

Socialist Republic of Viet Nam

FY2016 Ex-Post Evaluation of Japanese ODA Loan Project
“Saigon East-West Highway Construction Project (I)(II)(III)(IV)(V)”

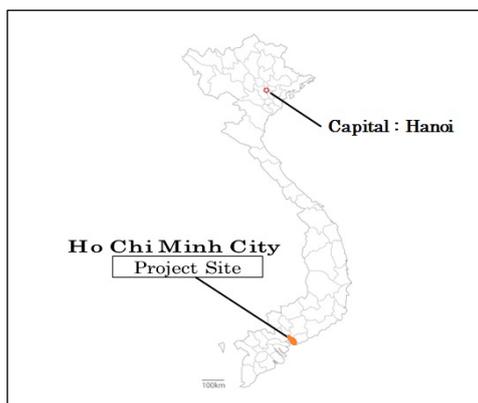
External Evaluator: Kenichi Inazawa, Octavia Japan Co., Ltd.

0. Summary

This project constructed an east-to-west arterial road including underwater tunnel traversing the Saigon River in order to increase transportation capacity and improve transportation conditions; thereby contributing to the urban development along the eastern bank of the Saigon River and to the economic development of Ho Chi Minh City, which is Vietnam’s largest city and a hub of commerce and industry. Relevance of this project is high because of its confirmed consistency with economic development policies laid out in Vietnam’s *Socio-economic Development Strategy 2011-2020* and *Spatial Development Direction 2010-2020*, the need for developing urban transportation infrastructure, and the assistance policy of the Japanese Government. As for efficiency, project outputs were implemented mostly as planned, but project costs exceeded the initial plan due to cost increases caused by higher land acquisition and resettlement costs as well as soil improvement work due to the discovery of soft ground. The project period was significantly longer than the initial plan due to delays in procedures, design and construction. Thus, the efficiency is low. In 2016 (five years after the project completion), actual figures of annual average daily traffic using the Saigon River Tunnel exceeded the target. The amount of time required to travel the entire distance of the Saigon East-West Highway was shortened as initially planned; thus, the initially anticipated effects have been realized. In addition, the rising price of residential land, improving living standards, and changes/improvements in living environment have been confirmed based on the results of beneficiary surveys and interviews of people living in the vicinity of the site. In light of the above, the effectiveness and impact of this project are high. No particular problems were observed at the time of the ex-post evaluation in terms of the institutional, technical or financial aspects of the Management Center of Saigon River Tunnel (hereinafter, “MCST”), which is in charge of the operation and maintenance and safety measures for the facilities developed by this project. Thus, sustainability of the effects realized through this project is high.

In light of the above, this project is evaluated to be satisfactory.

1. Project description



Project Location



Saigon East West Highway

1.1 Background

Ho Chi Minh City, which is located in Southern Vietnam, was faced with chronic traffic congestion, air pollution, noise, and an increase in traffic accidents caused by its rapid socio-economic development. Before the start of this project, the transportation corridor from outside the city to downtown from east to west¹ was narrow and had heavy traffic, making it overcrowded. There were concerns about the city's future, which was likely to include a decline in urban functions and productivity caused by worsening traffic congestion as well as a worsening living environment. To facilitate the flow of traffic, there was an urgent need for developing the east-west transportation corridor from outside the city to downtown and developing road infrastructure including the Saigon River Tunnel.

1.2 Project Outline

The objective of this project is to enhance transport capacity and mitigate traffic condition in Ho Chi Minh City, which is the biggest city and the center of commerce and industry in Vietnam, by constructing an east-west arterial highway including a tunnel crossing the Saigon River; thereby contributing to improve the living condition in the surrounding area, promote the urban development in the east side of the river, and develop the city's economy.

Loan Approved Amount/ Disbursed Amount	Phase I: 4,255 million yen / 2,047 million yen
	Phase II: 10,926 million yen / 10,733 million yen
	Phase III: 6,775 million yen / 6,717 million yen
	Phase IV: 19,071 million yen / 16,620 million yen

¹ There is Hanoi Highway, an arterial road, in the east side, and there is National Route 1 Highway in the west side. Traffic flowed into downtown Ho Chi Minh City from both interchanges.

	Phase V: 14,061 million yen / 10,299 million yen
Exchange of Notes Date/ Loan Agreement Signing Date	Phase I: March 28, 2000 / March 29, 2000
	Phase II: March 28, 2002 / March 29, 2002
	Phase III: March 31, 2003 / March 31, 2003
	Phase IV: March 31, 2005 / March 31, 2005
	Phase V: May 14, 2010 / May 27, 2010
Terms and Conditions	【Phase I and Phase II】 Construction: Interest Rate 1.8% Repayment Period : 30 years (Grace Period: 10 years) Conditions for Procurement: Complex Tied Consulting Service: Interest Rate: 0.75% Repayment Period: 40 years (Grace Period: 10 years) Conditions for Procurement: Bilateral Tied
	【Phase III, Phase IV, Phase V】 Construction: Interest Rate 1.8% (Phase III) Interest Rate 1.3% (Phase IV) Interest Rate 1.2% (Phase V) Repayment Period : 30 years (Grace Period: 10 years) Conditions for Procurement: General Untied
Borrower / Executing Agency(ies)	The Government of the Socialist Republic of Vietnam / Ho Chi Minh City People's Committee
Project Completion	November 2011
Main Contractors (Over 1 billion yen)	Obayashi Cooperation (Japan), Kawasaki Heavy Industries (Japan) /Gtech (USA) (JV), PS Mitsubishi Construction Co., Ltd. (Japan)/ Obayashi Cooperation (Japan) (JV)
Main Consultants (Over 100 million yen)	(Phase I) Pacific Consultants International (Japan)/Oriental Consultants Co., Ltd.(Japan)/Transport Engineering Design Incorporation (TEDI) (Vietnam)/Environmental Technology Company Ltd. (Vietnam) (JV) (Phase II) Oriental Consultants Co., Ltd. (Japan) (Phase II) Oriental Consultants Co., Ltd. (Japan)/Asia Pacific Engineering Consultants(Vietnam)/Transport Engineering Design Incorporation (Vietnam)/Environmental Technology Company Ltd. (Vietnam) (JV)
Feasibility Studies, etc.	F/S “Development of Saigon River Underwater Tunnel” by Manusell, Australia (December 1997) F/S “Road Widening Improvement Along Ho Chi Minh City Canal” by Transport Engineering Design Incorporation (TEDI) South, Vietnam (June 1998)

Related Projects	<p>【ODA Loan Project】 “Ho Chi Minh City Water Environment Improvement Project” (Signing of Loan Agreement: 2010) “North-South Expressway Construction Project (Ho Chi Minh City - Dau Giay Section)” (Signing of Loan Agreement: 2008, Co-financing with ADB)</p>
------------------	--

2. Outline of the Evaluation Study

2.1 External Evaluator

Kenichi Inazawa, Octavia Japan Co., Ltd.

2.2 Duration of Evaluation Study

This ex-post evaluation study was conducted with the following schedule.

