

Republic of Indonesia

FY2019 Ex-Post Evaluation of Japanese ODA Loan

“Tanjung Priok Access Road Construction Project (I) (II)”

External Evaluator: Keishi Miyazaki, OPMAC Corporation

0. Summary

The objective of this project was to alleviate traffic congestion by improving access from the Jakarta area to Tanjung Priok Port by introducing a traffic surveillance system and constructing an access road connecting the northeastern part of the Jakarta Outer Ring Road and the Jakarta harbor road, thereby contributing to improvement of the investment climate in Java. The relevance of the objective is high, as it is consistent with Indonesia's development plan and development needs, as well as with Japan's ODA policy.

While the project cost was within the plan, the efficiency is fair as the project period significantly exceeded the plan. The operation and effect indicators such as the traffic volume of general roads around Tanjung Priok Port and Tanjung Priok Access Road did not achieve the target values. Meanwhile the target values for travel time between Tanjung Priok Port and Jakarta City, as well as four surrounding areas, were only partially achieved. For general roads, however, it is difficult to accurately determine the degree of achievement of the goals as the preconditions at the time of appraisal and the time of ex-post evaluation were different. This project was also found to improve access between Tanjung Priok Port and the industrial areas in and around the Jakarta metropolitan area. As the development of transportation infrastructure, including logistics, is a key element in improving the investment climate, it is believed that this project has made a certain contribution to improving the investment climate in Java, mainly in areas around Jakarta. For these reasons, the effectiveness and impact of the project are fair. Under the executing agency's supervision, the operation and maintenance of the road constructed by this project are outsourced to a private operator. The private operator owns the equipment necessary for maintenance and provides training for their staff. The private operator covers the necessary operation and maintenance costs, and the project site visit conducted as part of this ex-post evaluation confirmed that the facilities constructed by this project were in a good condition. From the above, it can be said that the sustainability of the project effects is high.

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

1. Project Description



Project Location



Tanjung Priok Access Road

1.1 Background

Tanjung Priok Port, an international gateway for imports and exports, is located in the northeastern part of the capital city, Jakarta. Due to traffic congestion, accessing the port was time-consuming, and it was one of the reasons why regional economic growth was stagnant. In 2003, the cross-sectional traffic around Tanjung Priok Port was about 47,000 to 97,000 PCU¹ / day, the average traveling speed was 15 to 33 km / hour, and the ratio of traffic volume to traffic capacity was 0.84 to 1.72. Depending on the route, traffic volume had already exceeded traffic capacity. Cross-section traffic is projected to increase from approximately 81,000 to 157,000 PCU / day in 2015 to approximately 113,000 to 210,000 PCU / day in 2025, further exacerbating the situation. With the newly constructed toll road that connects directly to Tanjung Priok Port, capacity would increase, traffic would be controlled, and thus traffic congestion around the port would be alleviated. The toll road would also serve to respond promptly to future increases in traffic demand.

1.2 Project Outline

The objective of this project is to alleviate traffic congestion by improving access from the Jakarta area to Tanjung Priok Port by introducing a traffic surveillance system and constructing an access road (total length 12.1 km) connecting the northeastern part of the Jakarta Outer Ring Road and the Jakarta harbor road, thereby contributing to the improvement of the investment climate in Java.

¹ PCU (Passenger Car Unit) is a metric that compares traffic variables to passenger cars by multiplying the number of different modes of transport such as trucks, buses, passenger cars, and motorcycles by a certain coefficient.

Phase	Phase I	Phase II
Loan Approved Amount / Disbursed Amount	26,306 million yen / 17,911 million yen	26,620 million yen / 23,125 million yen
Exchange of Notes Date/Loan Agreement Signing Date	March 29, 2005 / March 31, 2005	March 28, 2006 / March 29, 2006
Terms and Condition	Interest Rate Repayment Period (Grace Period) Condition for Procurement	0.40% 40 years (10 years) Japan tied (STEP)
Borrower / Executing Agencies	Republic of Indonesia / Directorate General of Highways (DGH), Ministry of Public Works and Housing	
Project Completion	March 2018	
Target Area	Jakarta	
Main Contractor(s)	<ul style="list-style-type: none"> • PT. Hutama Karya (Indonesia) / Sumitomo Mitsui Construction Co., Ltd. (Japan) (JV) • PT. Waskita Karya (Indonesia) / Kajima Corporation (Japan) (JV) • PT. Jaya Konstruksi Manggala Pralama (Indonesia) / Obayashi (Japan) (JV) 	
Consultant(s) (Over 1 billion yen)	<ul style="list-style-type: none"> • PT. Multi Phi Beta (Indonesia) / PT. Cipta Strada (Indonesia) / PT. Tata Guna Patria (Indonesia) / PT. Hasfarm Dian Konsultan (Indonesia) / PT. Ciriutama Nusawidya Consult (Indonesia) / Nippon Koei Co., Ltd. (Japan) / Yachiyo Engineering Co., Ltd. (Japan) (JV) • PT. Virama Karya (Indonesia) / PT. Indec Internusa (Indonesia) / PT. Pola Agung Consulting (Indonesia) / PT. Bina Asih (Indonesia) / PT. Guteg Harindo (Indonesia) / Japan Bridge & Structure Institute Inc. (Japan) / Katahira & Engineering International (Japan) (JV) 	
Related Studies (Feasibility Studies, etc.)	<ul style="list-style-type: none"> • Feasibility Study on Jakarta Outer Ring Road and Tanjung Priok Access Road in Indonesia, JETRO (January 2004) • Special Assistance for Project Implementation (SAPI) on Tanjung Priok Access Road, JICA (November 2010) 	
Related Projects	None	

