td> <td>5 bridges (three 100m-260m, two at least 90m)</td> </tr> <tr> <td>Interchange infrastructure</td> <td>Same as at left</td> </tr> </table>	<u>[Bin Long side]</u>	<u>(Package 1)</u>	Extension	Same as at left	Secondary bridges	Same as at left	Interchange infrastructure	Addition of entrance and exit connecting the Binh Ninh industrial park site	Service area	Same as at left	<u>[Can Tho side]</u>	<u>(Package 3)</u>	Extension	Same as at left	Secondary bridges	5 bridges (three 100m-260m, two at least 90m)	Interchange infrastructure	Same as at left
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	<p>Interchange infrastructure Service area Toll booth</p> <p>Diamond-type, intersection-type 21,000m² 1</p> <p>[Consulting services] International consultant 463 M/M Vietnamese consultant 1,456 M/M Supporting Staffs 694 M/M</p>	gradient	<p>Service area Toll booth</p> <p>Same as at left Same as at left</p> <p>[Consulting services] International consultant 422 M/M (by agreement) Vietnamese consultant 1,334 M/M (by agreement) Supporting staffs 634 M/M (by agreement)</p> <p><Reasons for the change> 1) Change in number of secondary bridges alongside Can Tho With the Can Tho City Urban Development Master Plan, construction of two of the seven small secondary bridges was halted, with box culverts used in their place. 2) Change in interchange on the Bin Long side With the Bin Long Province Binh Ninh industrial park construction plan, an entrance and exit for the interchange connecting the industrial park site was provided.</p>
<p>(1) Outputs</p> <p><u>Cuu Long (Can Tho) Bridge Construction Project</u></p>	<p>(1) Outputs</p> <p><u>[Cuu Long Bridge] (Package 2)</u> Steel PC combined cable-stayed bridge 1,090m Access bridge on Bin Long side 480m Access bridge on Can Tho side 1,180m</p> <p>[Consulting services] Consulting services relating to this project were provided for the National Highway No. 1 Bypass Road Construction Project.</p>		<p>(1) Outputs</p> <p>As given below; virtually the same as at the time of the ex-ante evaluation. <u>[Cuu Long Bridg] (Package 2)</u> Steel PC combined cable-stayed bridge 1,010m Access bridge on Bin Long side 520m Access bridge on Can Tho side 1,220m</p> <p>[Consulting services] Same as at left</p>
<p>(2) Project period</p>	<p>(2) Project period March 2001- December 2006 (70 months) * • Bypass highway on Bin Long side (Package 1) Scheduled for completion in April 2006 • Bypass highway on Can Tho side (Package 3) Scheduled for completion in September 2006 • Cuu Long (Can Tho) Bridge (Package 2) Scheduled for completion in December 2006</p>		<p>(2) Project period March 2001- December 2008 (scheduled) (94 months)* • Bypass highway on Bin Long side (Package 1) Scheduled for completion in August 2008 • Bypass highway on Can Tho side (Package 3) Scheduled for completion in November 2008 • Cuu Long (Can Tho) Bridge (Package 2) Scheduled for completion in December 2008</p>

	<ul style="list-style-type: none"> • Land acquisition, relocation of residents Scheduled for completion in July 2001 	<ul style="list-style-type: none"> • Land acquisition, relocation of residents Completed February 2005 (main portion) Scheduled for completion in August 2006 (additional portion) <p><Reasons for the delay></p> <ul style="list-style-type: none"> • Due to a delay in consultant selection procedures (six months) and a delay in contractor selection procedures (14 months) because of a delay in establishment/preparation of bidding qualification examination criteria and bidding evaluation procedures, etc., start of construction was delayed by 32 months (National Highway No. 1) and 29 months (Cuu Long Bridge) from the initially scheduled starting date. • Because of delays in determining project area, construction of residents' relocation area, and compensation negotiations, acquisition of a land and relocation of residents was completed 43 months later than initially scheduled. Afterward, the need for additional acquisition of a land arose. Compensation negotiations are now being conducted, with conclusion scheduled for August 2006. The additional land acquired will be used for some of the land for road shoulders and will not cause any delays in construction.
<p>Results of the satisfaction survey with special yen loan project [Cuu Long (Can Tho) Bridge construction project] (*)</p>	<ul style="list-style-type: none"> • The Vietnam Ministry of Transportation, which was the executing agency, believes that the special yen loan had contributed to stimulating the economy and employment. The Ministry had particularly high praise for the quality introduced by Japanese companies, the sound process management, and the effect of technical transfers to local companies in Vietnam, and thought that even though the price was high, an effect commensurate with cost had been obtained. • The Japanese consultant and contractor were praised for their ability to use Japan's technical advantage, such as the deep pile driving technology used in the construction of the bridges' foundations. However, the opinion was expressed that, in this project, which civil works are main component, because normally the portion of procurement acquired from third-party countries was high, it was difficult to achieve a ratio of Japan procurement of more than 50%, which is a condition for receiving the special yen loan for a project sponsored by ODA. 	
<p>Lessons Learned and Recommendations</p>	<p>(Lessons learned)</p> <ul style="list-style-type: none"> • Social consideration (development of markets, etc.) has been given in both projects to people who make a living operating retail shops (sale of merchandise, provision of services) for ferry users, and the study of relief measures for the socially disadvantaged from the project implementation stage has been effective. <p>(Recommendations)</p> <ul style="list-style-type: none"> • It is necessary to continue monitoring concerning acquisition procedures for additional lands, which is scheduled to be completed in August 2006. • With regard to measures to lessen the assumed negative social impact on surrounding residents and ferry company employees following completion of the project, it is necessary to continue collaboration and cooperation with local administration (Bin Long Province, Can Tho Province) and to strengthen these relationships. • In order to enhance the effectiveness and sustainability of the project after the completion, it would be desirable to strengthen information sharing and collaboration between the executing agency (PMU My Thuan) and the operation and maintenance agency (RRMU7) and to share operation 	