Duration of the Study: September 2016 – November 2017

Duration of the Field Study: 10-24 December 2016 and 10-19 May 2017

3. Results of the Evaluation (Overall Rating: B²)

3.1 Relevance (Rating: ③³)

3.1.1 Consistency with the Development Plan of Vietnam

Before the start of this project, the Government of Vietnam established the *Socio-economic Development Strategy 1991-2000*. One of the targets laid out in this strategy was the promotion of foreign direct investment through increased investment for infrastructure development. The Government of Vietnam formulated the *Socio-economic Development Strategy 2001-2010*, which called for collaboration in development and poverty reduction as well as maintaining highly sustained economic growth with a focus on hubs of economic development. Meanwhile, in 1998, Ho Chi Minh City formulated the *Masterplan of Socio-economic Development in Ho Chi Minh City Up to 2020*. One of the basic development concepts of this plan was to disperse the population in areas of the city already urbanized while at the same time accelerating urban and industrial development in the city’s outlying areas, particularly in the south and southeast, with the goal of absorbing future increases in urban population. To realize this concept, the city emphasized the promotion of transportation infrastructure development connecting the city’s existing urbanized area with these outlying areas.

² A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

³ ③: High, ②: Fair, ①: Low

At the time of the ex-post evaluation, the Government of Vietnam is advocating the importance of remedying economic disparities, reducing poverty, and developing infrastructure in regional areas through the *Socio-economic Development Strategy 2011-2020*. Also, in 2010, Ho Chi Minh City People's Committee (hereinafter, "HCMCPC"), the executing agency of this project, formulated the *Spatial Development Direction 2010-2020*. This plan considers the Saigon East-West Highway, which is the section covered in this project, to be an important route traveling from the city's downtown to the city's northeast and southwest. Additionally, in 2012, the HCMCPC drew up the *Masterplan of Socio-economic Development in Ho Chi Minh City Up to 2020 Vision to 2025* in an effort to carry out socioeconomic development through infrastructure development. This plan points out the importance of urban transportation infrastructure development, including this project.

In light of the above, the Central Government of Vietnam and HCMCPC, both before the start of this project and at the time of the ex-post evaluation, have placed importance in the promotion of transportation infrastructure development in regional areas and urban transportation infrastructure development in Ho Chi Minh City. Thus, it is confirmed that this project is consistent with policies and measures outlined in Vietnam's national and sector plans before the start of the project and at the time of the ex-post evaluation.

3.1.2 Consistency with the Development Needs of Vietnam

Before the start of this project, Ho Chi Minh City, which is Vietnam's largest city and a hub of commerce and industry, faced increasing transportation demand caused by the expansion of economic activities, development, and population growth. At the same time, the city's urban issues of chronic traffic congestion, air pollution, noise, and increased traffic accidents were growing worse. According to a transportation study conducted by the city in 1996, the city's population was forecasted to increase by about 1.8 times between 1996 and 2020, while daily traffic in the city was expected to increase 2.7 times and traffic during peak hours 3 times during this same span. Given this situation, the city's transportation corridor traveling from outside the city to downtown from east to west was narrow and overcrowded. Therefore, there were concerns the city's urban functions and productivity would decline due to worsening traffic congestion negatively impacting its living environment. This made it clear that the city faced the urgent task of developing transportation infrastructure including an access road and underwater tunnel crossing the Saigon River that connected the outlying areas with downtown in an east to west direction to cope with rising transportation demand.

After the completion of this project, traffic volume on the section of the Saigon East-West Highway traveling from east to west from the city's outlying area to downtown has been on the rise during both peak and off-peak⁴ times⁵. Therefore, HCMCPC is planning further to develop transportation infrastructure in the vicinity to alleviate traffic congestion and reinforce urban functions. As one example of this, HCMCPC commenced a road expansion project in 2015 covering the Saigon East-West Highway from the east to south toward the Mekong Delta, with the aim of coping with increasing transportation demand and facilitating traffic flow.

Based on the above, Ho Chi Minh City's needs concerning urban transportation infrastructure development have been confirmed even at the time of the ex-post evaluation. Therefore, it can be judged that consistency is high with the development needs of the city both before the start of the project and at the time of the ex-post evaluation.

3.1.3 Consistency with Japan's ODA Policy

In June 2000, Japan's Ministry of Foreign Affairs (MoFA) formulated the *Country Assistance Plan for Vietnam* that identified the following five priority areas: [1] Human resource and legislation development (especially support for shift to market economy); [2] Power, transportation, etc., infrastructure development; [3] Agricultural and rural development; [4] Education and healthcare; and [5] The environment. Of these, with regard to [2] Power, transportation, etc., infrastructure development, the plan specified that a review be conducted on infrastructure development support in the transportation field, etc., in order to cope with future increases in physical distribution. This plan was later revised in 2004, with one of the priority areas for assistance labeled as "support related to urban transportation" (Hanoi and Ho Chi Minh City). Furthermore, this plan was revised once again in 2009, with one of the priority areas defined as "support related to the development of inter-city arterial transportation networks." This project provides assistance to Vietnam and its rapidly growing economy through the aforementioned priority areas and individual assistance policy ([2] Power, transportation, etc., infrastructure development) and for urban transportation in Ho Chi Minh City. Thus, this project is consistent with the assistance policy of the Japanese Government.

Meanwhile, the Japan International Cooperation Agency (hereinafter, "JICA") formulated the *Medium-Term Strategy for Overseas Economic Cooperation Operations* in December 1999. The priority areas cited in this strategy were: 1) Reinforcement of economic structure for

⁴ The peak hours of transportation volume in Ho Chi Minh City are considered to be from 7:00am to 9:00am and from 4:00pm to 8:00pm. All other hours are considered to be off-peak.

⁵ Reference: See 3.3.1 Effectiveness and Quantitative Effects (Operation and Effect Indicators)

sustained growth and overcoming factors restricting growth (appropriate macroeconomic management, reinforcement of industrial structure and economic infrastructure development); 2) Alleviating poverty and remedying disparities between regions; 3) Environmental protection and disaster risk reduction measures; and 4) Human resource development and legislation creation, among others. This project can be viewed as applicable to 1) Economic infrastructure development. Additionally, in 2009, JICA formulated the *Country Assistance Policy for Vietnam*, which identified urban development and transportation, etc., as priority development issues. Among these, the development of arterial transportation networks was cited as one of the pillars of assistance.

In light of the above, the Saigon East-West Highway developed by this project was planned to contribute to the economic growth of Ho Chi Minh City, and therefore, it can be said that it was consistent with the assistance policy of the Japanese Government.

This project has been highly relevant to Vietnam’s development plan and development needs, as well as Japan’s ODA policy. Therefore its relevance is high.

3.2 Efficiency (Rating:①)

3.2.1 Project Outputs

Table 1 shows a summary of this project’s construction work, equipment procurement and installation work, and infrastructure development at the site of the resettlement of residents. With regards (1) Civil works in the table, planned outputs of this project vary slightly between phases one and five; thus, the planned number at the time of the appraisal is shown. For (2) Facilities for management; (3) Development of resettlement site; and (4) Consulting services, the planned outputs at the time of the appraisal for Phase 1 are shown. In contrast, Table 2 shows the actual outputs of this project at the time of the ex-post evaluation.