2. Outline of the Evaluation Study

2.1 External Evaluators

Keishi Miyazaki, (OPMAC Corporation)

2.2 Duration of Evaluation Study

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

Duration of the Study: November 2019 - December 2020

Duration of the Field Study: February 3, 2020 - February 19, 2020

2.3 Constraints during the Evaluation Study

Due to the global COVID-19 pandemic, the 2nd field study, planned for June 2020, was canceled. As an alternative, the external evaluator conducted a field survey in Jakarta remotely, with the support of a local consultant. There was therefore a limitation in the collection of some of the data and information.

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

3.1 Relevance (Rating: ③³)

3.1.1 Consistency with the Development Plan of Indonesia

At the time of appraisal, *the Economic Policy Package*⁴ in 2003 after the IMF program concluded, set the following development goals in the transportation sector: (1) to rehabilitate distressed infrastructure and strengthen the collaboration of different transportation modes, (2) to develop infrastructure in areas where economic development is expected, and (3) to expand opportunities for the private sector to enter into transportation infrastructure development. The completion of the Jakarta Outer Ring Road, which functions as a ring road together with the Tanjung Priok Access Road, was particularly emphasized. In addition, *the National Medium-Term Development Plan (RPJMN) (2005-2009)* set out priority areas such as macroeconomic stability, poverty reduction, and improvement of the investment climate, and promoted the improvement of the domestic investment climate and infrastructure. Furthermore, the improvement of infrastructure services in metropolitan areas was highlighted to promote the sustainable growth of metropolises. At the time of appraisal, the completion of the Jakarta Outer Ring Road, including the Tanjung Priok Access Road, was a priority, and the emphasis was on improving the investment climate and necessary infrastructure. This project was consistent with these policies.

At the time of ex-post evaluation, *the National Medium-Term Development Plan (RPJMN) (2015-2019)* which is a 5-year development plan, had nine priority issues. Under these, the development priority agenda are: (1) human and community development, (2) leading / priority sector development, and (3) fair growth through the minimization of regional disparities. The plan highlighted infrastructure development for connectivity and accessibility, and included strengthening the maritime sector, integrating remote and frontier regions, a modal shift from road transport to railway transport, and the introduction of urban mobility. This project aimed to

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

³ ③: High, ②: Fair, ①: Low

⁴ Presidential Instruction No.5/2003

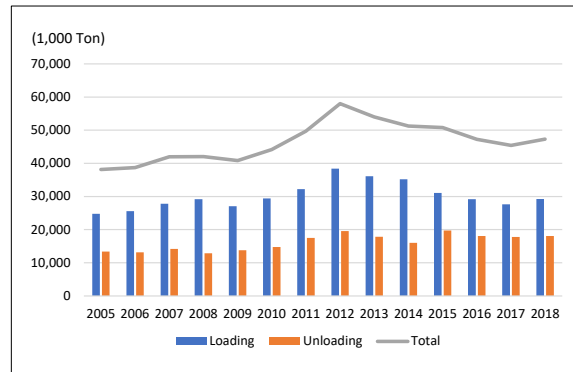
improve access between Tanjung Priok Port and the city of Jakarta and its surrounding areas, and is therefore consistent with the above-mentioned “Infrastructure development for connectivity and accessibility.”

3.1.2 Consistency with the Development Needs of Indonesia

Regarding the development needs at the time of appraisal, as described in 1.1 Background, the time needed to access the port was lengthy significantly due to chronic traffic congestion around Tanjung Priok Port, and this was recognized as one of the causes of the stagnation of economic growth in the region.

At the time of ex-post evaluation, the cargo handling volume at Tanjung Priok Port had increased from 38 million tons in 2005 to 47 million tons in 2018 (Figure 1). The expansion of the port container terminal was underway, and the volume of cargo handled at the port is expected to continue to increase.⁵ In the suburbs of the eastern part of Jakarta, centering on Bekasi District, West Java, special economic zones and industrial parks are being developed, and at the time of ex-post evaluation as well, most imports and exports were going through Tanjung Priok Port.

At the time of ex-post evaluation, construction work of the Jakarta Outer Ring Road 2 (JORR2) length (110 km) is underway, and 90% of the total area is scheduled to



Source: Statistics Indonesia (BPS)

Figure 1: Tanjung Priok Port Cargo Handling Volume



Source: Document provided by JICA

Figure 2: Major Toll Roads in Jakarta Metropolitan Area

⁵ Japanese ODA loan “Patimban Port Development Project (Phase I)” (2017-2023) is underway to build a new port (container terminal, car terminal, etc.) in Patimban, Subang district, West Java, in eastern Jakarta. Patimban Port is expected to compliment the functions of Tanjung Priok Port in the future.

be completed by the end of 2020 (Figure 2). Cilincing, the eastern end of JORR2, will be connected to the Tanjung Priok Access Road, and after completion, it is expected that it will become a new route from the surrounding area to Tanjung Priok Port avoiding the heavily congested central Jakarta.