	and maintenance technology and information and provide technical training to RRMU7 during project implementation.	
Indicators set for use at time of ex-post evaluation	N.A.	(1) Average yearly traffic (vehicles/day) (2) VOC saving (1,000 yen/year) (3) Time saving (1,000 yen/year) With respect to (2) and (3) above, however, it is necessary to confirm conditions at the time of the ex-post evaluation and for the evaluator to calculate these savings taking into account changes in conditions following the F/S.

(*) It was planned that the survey on degree of satisfaction with Special Yen Loan would be conducted at the time of the Ex-Post Evaluation (Ex-Post Evaluation is conducted two years after the completion of the project). However as no Special Yen Loan projects are yet to reach the timing of the ex-post evaluation, the survey was provisionally conducted at the time of the Mid-Term Review. More specific survey on degree of satisfaction with Special Yen Loan should be conducted at the time of the Ex-Post Evaluation to research the cost-effectiveness including the quality after the completion of the project.

(Table 1) Average Daily Traffic Crossing the Hau River (comparison of actual traffic in 2006 with planned traffic) (Unit: vehicles/day)

	Actual performance values (at time of mid-term review)		Planned values (at time of appraisal)		
	June 2006	Rate achieved	2006	2010	2020
1. Passenger cars (4 seat)	1,210	49%	2,479	4,577	12,387
2. Trucks (2 axle)	2,111	72%	2,927	5503	15,794
3. Trucks (3 or more axles)	241	232%	104	194	542
4. Buses (less than 25 seats)	2,192	195%	1,126	1,822	3,922
5. Buses (25 or more seats)	316	62%	512	810	1,652
6. Motorbikes	32,846	306%	10,736	15,777	34,972
7. Bicycles	2,726		-	-	-
8. Pedestrians (persons/day)	2,207		-	-	-
Totals (1-6)	38,916	218%	17,884	28,683	69,269
Less motorbikes	6,070	85%	7,148	12,906	34,297

Source: Actual figures were obtained from the results of the traffic survey performed in the Mid-term Review, and planned figures are from the JICA F/S on Can Tho Bridge Construction in Vietnam, September 1998.

(Table 2) Actual Passenger Car Units in 2006 and Revised Future Targets Based on these Figures

(Unit: PCU/day)	Actual performance values (at time of mid-term review)	Revised Target based on 2006 actual performance values	
	June 2006	2010	2020
1. Passenger cars (4 seat)	1,210		
2. Trucks (2 axles)	4,222		
3. Trucks (3 or more axles)	603		
4. Buses (less than 25 seats)	4,384		
5. Buses (25 or more seats)	790		
6. Motorbikes	9,854		
7. Bicycles	545		-
Total (1-7)	21,608	30,357	94,284

Notes:

1) Passenger Car Unit (PCU) is a unit obtained by converting the number of operating vehicles of various types to the number of passenger cars. Because the conversion factor used in the F/S was unknown, the PCU conversion factor was found by applying the generally-used National Standard of TCVN 4054-98 of Viet Nam (passenger cars= 1.0, trucks (2-axle)=2.0, trucks (3 or more axles)=2.5, buses (less than 25 seats)=2.0, buses (25 or more seats)=2.5, motorbikes=0.3, bicycles=0.2)

2) The revised planned figures for 2010 and 2020 were calculated using the formula given below, which is generally used in Vietnam.

$$Q_t = Q_0 \times (1+q)^{t-1}$$

Qt: Future PCU

Qo: PCU of base year (2006)

t: Number of years from base year (2006) to planned year

q: A fixed variable/constant (future GDP growth rate) of 10-12% is normally applied for Vietnam

(Table 3) Average Daily Traffic Crossing the Hau River, 2000-2006

(Unit: vehicles/day)

	2000	2001	2002	2003	2004	2005	2006	2000-2006 Average growth rate
Time of the mid-term review (Actual performance values)								
1. All vehicle types	2,875	3,399	3,963	4,391	4,929	5,332	6,070	13.3%
2. 2/3-wheel vehicles	6,706	8,171	10,023	11,067	13,699	15,902	35,572	32.1%
3. Passengers (persons/day)	25,836	28,640	31,864	34,740	39,402	41,776	2,207	10.1%

Source: Target figures at the time of the ex-ante evaluation are from the JICA F/S (1998). Actual figures at the time of the mid-term review are from data provided by the Cuu Long Ferry Co. for 2000-2005. The 2006 figures are the results of the present traffic volume survey.

- 1) All vehicle types include passenger cars, buses, and trucks (1-5 of Table 1).
- 2) Vehicles with 2-3 wheels include motorbikes, bicycles, and 3-wheel vehicles (for passengers, freight).
- 3) Passengers in 2000-2005 (actual figures) are all passengers including pedestrians, and those riding bicycles and motorbikes, etc.
- 4) Passengers in 2006 (actual figure) are only pedestrians.
- 5) For passengers, the average growth rate is that for the five-year period from 2000 to 2005.

* During the six-year period from 2000 to 2006, average daily traffic of all vehicle types and 2/3-wheel vehicles grew steadily by 13.3% and 32.1%, respectively. Growth in traffic of 2/3-wheel vehicles was especially notable.