Table 1: Planned Outputs of this Project

1) <u>Civil Works:</u>					
	Phase I’s appraisal (2000)	Phase II’s appraisal (2002)	Phase III’s appraisal (2003)	Phase IV’s appraisal (2005)	Phase V’s appraisal (2010)
a) Construction of Saigon River Tunnel (New construction)	Approx. 21 km (Width: approx.36 m (canal side road),	Approx. 1.6km (Width:23. 25m, 6 lanes)	Approx. 1.09km (Width:23. 75m, 6 lanes)	Approx. 1.09km (Width:23. 75m, 6 lanes)	Approx. 1.5km (Width:23. 75m, 6 lanes)

b) Canal Side Road (Rehabilitation and widening)	Approx.31 m (tunnel section), Approx. 100m (Thu Thiem section), 6 lanes)	Approx. 9.45km (Width:27 m, 6 lanes)	Approx. 9.06km (Width:27-31m, 6 lanes)	Approx. 9.06km (Width:24-28m, 6 lanes)	Approx. 8.5km (Width:24-28m, 6 lanes)
c) Construction of Western Road (New construction)	Thiem section), 6 lanes)	Approx. 4.5km (Width:30 m, 6 lanes)	Approx. 4.5km (Width:33 m, 6 lanes)	Approx. 4.5km (Width:28 m, 6 lanes)	Approx. 4.9km (Width:28 m, 6 lanes)
d) Construction of Thu Thiem Road (New construction)		Approx. 6.35km (Width:29 m, 6 lanes)	Approx. 7.25km (Width:30 m, 6 lanes)	Approx. 7.25km (Width:27 m, 6 lanes)	Approx. 6.9km (Width:27 m, 6 lanes)
e) Construction of Bridges and Interchanges (New construction)	Bridge: 15, Interchange : 5	Bridge: 18, Interchange : 6	Bridge: 12, Interchange : 6	n.a.	n.a.
2) <u>Facilities for Management:</u>	Phase I's appraisal: Traffic information system, tunnel ventilation facility, toll gate, vehicle for maintenance				
3) <u>Development of Relocation Site :</u>	Phase I's appraisal: Land preparation, development of houses or residential areas (15 places in all), development of infrastructure (land preparation, on-site road, development of water supply and sewerage, electricity distribution network, kindergarten, elementary school, hospital, market, park, etc.)				
4) <u>Consulting Services :</u>	Phase I's appraisal: Detailed design on road construction project, bidding assistance, construction supervision, operation and maintenance training, detailed design review on infrastructure development of relocation site, monitoring for resident's relocation, etc.				

Source: JICA documents

Table 2: Actual Outputs of this Project

1) <u>Civil Works:</u>	Actual Outputs at the time of ex-post evaluation (breakdown)	
a) Construction of Saigon River Tunnel (New construction)	Implemented almost as planned	1.49km (Width: 33.3m, 6 lanes)
b) Canal Side Road (Rehabilitation and widening)		9.06km (Width: 42.0m, 6 lanes)
c) Construction of Western Road (New construction)		4.5km(Width: 60.0m, 6 lanes)
d) Construction of Thu Thiem Road (New construction)		7.25km (Width: 100.0m, 6 lanes)
e) Construction of Bridges and Interchanges (New construction)		Bridge: 13, Interchange: 6
2) <u>Facilities for Management:</u>	Implemented as planned	
3) <u>Development of Relocation</u>	Increased from planned (Development of houses or residential	

3.2.2 Project Inputs

3.2.2.1 Project Cost

Table 3 shows the planned and actual costs for this project. The total project cost planned at the time of the appraisal for Phase 1 (initial plan) was 67,055 million yen. The actual costs totaled 79,209 million yen, exceeding the plan (118% compared to the plan). The reasons for this overrun included: 1) An increase in the number of land owners and residents eligible for land acquisition and resettlement⁸; 2) During the project, construction costs rose caused directly by soaring worldwide prices of construction materials that impacted construction costs; and 3) Unexpected costs requiring soil improvement work because soft ground was discovered at the project site, etc. As a result, the cost of civil engineering work and consulting services also increased⁹. Behind this, the appraisal was carried out under appropriate study and design, however these are believed to be unavoidable events (unable to be predicted) directly faced by this project. However, considering there was little change in the actual outputs as described above, it cannot be judged that it was excess of the project costs corresponding to the actual outputs.

Table 3: Planned and Actual Costs of This Project

Planned Project Costs	Actual Project Costs
Total Project Costs: 67,055 million yen (Japanese ODA loan: 47,931 million yen)	Total Project Costs: 79,209 million yen ¹⁰ (Japanese ODA loan: 46,416 million yen)

Source: JICA documents (Planned Project Costs), Answers to questionnaire (Actual Project Costs)

3.2.2.2 Project Period

At the time of the appraisal for Phase 1 (initial plan), the project period was planned for the five year five month period from March 2000 to April 2005 (62 months)¹¹. In contrast, the actual project period was eleven years and nine months from March 2000 to November 2011 (start of use) (141 months), which greatly exceeded the plan (227% versus the plan). Table 4 shows the planned and actual periods for this project. The main reasons behind this delay

⁸ The plan called for land acquisition to total 130ha, but the actual amount was 203ha. The plan for the number of households eligible for resettlement was approx. 5,200, but the actual number was 6,790. The land acquisition area and number of eligible households were estimated in the initial plan, but later found to actually be much higher than expected, resulting in increased land acquisition costs and compensation costs. Details are explained below in 3.4.2.2 Impacts “Land Acquisition and Resettlement.”

⁹ According to JICA documents, it is confirmed that cost overruns caused by soaring prices for construction materials worldwide led to a 39% increase in construction costs, a 4% increase in soft ground improvement measures at the project site, and a 33% increase caused by the need to change the design and construction work due to site conditions, each versus the initial plan.

¹⁰ The actual cost does not include the final construction payment proceeds explained on the next page.

¹¹ At the time of the appraisal, the completion of this project was defined as the start of operation (April 2005).

included: 1) With regard to land acquisition and resettlement described above, the Vietnamese side faced delays in legal proceedings, including compensation, and took more time than expected to confirm the inheritor of the land, which resulted in the number of actual eligible households for resettlement increasing compared to the initial plan and adding time for procedures and administration works; 2) In terms of the bidding and contract for the construction contractor, the project covered the construction of the Saigon River Tunnel (immersed tube type), but this was first time such a method was used in Vietnam, which required more time than expected for the Vietnamese side to carry out confirmation work during the time of contract negotiation with the bidding companies; 3) With regard to civil works, underground facilities were discovered at the project site (telephone poles, telephone lines and water pipes, etc.) during the project, for which more time than expected was required for moving these facilities, and many soft grounds were discovered at the project site, requiring soil improvement work, which took more time than expected (resulting in approx. more than two and a half years of delays); and 4) Design changes occurred during the project due to changes in the Ho Chi Minh City urban plan, and as a result, design changes were made to the central portion of the road, its byroads, parking lanes and water drain off functions for the section traveling through the Thu Thiem district¹², which required more time for confirmation and approval procedures; and 5) When constructing the tunnel, part of the casting basin was damaged, which required it to shut down temporarily for repair work, the tunnel suffered cracks and water leaks, which required time to identify the causes and make repairs (resulting in approx. more than three and a half years of delays). As a result of the delays caused by 1) to 5) above, consulting service periods extended dramatically. Behind this, the appraisal was carried out under appropriate study and design, however, delays in the project period are believed to be unavoidable events (unable to be forecasted at the time of the appraisal for Phase 1) directly faced by this project. However, considering the fact that there was little change in the actual outputs, these overruns in project period cannot be judged to be appropriate in view of the actual outputs.