The Japan External Trade Organization (JETRO) has conducted an annual survey on Japanese companies operating in Indonesia. According to the annual survey in 2019, when asked about “Trade facilitation measures necessary for improving trade transactions in Indonesia”, 16.1% of respondents answered that they recognized “Improvement of logistics to ports and borders”⁶ as being important. On the other hand, 43.5% of the respondents cited “Deficiencies in logistical infrastructure (ports, roads, warehouses, etc.)” as “issues considered problematic compared to other countries”. Infrastructure development has been promoted through the efforts of the Indonesian government, but the satisfaction level of Japanese companies in regard to the current level of infrastructure is not necessarily high. The demand for improvements in logistical infrastructure continues to be high, according to the survey results.

In light of the above, it can be seen that there was a strong need for the development with this project, which includes key logistical infrastructure connecting the industrial areas of the Jakarta metropolitan area and its surrounding areas with the international import / export port of Tanjung Priok, both at the time of appraisal and ex-post evaluation.

3.1.3 Consistency with Japan’s ODA Policy

The Ministry of Foreign Affairs’ *Country Assistance Program for the Republic of Indonesia (November 2004)* stipulated assistance to realize “sustainable economic growth led by the private sector” as one of the priority areas. This included the enhancement of the economic infrastructure to improve the investment climate. In addition, JICA’s *Overseas Economic Cooperation Strategy (April 2005)* stipulates the development of infrastructure for sustainable growth as a priority, and in the case of Indonesia, the development of economic infrastructure to improve the investment climate. Furthermore, it is assumed that trailers and other heavy traffic will frequently use the Tanjung Priok Access Road and therefore a highly durable structure is required. However, during construction of the structure the existing general roads around Tanjung Priok Port would be chronically congested. In order to minimize the impact on road traffic during construction, it was necessary to reduce the size of the substructure and shorten the onsite construction period. From these perspectives, Japanese technology such as precast PC

⁶ 2019 survey results. The most common responses to “Trade facilitation measures necessary for improving trade transactions in Indonesia” were “Enrichment of information regarding trade systems and procedures” (53.6% of valid responses), “Unified understanding regarding tariff classification evaluation between port authorities and persons in charge” (44.0%), “Application and available / usable operation of ruling system in advance” (43.4%), “Expediting and simplifying import license procedures” (41.4%), etc.

floor slabs, steel girders and steel bridge piers were employed, meeting the conditions of the Special Terms for Economic Partnership (STEP).

Based on the above, this project is highly relevant to Indonesia's development plan and development needs, as well as to Japan's ODA policy. Therefore, its relevance is high.

3.2 Efficiency (Rating: ②)

3.2.1 Project Outputs

This project involved the construction of the Tanjung Priok Access Road (total length 12.1 km) connecting the northeastern part of the Jakarta Outer Ring Road and the Jakarta harbor road and the introduction of a traffic surveillance system. Table 1 compares the planned and actual project outputs.

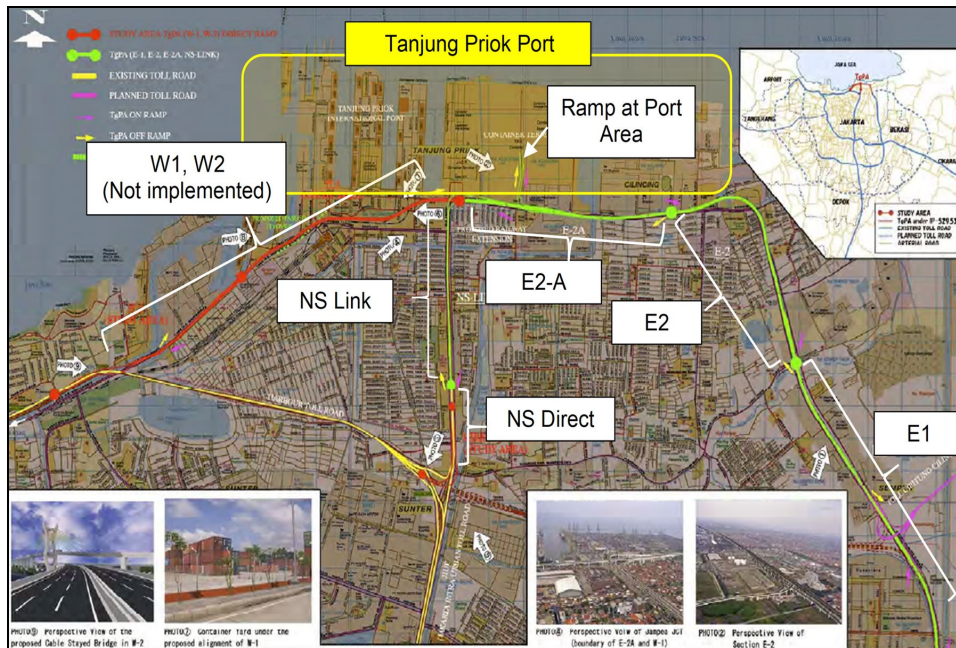
Table 1: Planned and Actual Project Outputs

Item	Plan (At the time of Phase I and Phase II Appraisal)	Actual
1. Construction of Tanjung Priok Access Road	Total length: 12.05 km (elevated road)	Total length: 11.40 km (elevated road)
	<Phase I scope> • Section E-1 = 3.4 km • Section E-2 = 4.18 km	• Section E-1 = 3.4 km • Section E-2 = 2.74 km
	<Phase II scope> • Section NS Link = 2.24 km • Section W-1 = 2.84 km • Section W-2 = 2.91 km	• Section E2-A = 1.92 km • Section NS Link = 2.24 km • Section NS Direct = 1.1 km (additional scope) • Section W-1: Not implemented (Outside the scope) • Section W-2: Not implemented (Outside the scope)
2. Installation of Traffic Surveillance System (TSS)	<Phase II scope> • Traffic Information Center • Traffic Surveillance such as CCTV • Traffic Information Control System such as Traffic Information Providing System and Traffic Information Communication • Axle Load Scale and Control System	• Not implemented (scoping out)
3. Consulting Services	• Preparation of detailed engineering design, assistance of tender and construction supervision for target road section • Preparation of detailed engineering design, assistance of tender and construction supervision for target road section for TSS	• Same as planned
	<Phase I scope> • International experts: 473 M/M • Local experts: 684 M/M	• International experts: 418 M/M • Local experts: 958 M/M
	<Phase II scope> • International experts: 447 M/M • Local experts: 618 M/M • Supporting staff: 1,320 M/M	• International experts: 422 M/M • Local experts: 710 M/M • Supporting staff: 2,738 M/M

Source: Documents provided by JICA and DGH

The total length of the output was 11.4 km, which was comparable to the planned 12.05 km. On the other hand, as a result of the detailed design, the project cost greatly exceeded the initial plan, and consequently, the route was changed. Specifically, as a result of the detailed design completed in December 2007, it became evident that the total project cost would increase to 1.8 times the total loan amount for Phase I and Phase II. The main reasons for this were (1) soaring construction prices from 2007 to 2008, (2) a 10-15% increase in design live load due to the adoption of new Indonesian design standards revised after the second appraisal, (3) the adoption of bridge types with spans longer than initially planned, based on the actual land usage, (4) the addition and extension of connection ramps to strengthen access with port facilities, and (5) the burden of improvement costs for related roads associated with the implementation of this project. At the time of the Phase II appraisal, the risk of an increase in project costs due to soaring steel prices was considered, however it was assumed that this could be covered by setting the physical contingency for civil work at 10%. In conclusion, the rise in construction prices in (1) was due to steel price increases beyond the scope forecasted at the time of appraisal. In addition, there was a possibility that (2), (3), (4), and (5) were difficult to predict at the time of appraisal as they were conditions altered at the stage of detailed design.

Based on the above, the executing agency additionally included the connection ramp (1.1 km for NS Direct section) in the scope, while reducing the scale of each procurement package as well as repackaging. However in the end, of the targets for Phase II, the construction of W-1 and W-2 sections, and the introduction of the traffic surveillance system were not implemented as these were to be included in future development by the Indonesian government and therefore no longer under the scope of the ODA loan project. Regarding the consulting services, the inputs of local consultants and supporting staff were increased from the original plan due to the additional scope for NS Direct. While this resulted in a route change, there is an interchange that directly connects to Tanjung Priok Port from the Tanjung Priok Access Road, and therefore access to the port will not be restricted. The route of Tanjung Priok Access Road is shown in Figure 3.



Source: Document provided by JICA

Figure 3: Route of Tanjung Priok Access Road

Insufficient Bridge Column Strength in the E2-A Section

In May 2014, during the implementation of this project, some of the bridge columns in the E2-A section were found to have insufficient strength of concrete. Following a technical study, it was determined that improvement through reinforcements would be difficult and therefore the executing agency decided to demolish it to rebuild. After this, based on a recovery plan submitted by the contractor, reconstruction work was carried out on the problematic bridge columns (reconstruction costs were fully covered by the contractor). This recovery plan was implemented as planned and quality standards were met.

Accidents during Implementation and Safety Measures

Six accidents (one death, six injuries) occurred during the implementation of the project, all of which were caused by human error.⁷ JICA dispatched safety management experts at least three times⁸ around the timing of the accidents to help improve the safety management of the contractors. Meanwhile, the contractors also assigned safety management engineers to morning meetings and safety management workshops to strengthen the safety management system through education and guidance. The safety management system of consultants and contractors was drastically reviewed⁹ in particular with the dispatch of safety management experts in July

⁷ October 22, 2012: 1 accident (1 dead), February 12, 2013: 1 accident (1 injured), March 11, 2013: 2 accidents (2 injured), June 1, 2013: 1 accident (1 injured), December 30, 2015: 1 accident (2 injured).

⁸ October 2012, February 2013, July 2013

⁹ Specifically, a new Safety Manager was hired to supervise the former Chief Safety Officer and Safety Officer. In

2013. As a result, the number of accidents after this dispatch was contained to one in December 2015 (two injured).

With this, it can be said that the support of JICA's safety management team played a certain part in decreasing the number of accidents during construction and enhancing the safety management system.

According to the Indonesia Toll Road Authority (Badan Pengatur Jalan Tol, hereinafter referred to as "BPJT"), the agency responsible for maintaining the Tanjung Priok Access Road after completion, a feasibility study on the W1 and W2 sections was conducted. The study found issues in financial resources and land acquisition, and at the time of ex-post evaluation, there was no concrete project plan in place. In addition, the new ETC (Electronic Toll Collection System)¹⁰ planned to be introduced on the Jakarta Outer Ring Road from 2021 is currently a high priority, and therefore the introduction of the traffic surveillance system has been postponed, and there is no specific schedule for its implementation. On the other hand, according to DGH, the NS Direct section is designed to cater for the future traffic volume only up to 2025, so it is still very urgent to construct W1 and W2 sections.