¹² As background information, a new urban development plan was initiated for the eastern side of the Saigon River (Thu Thiem district) in 2003. This plan involved the development and promotion of commercial and residential zones in the Thu Thiem district. This project had to maintain consistency with this new urban development plan, which affected the initial design of the section covered by this project.

Table 4: Planned and Actual Period of This Project

Planned Project Period	Actual Project Period
1) Land Acquisition and Relocation From October 2000 to August 2002	1) Land Acquisition and Relocation From October 2001 to June 2007
2) Bidding and Contract for the Construction Contractor From March 2000 to June 2000	2) Bidding and Contract for the Construction Contractor From March 2002 to November 2005
3) Civil Works From January 2002 to April 2005 (start of use)	3) Civil Works From January 2005 to November 2011 (start of use)
4) Consulting Services From July 2000 to July 2005	4) Consulting Services From August 2001 to December 2016

Source: JICA documents (Planned Project Period), Answers to questionnaire (Actual Project Period)

[Column] Ongoing discussions related to the leakage measures and subsidence of the Saigon River Tunnel (after completion of the construction work)

Construction work was completed in November 2011, but new leaks, subsidence, and cracks, etc., were found inside the tunnel around the end of the defect period in the project outputs (November 2012). The Urban Civil Works Construction Investment Management Authority (hereinafter, "UCCI"), which is responsible for overseeing project implementation and the overall project, hired a third-party engineering consultant (a Danish company) to carry out an engineering inspection in order to gain an objective assessment and advice regarding the issues occurring inside the tunnel in 2014. As a result, the consulting service period of this project was extended even further. Following this, a response plan for leakage measures and subsidence occurring inside the tunnel was presented, and discussions continue to take place toward a resolution at the time of the ex-post evaluation (December 2016)¹³.

3.2.3 Results of Calculations for Internal Rates of Return (Reference only)

Economic Internal Rate of Return (EIRR)

A recalculation of the economic internal rate of return (EIRR) of this project under the same conditions at the appraisal yielded a rate of 13.99% based on the benefits of reducing traveling costs and shortening travel time on all sections of the Saigon East-West Highway, on project

¹³ At the time of the ex-post evaluation, discussions continue to take place on the amendment proposal to the consulting service agreement, and talks are being held with regard to the inspections and maintenance of the Saigon River Tunnel's facilities and the final payment for construction work, among other topics. According to UCCI and the project's construction management consultant, discussions will be concluded sometime in 2017. This will be followed by the handover of the remaining project scope of the "Saigon River Tunnel" from the contractor to HCMCPC and the issuance of the completion certificate.

costs as well as operation and maintenance costs (tax excluded) as the costs, and 30 years as the project life. This is somewhat lower than the 15.8% calculated at the time of the appraisal. The main reason for this difference is that costs required for the project increased compared to the initial plan and the project period experienced delays.

As outlined above, project outputs were generally in line with the plan, while increases in land acquisition and resettlement costs and increases in costs attributable to soil improvement work carried out after the discovery of soft ground resulted in project cost overruns compared to the initial plan. The project period, too, experienced a significant overrun from the initial plan due to delays in procedures for resettlement and land acquisition, delays in procedures by the executing agency, and delays in work period, among others. Therefore, the project's efficiency is low because project costs exceeded the plan and the project period significantly exceeded the plan.

3.3 Effectiveness¹⁴ (Rating:③)

3.3.1 Quantitative Effects (Operation and Effect Indicators)

1) Operation Indicators of the Project: Annual Average Daily Traffic

The ex-post evaluation compared the targets and actual figures of annual average daily traffic (PCUs¹⁵) used as the quantitative effectiveness indicator at the time of the appraisal for Phase 5 which set targets after carefully re-examining traffic predictions. As Table 5 indicates, since 2012 when road service started, PCUs traveling the Saigon River Tunnel have risen with each passing year, and in 2016, actual figures exceeded those of 2013, two years after the start of road service. The reason why the actual figures for 2013 did not achieve the target for that year was confirmed as the following factors according to interviews with UCCI and MCST: 1) While the targets of Table 5 were set at the time of the appraisal for Phase 5, afterwards Ho Chi Minh City was affected by the worldwide economic downturn. During the same appraisal period, it was anticipated that commercial, residential and office tower development in the Thu Thiem district would progress around 2013, but in actuality investments did not materialize. As a result, transportation demand for the section covered by this project fell below expectations. As reference, Table 6 shows "Foreign Investment in Ho Chi Minh City." The drop in foreign

¹⁴ Sub-rating for effectiveness is to be evaluated with impact.

¹⁵ An acronym for Passenger Car Unit. PCU is an indicator that converts various types of vehicle units into units of passenger cars.

investment from 2012 to 2013 is presumed to support this situation. However, investment has increased since 2014, and as a result, development of the Thu Thiem district has progressed and transportation demand has increased, affecting actual traffic causing it to increase. In addition, 2) According to interviews with UCCI and MCST, the north-south expressway (Ho Chi Minh to Dau Giay section) completed in February 2015 was connected to the eastern side of the section constructed by this project, and traffic from Dong Nai Province and Ba Ria-Vung Tau Province, both located to the east of Ho Chi Minh City, is increasing¹⁶. As a result, development and economic vitalization has progressed across the entire city, causing further transportation demand, which is judged as a factor for raising the actual traffic of this project. Based on the above, the initially anticipated effects of this project were realized in the fifth year after its completion (2016).

Table 5: Baseline, Target and Actual Figures Regarding Annual Average Daily Traffic

(Unit: PCU/day)

Indicator	Baseline	Target	Actual				
	2004	2013	2012	2013	2014	2015	2016
		Two years after completion	One year after completion	Two years after completion	Three years after completion	Four years after completion	Five years after completion
Annual Average Daily Traffic Volume of the Tunnel	N/A	92,650	38,551	50,685	56,176	74,050	95,000

Source: JICA documents (Baseline: Phase I's appraisal, Target: Phase V's appraisal), Answers to questionnaire (Actual)

(Reference) Table 6: Foreign Investment in Ho Chi Minh City (for the current five years)

(Unit: million USD)

2011	2012	2013	2014	2015
2,804	593	1,048	2,879	3,042

Source: HCMCPC

2) Effect Indicator: Travel Time

This project used the travel time for the entire length of the Saigon East-West Highway (approx. 22km: the time required to travel the section covered by this project from the intersection of Hanoi Highway to the intersection of National Route 1) as the effect indicator. As Table 7 indicates, at the time of the ex-post evaluation, this section could be traveled in 25 minutes as targeted initially. The road before the start of this project (former road) took around

¹⁶ Data of traffic inflow from the north-south expressway could not be obtained. (With the facilities for management procured by this project, the traffic volume from the expressway has not been measured.)

50 minutes to travel the entire section because the road width was narrow and some places were not paved. As a result of the road, bridge and Saigon River Tunnel developed through this project, traffic flow has been facilitated, significantly shortening travel time. The project's target has been fulfilled in the fifth year after completion (2016). Thus, the effectiveness has been realized as initially planned.