3.2.2 Project Inputs

3.2.2.1 Project Cost

The actual project cost was 47,578 million yen, compared with the planned project cost of 64,714 million yen. The main factors for the project cost reduction are as described in "3.2.1 Output". The targeted roads for this project underwent route changes from the planned "E-1, E-2, W-1, W-2, NS-Link" (12.05 km) route to the actual "E-1, E-2, E-2A, NS-Link, NS-Direct" (11.4 km) route. This route change does not deviate from the project objectives in that the purpose of providing access roads to the port as part of the Outer Ring Road remains unchanged, and therefore this should be considered as a route change (change in specifications) rather than an increase or decrease in output. On the other hand, the planned traffic surveillance system which was not implemented, is regarded as a partial reduction in output. Therefore, it was decided that the project cost, which excludes the traffic surveillance system cost from the planned project cost, should be compared with the actual project cost. While the revised

addition, one Safety Officer was assigned to each construction area, increasing the number of assigned officers to five. As a daily activity, a toolbox meeting (where construction workers communicate on work descriptions and setups, issues and methods to prevent accidents and disasters) was held after the morning meeting at each construction site (about 100 to 200 people), and safety patrols were conducted by Safety Officers. Weekly activities include weekly safety patrols and safety personnel meetings participated in by all Directors, Safety Managers, Chief Safety Officers and Safety Officers, while monthly activities include monthly safety meetings with the participation of all workers in construction areas. In addition, safety management workshops were held to provide safety work guidance and education for workers, as well as safety education to new employees with little work experience.

¹⁰ The current system employs the E-ticket method, in which the driver directly taps the touch panel of the toll gate with a card containing an IC chip to pay the toll. The new system will introduce a method that automatically pays tolls with wireless communication between the transmission antenna and an on-board unit equipped with the ETC card mounted on the vehicle.

planned project cost was 58,639 million yen, excluding the traffic surveillance system cost, the actual project cost of 47,578 million yen was within the plan (ratio against plan: 81%), as shown in Table 2.

Table 2: Planned and Actual Project Costs

Item	Plan				Actual		
	Phase I (Mill. JPY)	Phase II (Mill. JPY)	Total (Mill. JPY)	Revised (Note 1) (Mill. JPY)	Phase I (Mill. JPY)	Phase II (Mill. JPY)	Total (Mill. JPY)
Construction works	17,815	20,503	38,318	32,243	15,702	22,651	38,353
Price escalation	4,240	1,917	6,157	6,157	34	49	83
Physical contingency	2,206	2,242	4,448	4,448	0	0	0
Consulting services	2,410	1,958	4,368	4,368	1,191	1,454	2,645
Land acquisition	429	3,395	3,824	3,824	0	4,323	4,323
Administration	1,183	1,088	2,271	2,271	983	1,191	2,274
Tax and duties	2,666	2,662	5,328	5,328	0	0	0
Total	30,949	33,765	64,714	58,639	17,910	29,668	47,578

Source: Documents provided by JICA and Response to questionnaires by DGH.

Note 1: Revised project cost is the planned project cost minus 6,073 million yen which is the cost of traffic surveillance system unimplemented by the project.

Note 2: Each cost includes tax and duties.

Note 3: Since the actual land acquisition cost for each phase was not identified, all actual land acquisition cost is mentioned as that of Phase II.

Note 4: Exchange rates used: 1 rupiah=0.012 yen (September 2004) for the Phase I appraisal, 1 rupiah=0.0115 yen (September 2005) for the Phase II appraisal, 1 rupiah=0.0098 yen (Average between 2005 and 2017) for the ex-post evaluation.

3.2.2.2 Project Period

The actual project period was 157 months (March 2005 - March 2018), significantly exceeding the planned project period of 82 months (March 2005 - December 2011) (ratio against plan: 191%) confirmed at the time of the Phase I appraisal (Table 3).

Table 3: Planned and Actual Project Period

Item	Plan	Actual	
	At Phase I Appraisal	Phase I Scope	Phase II Scope
Signing of Loan Agreement	March 2005	March 2005	(Phase I) March 2005 (Phase II) March 2006
Selection of consultants	Mar. 2005 – Feb. 2006	Apr. 2005 – Nov. 2006	Jan. 2007 – Dec. 2010
Consulting services	Mar. 2006 – Dec. 2010	Jan. 2007 – Mar. 2018	Dec. 2010 – Dec. 2016
Detailed design and procurement for main contractors	Mar. 2006 – Mar. 2008	(Detailed design) Nov. 2006 – Mar. 2008 (Procurement) Dec. 2007 – Nov. 2013	(Procurement) Apr. 2010 – Jun. 2011 Aug. 2012 – Nov. 2013
Land acquisition and Resettlement	Feb. 2005 – Apr. 2006	Feb. 2011 – Dec. 2013	Feb. 2011 – Sep. 2014
Construction works	Apr. 2008 – Dec. 2010	Jan. 2009 – Mar. 2017	Mar. 2011 – Dec. 2016
Warranty period	Jan. 2011 – Dec. 2011	Apr. 2017 – Mar. 2018	Jan. 2017 – Dec. 2017
Project completion	Dec. 2011	Mar. 2018	Dec. 2017

Source: Documents provided by JICA and Response to questionnaires by DGH.

Note: The project completion is defined as the end of warranty period.