Table 7: Baseline, Target and Actual Figures Regarding Travel Time
(Unit: Minute)

Target Area	Baseline	Target	Actual				
	2004	2013	2012	2013	2014	2015	2016
			One year after completion	Two years after completion	Three years after completion	Four years after completion	Five years after completion
Travel time (time required to travel from the intersection of this project and Hanoi Highway to the intersection with National Highway No.1:See Figure 1)	50	25	25	25	25	25	25

Source: JICA documents (Baseline: Phase I's appraisal, Target: Phase V's appraisal), Answers to questionnaire and measurement by vehicle running at the field survey (Data was taken several times between both ends of the section and the average value was calculated.)

3.3.2 Qualitative Effects (Other Effects: Improvement of Convenience as Access Road to the Thu Thiem District on the East Side of the Saigon River from the Center of Ho Chi Minh City (Improvement of Traffic Conditions), and Secure Traffic Safety in the Saigon River Tunnel)

1) Improvement of Convenience as Access Road (Improvement of Traffic Conditions)

This survey involved a beneficiary survey carried out targeting drivers (50 people) traveling in the vicinity of the Thu Thiem district and the Saigon River Tunnel on a regular basis¹⁷. With regards to the section covered by this project that travels through this district and tunnel, all drivers responded, "Travel time to my destination has been shortened" and "The new road is

¹⁷ Sample characteristics included: 1) all respondents regularly drove in the Thu Thiem district as well as downtown Ho Chi Minh City before the completion of the Saigon River Tunnel; 2) Gender ratio: 98% male and 2 % female; 3) Number of years driving professionally: 5 to 35 years; 4) Breakdown of drivers: taxi drivers 36%, KUMHO Transportation Co., Ltd. (private sector bus company) 34%, HOA MAI Transport & Travel Services Corp (private sector bus company) 14%, and Ho Chi Minh City Public Bus (No. 9) 16%.

safer for automobiles and motorbikes¹⁸.” Figure 2 shows a question on comfort when driving, and all respondents answered either “Very comfortable” or “Comfortable.” When the respondents were interviewed about these responses, comments were received that included, “Traffic and passengers along the section covered by the project are increasing annually. However, I am able to quickly arrive at my destination with little congestion. The route is smooth sailing even when transporting goods by truck and travel time has been shortened. The road is wide enough, so I am easily able to change lanes. There is a dedicated lane for motorbikes, which I believe helps prevent accidents. It is a very easy road to drive. The condition of the road surface is also excellent.” Based on such comments, it is presumed that this project has contributed to the improvement of travel time to destination and safety and comfort when driving.

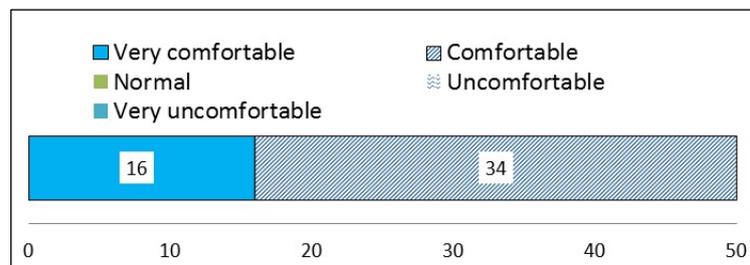


Figure 2: With regard to the comfort of this project’s road passing through Thu Thiem district and Saigon River Tunnel (Sample total 50, target is driver)

2) Secure Traffic Safety in the Saigon River Tunnel

This project implemented traffic safety measures as part of the consulting services. Specifically, at the time of the detailed design, a dedicated motorbike lane was designed and developed for the entire length of the East-West Highway, including the Saigon River Tunnel. Through this survey, it was confirmed that this dedicated motorbike lane has improved safety inside the tunnel. In interviews conducted with senior management of a bus company operating daily services on this same section, comments were provided that included, “While I feel that traffic inside the Saigon River Tunnel is on the rise, visibility on this section and inside the tunnel is excellent, enabling the safe transport of passengers.” Additionally, in interviews with senior management of MCST, comments were provided that included, “Traffic in the Saigon River Tunnel has been increasing annually, but the dedicated motorbike lane acts as a deterrent

¹⁸ Questions were asked without providing a clear and strict definition of “safety,” but it is presumed that respondents mainly answered assuming it meant “reduction in traffic accidents.”

against traffic accidents.” As Table 5 indicates, an increase in traffic volume has been observed over the most recent several years, but per Table 8, a similar increase has not been seen in the number of traffic accidents. According to MCST, this is because of the dedicated motorbike lane, growing awareness in safe driving among drivers of ordinary vehicles using the main lanes, and gradually improving driving skills and increasing experience. Taking into consideration the above, this project helped to facilitate the smooth flow of traffic while also providing consideration to safety, which is judged to be contributing to the prevention of accidents¹⁹.

(Reference) Table 8: Number of Traffic Accidents in the Saigon River Tunnel
(for the current four years)

(Unit: Number)			
2013	2014	2015	2016 *Note
76	46	37	16

Source: MCST

Note: Data as of November 2016



Photo 1: Road Developed by this Project
(left side) (Photo provided by construction
management consultant)



Photo 2: Two-wheeled Motorcycle
Exclusive Lane

3.4 Impacts

3.4.1 Intended Impacts

3.4.1.1 Contribution to the Economic Development of Ho Chi Minh City

1) Quantitative Effect

As Figure 3 indicates, Ho Chi Minh City’s GDP has been following an upward trend since 2000 before the start of this project to time of the ex-post evaluation (2015). Also, per Figure 4

¹⁹ Whenever a traffic accident occurs in the section covered by this project, MCST employees immediately travel to the location and respond. Depending on the severity of the accident, the police or fire department are then called to handle the scene.

(which contains data only for the most recent three years), average monthly income of residents of Ho Chi Minh City is rising sharply. According to the New Urban Development Management Authority, an organization under HCMCPC responsible for commercial and urban development in the Thu Thiem district, as well as UCCI, a commercial and urban development plan has been implemented for the district since 2013 led by public organizations, financial institutions, real estate companies, and developers. Progress is being made with the construction of residences, office buildings, and commercial buildings, which is spurring on investment in the district. According to the New Urban Development Management Authority and UCCI, “The completion of this project has advanced the development plan. There are strong connections between transportation infrastructure development and urban development, which directly correlates to further invigoration of Ho Chi Minh City’s economy. This has a positive effect on greater business opportunities for private sector companies and rising incomes of people.” As related statistical data is being influenced by other factors outside of this project, the economic impacts of this project cannot be clearly substantiated. However, taking the above into consideration, it is presumed that this project has facilitated efficient transportation and logistics in the city, which is underpinning urban development and economic growth.

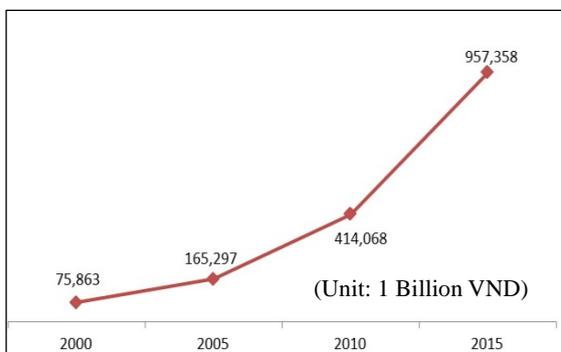


Figure 3: GDP of Ho Chi Minh City (2000, 2005, 2010, 2015)

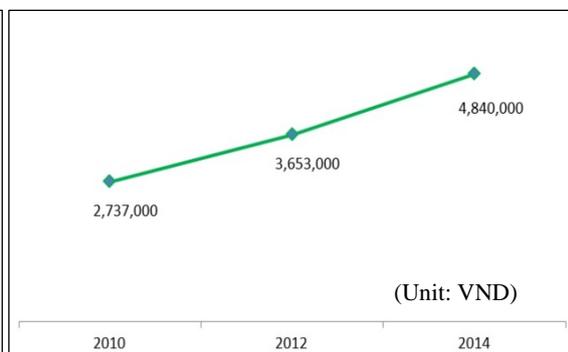


Figure 4: Average Monthly Income of Residents of Ho Chi Minh City (2010, 2012, 2014)

2) Qualitative Effect

Similar to 3.3.2 Qualitative Effects, an interview survey was conducted using a questionnaire format for local residents regarding development promotion in the Thu Thiem district through a beneficiary survey. Initially the plan called for this survey to target people living in the Thu Thiem district, but it was discovered that these residents had relocated to other districts in Ho Chi Minh City before and after completion of this project. As such, this survey was conducted in the An Phu district and Binh Trung Dong district (located to the southeast of

the Thu Thiem district), where many had relocated to²⁰. Comparing before and after the project, the expansion of commercial districts, rising residential land prices, improving living standards, and local companies increasing hiring were observed in the Thu Thiem district, and it was confirmed that there is a high probability that this project contributed to each. In interviews with persons who relocated, comments were provided that included, “Since the road (from this project) opened, real estate agents are now visiting our area. I believe land prices in the Thu Thiem district are rising. The townscape has changed a great deal, as there has been an ongoing construction boom of skyscrapers for housing/commercial facilities. I feel the opening of the road is having a direct effect on this.”

3.4.2 Other Positive and Negative Impacts

3.4.2.1 Impacts on the Natural Environment

During the project implementation, no major negative impacts on the natural environment arose in particular. Also, based on the results of environmental monitoring by the Department of Natural Resources and Environment (DONRE) of HCMC and through field visits in this survey and interviews with UCCI and residents, it was confirmed that even after completion, negative effects such as noise, vibrations, or air pollution have not been observed in the vicinity of the section covered by this project. A sound insulation wall was constructed along the same section as a noise solution for the surrounding community where there is a high density of residences.

3.4.2.2 Land Acquisition and Resettlement

Under this project, approximately 203ha of land acquisitions took place and 6,790 affected households were resettled as a result. Total compensation paid out to relocating families for land acquisition and resettlement was 3,173.9 billion VND. Compensatory payments and resettlement procedures were completed by the time of the project’s completion. These procedures were carried out in accordance with the laws of Vietnam²¹. The land acquisition and resettlement plan was prepared by HCMCPC, while the project management unit for this project

²⁰ It was impossible to confirm changes before and after the project in the Thu Thiem district using a beneficiary survey because most local residents had begun living there after the completion of the project at the time of the ex-post evaluation. Characteristics of the residents of An Phu district and Binh Trung Dong district where the beneficiary survey was conducted included: 1) All had lived in the Thu Thiem district before the completion of the project, and were resettled or had their land acquired by the project; 2) Gender ratio: 68% male and 32% female; 3) Number of years living in the Thu Thiem district: 5-10 years 48%, 11 to 20 years 12%, 21 to 30 years 16%, 31 to 40 years 4% and 41 years and more 20%.

²¹ Decree 22/1998/ND-CP and Decree 197/2004/ND-CP

(hereinafter, “PMU”) carried out working level matters and procedures. According to interviews of former PMU staff and UCCI senior management, comments were provided that included, “During the project implementation, the central government made revisions to the Land Act on many occasions. As a result, the land acquisition and resettlement process required time to confirm the legal procedures and land inheritors, and the number of households eligible for resettlement actually increased compared to the initial plan. This could not be foreseen at the time of the appraisal for Phase 1. However, after completion of the project, there have been no problems requiring re-negotiation or complaints.” At the time of this field survey, interviews were conducted with people mainly in the surrounding area of the district eligible for land acquisition (Tau Hu and Ben Nghe Canal district), which yielded comments including, “I understood Ho Chi Minh City’s public works project. I understood the compensation procedures and the need for land acquisitions.” However, it was not possible to check a report on resettlement monitoring conducted as a part of consulting services. Thus it cannot be judged whether there were no negative impacts in particular resulting from land acquisition or resettlement.

A lifestyle support program for relocated persons was provided between October 2004 and May 2007 with the assistance of HCMCPC. The details of this program included assistance programs for youth with no work experience and for workers with experience. The program for youth was held for between six and twelve months at HCMCPC’s vocational training school. The program for workers consisted of job search support, intermediation, and advice²².

3.4.2.3. Other Positive and Negative Impacts

As part of the work safety measures of this project, the contractor conducted HIV/AIDS countermeasures for construction workers, with a cumulative total of approx. 6,500 people taking part²³. During the period of construction, the contractor carried out a program for workers at least once per month in which information was provided on HIV/AIDS to educate and raise awareness. Detailed information provision and educational activities included prohibiting sex industry workers from entering the construction site or worker dormitories and giving explanations about the proper use of contraceptives²⁴. Through questionnaires and

²² However, information on the number of participants and the employment rate was not obtained.

²³ In 2003, before the start of construction work, more than 4,000 people contracted HIV and around 1,500 developed AIDS each year in Ho Chi Minh City. The background to this program is the concern that construction workers for this project who came from other regions or were there working alone had a risk of contracting HIV/AIDS.

²⁴ PMU was made aware of activities through monitoring reports submitted by the contractor on a monthly basis.

interviews with UCCI, it was confirmed that no workers contracted and developed HIV/AIDS during the course of this project. Taking into consideration this case study, it is believed that this project contributed to a certain degree to reducing the risk of HIV/AIDS among construction workers.

With regard to the target for annual average daily traffic in the Saigon River Tunnel, the actual figures of the second year after the completion of the project (2013) was not achieved. The main reason was investment in the development of the district used as a basis for targets did not materialize. However, this investment did emerge afterwards and the completion of the north-south expressway (Ho Chi Minh - Dau Giay section) had an effect on boosting traffic in the section covered by this project. As a result, in the fifth year after completion of the project (2016), actual figures of traffic exceeded the target and the initially anticipated effects were realized. The travel time required to drive the section covered in the project was shortened as initially planned. Convenience as an access road and improved safety inside the Saigon River Tunnel were realized per interviews with project stakeholders and based on the results of the beneficiary survey. Additionally, rising residential land prices, increasing living standards, as well as changing/improving living environment were confirmed through the results of the beneficiary survey and interviews with residents living in the vicinity of the site. Judging the above comprehensively, the implementation of this project generally brought about the planned effects, as its effectiveness and impacts are high.