The reasons for the delay were: (1) the delay in the selection of consultants, particularly for Phase I, which was due to a single bidding, (2) the extended detailed design period due to scope changes such as the addition of connection ramps (NS Direct section), and (3) the delay in, and lengthened procurement procedure of the main contractor due to the review of each procurement package scope and repackaging, (4) the delay in, and lengthened construction work due to the timing of land acquisition, and (5) the delay in the construction period due to the reconstruction of the bridge columns due to the insufficient bridge column strength in the E2-A section.

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

(1) Financial Internal Rate of Return (FIRR)

The Financial Internal Rate of Return (FIRR) of this project was 4.9% at the time of the Phase I appraisal and 4.0% at the time of the Phase II appraisal. Table 4 shows the preconditions for the FIRR. The FIRR was not recalculated as it was difficult to collect the data necessary for recalculation at the time of ex-post evaluation. On the other hand, considering the result of EIRR recalculation as described later, it seems that even if the FIRR recalculation had been feasible, the results would have dropped to a negative value.

Table 4: Financial Internal Rate of Return at the Time of Project Appraisal

Item	Phase I Appraisal	Phase II Appraisal
Financial Internal Rate of Return (FIRR)	4.9%	4.0%
Cost	Project cost, Operation and maintenance cost	Project cost, Operation and maintenance cost
Benefit	Toll fee	Toll fee
Project life	30 years	30 years

Source: Document provided by JICA

(2) Economic Internal Rate of Return (EIRR)

The Economic Internal Rate of Return (EIRR) of this project was 33.8% at the time of the Phase I appraisal and 30.7% at the time of the Phase II appraisal. Table 5 shows the preconditions for the EIRR. The EIRR recalculated at the time of ex-post evaluation was 5.4%, which was significantly lower than the EIRR at the time of appraisal. The main reason for this was a decrease in benefits as the actual traffic volume was lower than expected at the time of appraisal and so on. For the IRR calculation at the appraisal, the starting point of the project life was defined as the year of project completion. Meanwhile, the starting point of project life was redefined as the year of the loan agreement signing at the time of ex-post evaluation. When the EIRR at the time of appraisal was calculated under the same conditions, the results were the same at 30.7%.

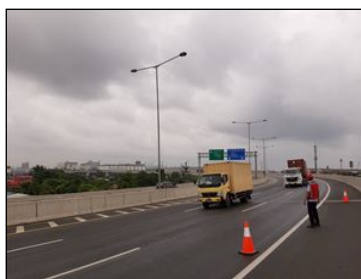
Table 5: Economic Internal Rate of Return at the Time of Project Appraisal

Item	Phase I Appraisal	Phase II Appraisal
Economic Internal Rate of Return (EIRR)	33.8%	30.7%
Cost	Project cost excluding tax, operation and maintenance cost	Project cost excluding tax, operation and maintenance cost
Benefit	Savings in the operating cost of vehicles, reduction of travelling time	Savings in the operating cost of vehicles, reduction of travelling time
Project life	30 years	30 years

Source: Document provided by JICA

Although the project cost was within the plan, the project period significantly exceeded the plan. Therefore, the efficiency of this project is fair.

Facilities constructed by the Project



Tanjung Priok Access Road



Bridge Column



Toll Station

3.3 Effectiveness and Impacts¹¹ (Rating: ②)

3.3.1 Effectiveness

3.3.1.1 Quantitative Effects (Operation and Effect Indicators)

The operation and effect indicators of the project are shown in Table 6. In this ex-post evaluation, project completion was deemed in March 2018, the end of the warranty period, although construction work was completed in March 2017, and the Access Road has been in service since April 2017.

¹¹ Sub-rating for Effectiveness is to be put with Consideration of Impacts.

Table 6 :Operation and Effect Indicators

Indicators	Baseline	Target	Actual		
	2004	2012	2018	2019	2020
		1 year after completion	Project completion	1 year after completion	2 years after completion
1. Annual Average Daily Traffic (AADT) (No. of vehicle / day)					
a) General roads	70,058	42,000	185,947 (Note1)	N.A.	123,986 (Note2)
b) Tanjung Priok Access Road	—	78,400	21,048	21,950	17,675
2. Travel time from Tanjung Priok Port (minutes)					
a) From JICT-1 Terminal to Cakung I.C. (13 km)	29	15	N.A.	N.A.	11 (Note3)
b) From JICT-1 Terminal to Cikarang (43 km)	106	47	N.A.	N.A.	43.5 (Note3)
c) From JICT-1 Terminal to Citeureup (43 km)	70	47	N.A.	N.A.	Not measured
d) From JICT-1 Terminal to Balaraja (72 km)	174	79	N.A.	N.A.	Not measured

Source: Documents provided by JICA and BPJT.

Note 1: Data provided by BPJT (surveyed on January 4, 2018).

Note 2: A sample traffic volume survey by the JICA evaluation team (surveyed on March 19, 2020). The survey point was at Janpea road (JL. Janpea) connecting to the main entrance of the port.

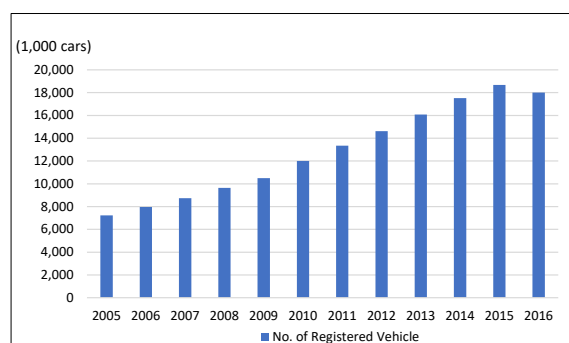
Note 3: Actual date measured by the JICA evaluation team. The travel times between Tanjung Priok Port and Citeureup as well as Tanjung Priok Port and Balaraja were not measured by the team.

Note 4: Regarding the actual traffic volume of Tanjung Priok Access Road, the 2018 data covers 9 months from April to December, the 2019 data covers 12 months from January to December, and the 2020 data covers 7 months from January to July.

(1) Average Annual Traffic

The actual traffic volume on general roads was 185,947 vehicles per day in 2018. Data for the actual traffic volume one year after completion of the project (2019), the target year, could not be obtained from the executing agency. The ex-post evaluation team therefore conducted a sample traffic volume survey in March 2020, and the actual traffic volume then was 123,986 vehicles per day. These actual values did not achieve the target value of 42,000 vehicles or less per day, which was a significant increase from the 2004 baseline value of 70,058 vehicles per day.

The main reason for this is that the general roads around Tanjung Priok Port were widened from 4-lane roads to 6-lane roads (some sections are elevated) at the same time as the completion of the project, and therefore the transportation capacity of the roads increased. The traffic volume of general roads in the target year initially set (2012) was a predicted traffic volume assuming a 4-



Source: Statistics Indonesia (BPS)

Figure 4: Registered Vehicles in the Jakarta

lane road, but since 2018, the general roads have been widened to 6 lanes. With this, the preconditions for the transport capacity of general roads differed greatly between the time of appraisal and ex-post evaluation. Since 2012, the number of registered vehicles in the Jakarta metropolitan area has increased by an average of about 8% annually (Figure 4). Considering the above, it is difficult to judge the degree of achievement by simply comparing the target value set at the time of appraisal with the actual value of the ex-post evaluation year.

Regarding the traffic volume of the Access Road, the actual traffic volume after opening was 21,048 vehicles per day in 2018, 21,950 vehicles per day in 2019, and 17,675 vehicles per day in 2020, which were far below the target value of 78,400 vehicles or more per day. The factor that contributed to the actual value decrease of 2020 compared to the previous year is thought to be that economic and social activities have been severely restricted throughout Indonesia, including the Jakarta metropolitan area, due to the coronavirus infection pandemic since March 2020.

Table 7: Breakdown of Traffic Volume by Type of Vehicle at Tanjung Priok Access Road

Item	2018		2019		2020	
	Traffic volume (vehicle / day)	Ratio (%)	Traffic volume (vehicle / day)	Ratio (%)	Traffic volume (vehicle / day)	Ratio (%)
Category I (ordinary vehicles)	16,899	80.3	16,863	76.8	12,562	71.1
Category II (bus, two axle)	1,578	7.5	1,448	6.6	1,307	7.4
Category III (three axle)	1,013	4.8	1,409	6.4	1,288	7.3
Category IV (four axle)	836	4.0	1,092	5.0	1,317	7.5
Category V (four or more axle)	722	3.4	1,138	5.2	1,201	6.8
Total	21,048	100.0	21,950	100.0	17,675	100.0

Source: BPJT

Note: Regarding the traffic volume, the 2018 date covers 9 months from April to December, the 2019 data covers 12 months from January to December, and the 2020 date covers 7 months from January to July.

Table 7 shows the breakdown of vehicle types that used the Access Road from 2018 to 2020. Category I (ordinary vehicles) accounts for more than 70% of the total, while category V (four or more axle), which includes large transport vehicles such as container trucks, is 5-6%. However, looking at trends over the past three years, the proportion of category I has been declining each year, while the ratios of other categories have increased.

The factors for the low usage rate of large vehicles are as follows: (1) Due to the traffic regulations of Jakarta City, the use of category III to V vehicles is restricted on toll roads (including the Access Road) in the city from 6 am to 9 am. (2) The timing of container imports and exports is concentrated on a specific day of the week or time, and at these times traffic stays within the port premises, resulting in a long wait to enter the port. Therefore, drivers tend to avoid using the Access Road and prefer to wait in line on general roads (general roads allow drivers to step out of the car to use the restroom, eat, and smoke cigarettes, while on highways,

drivers are required to wait inside the car for a long period of time). (3) Drivers are more likely to use general roads because it is expensive (because of the highway toll) to use the Tanjung Priok Access Road, which covers a relatively short distance, only for the purpose of accessing the Tanjung Priok Port from Jakarta City. (4) The Cakung area on the east side of Tanjung Priok port is home to shipping company container depots (facilities for storing, cleaning, inspecting, and repairing containers). Therefore, many container trucks use general roads instead of the Jakarta Outer Ring Road and do not use the Access Road.