3.5 Sustainability (Rating: ③)

3.5.1 Institutional Aspects of Operation and Maintenance

At the time of the ex-post evaluation, the executing agency of this project is HCMCPC. The organization in charge of overall supervision and management of the project is UCCI, which is under HCMCPC. Meanwhile, the organization having ultimate responsibility for the overall operation and maintenance of all facilities developed as part of this project and for the exclusive operation, maintenance and safety measures for the Saigon River Tunnel is MCST, under the Department of Transport (hereinafter, “DOT”)²⁵. MCST carries out inspection on a daily basis including cleaning and patrols of the Saigon River Tunnel and monitors the status of

Additionally, the AIDS Committee of HCMCPC conducted an audit concerning the validity of HIV/AIDS countermeasures implemented by the contractor. According to UCCI, these activities and audits were implemented smoothly and no particular problems were found.

²⁵ The DOT is also under HCMCPC.

traffic conditions using observation cameras installed inside the tunnel²⁶. As for daily maintenance for the other section covered in this project, the Bridge and Ferry Management Company is responsible for the bridge, the Saigon Transport Works Management Company is responsible for the road, and Saigon Public Lighting Company is responsible for the traffic signals²⁷. These three companies are contracted to provide operation and maintenance work by MCST. In addition to cleaning and weeding, inspections of facilities from this project are carried out using patrols. At the time of the ex-post evaluation, the number of employees at MCST is 192²⁸.

As stated in 3.2.1 Efficiency and Project Outputs, as of the time of the ex-post evaluation, the Saigon River Tunnel has yet to be handed over. Due to this fact, repairs, reinforcement, maintenance and regular inspections inside the tunnel had yet to take place. However, according to UCCI, the tunnel will be handed over for sure before the end of the same year. It appears that the repairs, reinforcement, maintenance and regular inspections, excluding the above cleaning and patrol-based inspections, will be steadily carried out.

Judging from the above, the roles and responsibilities for each maintenance work with regard to the operation and maintenance structure at the time of the ex-post evaluation are clearly defined, and as such, there are no major problems, in particular.

3.5.2 Technical Aspects of Operation and Maintenance

MCST has highly experienced employees. Interview surveys confirmed that these employees have expertise in operating heavy machinery and vehicles required for operation and maintenance work. Through interviews with MCST employees as part of this field survey, it was confirmed that these employees fully understand the importance of operation and maintenance work. Furthermore, many of MCST's employees have a degree (from a four-year university) in electrical machinery, IT, civil engineering, technical engineering, or transportation management.

As for actual trainings, for example, MCST held "firefighting training for road and bridge facilities" (October 2015), "safety seminar on electrical equipment" (May 2012), and "worker

²⁶ MCST is subject to the supervision of the DOT. MCST and the DOT hold meetings monthly to report on work, and occasionally DOT employees visit MCST to carry out regular supervision and inspections.

²⁷ Each company is a state-owned enterprise under the DOT.

²⁸ The breakdown includes 17 management personnel and 175 technical personnel. The workforce of the Bridge and Ferry Management Company, Saigon Transport Works Management Company, and Saigon Public Lighting Company fluctuates based on the day and time when maintenance work is carried out. As a result, it was not possible to confirm an accurate workforce headcount.

safety seminar” (December 2011), which were attended by many of its employees²⁹. MCST also conducts on-the-job-training (OJT) on a regular basis. Whenever new employees are hired, MCST provides continuous OJT in an effort to share information about maintenance skills and techniques.

During the project implementation, the construction management consultant provided MCST with a maintenance manual concerning Saigon River Tunnel as part of its consulting services. According to MCST, it refers to and utilizes this manual when needed. As stated above, the repair, reinforcement, maintenance and regular inspections of the tunnel’s structure will be carried out going forward, so it is presumed that the extent to which this manual is utilized will increase in the future.

As for the technical level of operations and maintenance carried out by the Bridge and Ferry Management Company, Saigon Transport Works Management Company, and Saigon Public Lighting Company, which are under the supervision of MCST, each has adequate background and skills for carrying out regular maintenance. Interviews with senior management of each company conducted at the time of this survey yielded comments such as, “Many of our employees are highly experienced. They will be able to carry out work based on the situation in the field even when traffic increases.” Taking into account these comments, no major problems in particular are observed in terms of the technical level of the organization of these subcontractors.

Therefore, there are no major problems in particular when considering the technical level of operation and maintenance based on the conditions present at the time of the ex-post evaluation.

3.5.3 Financial Aspects of Operation and Maintenance

Table 9 provides changes in MCST’s operation and maintenance costs over the most recent three-year period related to the facilities developed by this project (Saigon River Tunnel, road, bridge, traffic signals, etc.)³⁰.

²⁹ Once it completes the handover of the Saigon River Tunnel, MCST plans on improving the technical skills of employees by having them participate in field training in Vietnam required for maintenance of the Saigon River Tunnel. This survey was not able to obtain information on training implemented by the Bridge and Ferry Management Company, Saigon Transport Works Management Company, and Saigon Public Lighting Company.

³⁰ Including subcontracting costs incurred by MCST for the Bridge and Ferry Management Company for the bridge, Saigon Transport Works Management Company for the road, and Saigon Public Lighting Company for traffic signals.

Table 9: Operation and Maintenance Costs Related to the Project Facilities
(Actual Expenditure)

(Unit: million VND)

	2014	2015	2016
MCST's Operation and Maintenance Costs	57,068	60,645	75,786

Source: Answers to questionnaire

MCST's budget is allocated from HCMCPC through the DOT. According to an executive officer of MCST, "The budget fully covers the most recent operation and maintenance costs. We submit our budget for the next fiscal year (accounting year starting in January) to the Finance Department of HCMCPC every year in July. The Finance Department then examines the amount we applied for. The allocation amount is determined based on the budget regulations of this department. In recent years, generally the entire budget we requested has been approved." According to an executive officer of UCCI, the required budget for operation and maintenance costs is being allocated because of significantly increasing traffic along the section covered by the project over the most recent several years, in addition to HCMCPC's efforts to address the city's robust development, and not to mention increasing traffic across the entire city. In addition, the road section of the Saigon East-West Highway is a high priority for HCMCPC. Therefore, even if a major repair or restoration is needed in the future requiring a huge sum of money, HCMCPC will give it top priority by allocating a special budget or taking other measures.

As indicated in 3.2.1 Efficiency and Project Outputs, at the time of the ex-post evaluation, tolls were not being collected at the toll booth located at the entrance on the eastern side of the Saigon River Tunnel. The reason for this is because, when the project was underway, the Central Government of Vietnam established a road fund fed by revenue from a gasoline tax and automobile registration fees to secure the funds needed for the maintenance of the road and bridge, and as a result, it was decided that maintenance costs for the road and bridge will be allocated from this fund³¹. As a result, it was decided that the toll booth developed as part of this project will not collect tolls³².

In light of the above, no particularly major problems are observed in terms of the financial aspects of this project's operation and maintenance.

³¹ Following the decision of the Central Government, in 2012 HCMCPC decided not to collect tolls based on Decree 18/2012/ND-CP. It can be said that the toll booth will not be operated based on a decision made by the Vietnam side.

³² HCMCPC decided not to collect tolls. The allocation of the road fund is 65% for the Central Government and 35% for local governments. This survey did not determine the extent to which this road fund is being allocated to MCST.

3.5.4 Current Status of Operation and Maintenance

At the time of the ex-post evaluation, no significant problems were observed in terms of the operation and maintenance situation of the Saigon River Tunnel, road, bridge and traffic signals, etc., developed as part of this project. At the time of this survey, through interviews of employees in charge of operation and maintenance and visual inspections carried out at the time of the field survey, it was confirmed that there were no major cracks or unevenness in the road surface of the section covered by the project, no evidence of a lack of cleaning, no broken traffic signals, and no deficiencies or failures found on the inside of the Saigon River Tunnel's walls or equipment.

MCST formulates an operation and maintenance plan every year and submits it to the DOT. Following this plan, MCST carries out the operation and maintenance of each facility.

With regards to spare parts such as equipment of road maintenance and traffic signal, MCST is in charge of all procurement, management and storage. The subcontractors responsible for the maintenance of project facilities excluding the Saigon River Tunnel receive parts from MCST as necessary. There has been no situation where a shortage of parts has prevented maintenance work from occurring.

No major problems have been observed in the institutional, technical and financial aspects of the operation and maintenance system. Therefore, the sustainability of the project effects is high.



Photo 3: Landscape of the Project Section and Thu Thiem District



Photo 4: MCST's Traffic Situation Monitoring Center

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

This project constructed an east-to-west arterial road including underwater tunnel traversing the Saigon River in order to increase transportation capacity and improve transportation conditions; thereby contributing to the urban development along the eastern bank of the Saigon River and to the economic development of Ho Chi Minh City, which is Vietnam's largest city and a hub of commerce and industry. Relevance of this project is high because of its confirmed consistency with economic development policies laid out in Vietnam's *Socio-economic Development Strategy 2011-2020* and *Spatial Development Direction 2010-2020*, the need for developing urban transportation infrastructure, and the assistance policy of the Japanese Government. As for efficiency, project outputs were implemented mostly as planned, but project costs exceeded the initial plan due to cost increases caused by higher land acquisition and resettlement costs as well as soil improvement work due to the discovery of soft ground. The project period was significantly longer than the initial plan due to delays in procedures, design and construction. Thus, the efficiency is low. In 2016 (five years after the project completion), actual figures of annual average daily traffic using the Saigon River Tunnel exceeded the target. The amount of time required to travel the entire distance of the Saigon East-West Highway was shortened as initially planned; thus, the initially anticipated effects have been realized. In addition, the rising price of residential land, improving living standards, and changes/improvements in living environment have been confirmed based on the results of beneficiary surveys and interviews of people living in the vicinity of the site. In light of the above, the effectiveness and impact of this project are high. No particular problems were observed at the time of the ex-post evaluation in terms of the institutional, technical or financial aspects of MCST, which is in charge of the operation and maintenance and safety measures for the facilities developed by this project. Thus, sustainability of the effects realized through this project is high.

In light of the above, this project is evaluated to be satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

As of the time of the ex-post evaluation (December 2016), the Saigon River Tunnel developed as part of this project has yet to be handed over. Talks between the contractor, construction management consultant, and HCMCPC are ongoing, but it is preferable that the

handover take place as soon as possible and the procedures for the final payment be completed.

4.3 Lessons Learned

Periodic Monitoring and Response Regarding Land Acquisition and Resettlement

During this project a long duration of time was spent until the completion of the land acquisition and resettlement. For large-scale projects like this one and in countries with robust economic growth like Vietnam, ample consideration must be given to the fact that more time than expected is needed for land acquisition and resettlement procedures (need to consider that on occasion legislation or the social situation may change). In the case of this project, although the planned duration was exceeded, work was completed without major complaints regarding the procedures and response of the Vietnamese side, such as surveys of land rights, etc. However, it took an extremely long period of more than five years to complete this process, which lowered the project's efficiency. Although land acquisition and resettlement are the responsibilities of the Vietnamese side, it is important for JICA to carefully follow up on progress by holding regular dialogue with related government ministries and agencies as well as the executing agency in an effort to encourage that there be no effects on the schedule of the overall project. In the future, for similar projects, JICA will need conduct further regular monitoring and provide assistance toward problem resolution, even for land acquisition and resettlement work, as part of its project management duties.

Comparison of the Original and Actual Scope of the Project

Item	Plan	Actual
1.Project Outputs	<p>1) Civil Works</p> <p>a) Construction of Saigon River Tunnel (New construction), b) Canal Side Road (Rehabilitation and widening), c) Construction of Western Road (New construction), d) Construction of Thu Thiem Road (New construction): Approx. 21 km (Width: approx.36m (canal side road), Approx.31m (tunnel section), Approx. 100m (Thu Thiem section), 6 lanes), e) Construction of Bridges and Interchanges (New construction): 15 bridges and 5 interchanges</p> <p>2) Facilities for Management: Traffic information system, tunnel ventilation facility, toll gate, vehicle for maintenance</p> <p>3) Development of Relocation Site: Land preparation, development of houses or residential areas (15 places in all), development of infrastructure (land preparation, on-site road, development of water supply and sewerage, electricity distribution network, kindergarten, elementary school, hospital, market, park, etc.)</p>	<p>1) Civil Works</p> <p>a) Construction of Saigon River Tunnel (New construction): 1.49km (Width: 33.3m, 6 lanes)</p> <p>b) Canal Side Road (Rehabilitation and widening): 9.06km (Width: 42.0m, 6 lanes)</p> <p>c) Construction of Western Road (New construction): 4.5km (Width: 60.0m, 6 lanes)</p> <p>d) Construction of Thu Thiem Road (New construction): 7.25km (Width: 100.0m, 6 lanes)</p> <p>e) Construction of Bridges and Interchanges (New construction): 13 bridges and 6 interchanges</p> <p>2) Facilities for Management: Implemented as planned</p> <p>3) Development of Relocation Site: Increased from planned (Development of houses or residential areas increased to 22 places.)</p>

	4) Consulting Services: Detailed design on road construction project, bidding assistance, construction supervision, operation and maintenance training, detailed design review on infrastructure development of relocation site, monitoring for resident's relocation, etc. * The above is a summary of the plan at the time of phase I's appraisal	4) Consulting Services: Implemented as planned
2. Project Period	March 2000 - July 2005 (65 months)	March 2000 – November 2011 (141 months)
3. Project Cost		
Amount Paid in Foreign Currency	34,900 million yen	29,348 million yen
Amount Paid in Local Currency	32,155 million yen (321,550 million VND)	49,861 million yen (85,672 million VND)
Total	67,055 million yen ³³	79,209 million yen
ODA Loan Portion	47,931 million yen	46,416 million yen ³⁴
Exchange Rate	1 VND=JPY0.01 1USD=JPY115 (March 2000)	1VND=JPY0.00582 1USD=JPY105.12 (Average rate for the period of the construction (August 2001-October 2016) based on rates issued by the IMF's International Financial Statistics Data

³³ The foreign currency, local currency and total amounts indicates the amount at the time of the phase one appraisal, while the Japanese ODA Loan Portion indicates the total amount of approved loans from phase one to phase five.

³⁴ Indicates the total executed loan amounts for phase one to phase five.

4. Final Disbursement	Phase I: July 26, 2007
	Phase II: September 1, 2014
	Phase III: July 28, 2008
	Phase IV: January 6, 2014
	Phase V: September 1, 2014