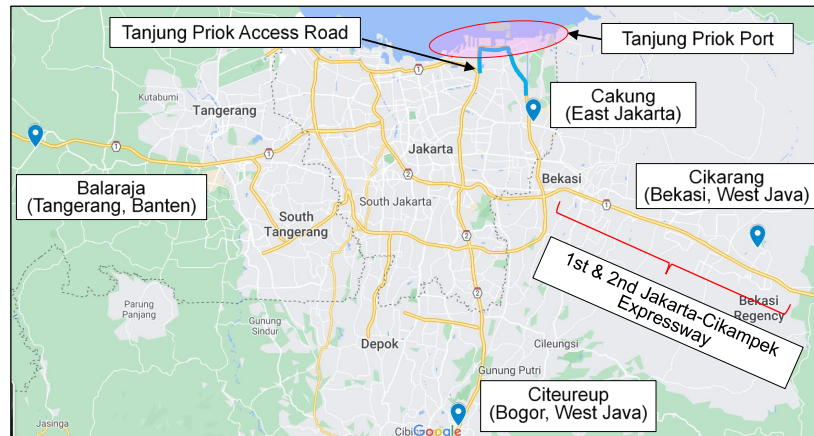
On the other hand, the Jakarta Outer Ring Road 2, which is scheduled to open by the end of 2020 with the exception of some areas, will be connected to the Jakarta Outer Ring Road and Access Road by Cilincing, which will most likely lead to an increase in the usage of the Access Road.

(2) Travel Time from Tanjung Priok Port

BPJT has not measured the actual time required from Tanjung Priok Port to Cakung (13 km), Cikarang (43 km), Citeureup (43 km), and Balaraja (72 km). When the ex-post evaluation team measured the two sections between the port and Cakung and Cikarang, the times recorded were 11 minutes (target value 15 minutes) and 43.5 minutes (target value 47 minutes), respectively, and both achieved the target values. The Second Jakarta-Cikampek Expressway¹² (38 km) opened in December 2019, and this is considered to have significantly contributed to the shorter travel time between Tanjung Priok Port and Cikarang. However, these times required were measured during the week starting from March 15, 2020, which is when the effects of the coronavirus infection pandemic on economic activity in Indonesia began. It cannot be denied, and is important to note, that the traffic volume may have been slightly lighter than that at normal times.

On the other hand, the existing road network between the Tanjung Priok Port and Citeureup in southern Jakarta and Balaraja in western Jakarta has not changed significantly. As for freight transportation on the route between the southern and eastern parts of Jakarta and the port, the effects of this project in regards to time reduction appear to be limited because the Inner Ring Road, which is constantly congested, is mainly used (Figure 5).

¹² A four-lane elevated expressway built on the existing Jakarta-Cikampek Expressway (First Jakarta-Cikampek Expressway) connecting Jakarta and the eastern industrial area. Within Category I, only passenger vehicles other than buses and trucks can enter, and large vehicles are not allowed. It is connected to the Jakarta Outer Ring Road at Cikunir and the Jakarta Outer Ring Road 2 at Cibitung.



Source: Prepared by the External Evaluator by using Google Map.

Figure 5: Locations of Cakung, Cikarang, Citeureup and Balaraja

3.3.1.2 Qualitative Effects (Other Effects)

(1) Alleviation of Traffic Congestion

The key informant interview¹³ conducted during the ex-post evaluation found that the logistics companies and the local businesses along the general roads around Tanjung Priok Port noticed less traffic congestion after the project implementation than before, and that the flow of vehicles had improved. The main reason for this is that at the timing of project completion, the general roads around the port were widened from 4-lane roads to 6-lane roads, and therefore, the transportation capacity of the roads increased. However, on certain days and times when import and export container cargo is concentrated (import cargo on Monday and Tuesday, export cargo on Thursday and Friday from 4 pm to 2 am), congestion may occur with container trucks waiting to enter the port premises occupying one lane and forming a long line. As mentioned above, the transportation time between industrial parks located in the eastern suburbs of Jakarta, such as Cikarang and Bekasi, and the Tanjung Priok Port has reduced. This project is presumed to have contributed to the alleviation of this traffic congestion, in addition to the effect of the newly constructed Second Jakarta-Cikampek Expressway. Additionally, according to one logistics company, replacing manual toll collection with the current E-ticket method on all toll roads has also helped reduce traffic congestion and time.

(2) Improved Access to Tanjung Priok Port

The key informant interview found that the container freight transportation time between the industrial park around Cikarang and Tanjung Priok Port took 5-6 hours before project

¹³ The targets of the key informant interview are as follows: Indonesia Investment Coordinating Board, Jakarta Chamber of Commerce and Industry, JETRO Jakarta office, one container terminal operating company (NPCT1), two logistic companies, three industrial park management companies (Cakung, Cikarang, Citeureup), two industrial park tenant companies (manufacturers) (Cikarang), three local businesses along the general roads around Tanjung Priok Port (grocery store, rope dealer, automobile repair shop).

implementation, compared to 2 to 3 hours at the time of ex-post evaluation. As mentioned above, it has been acknowledged that travel time between Tanjung Priok Port and the areas of Cakung in East Jakarta and Cikarang (West Java) in the eastern suburbs of Jakarta has reduced. Even in the industrial park in the Cakung area, which is relatively close to Tanjung Priok Port, many companies use only one section of the Access Road to avoid traffic congestion in the city. Those within the industrial park in Cakung have noticed that access to the port from the area has improved. This project also included the construction of an interchange that connects the Access Road directly to the gateway of the port, and this has become the shortest route to Tanjung Priok Port using the Access Road and the Jakarta Outer Ring Road, improving the convenience of the port's import and export cargo transportation.

On the other hand, according to the Jakarta Chamber of Commerce and Industry, many of the large vehicles heading for Tanjung Priok Port from Citeureup in southern Jakarta and Balaraja in western Jakarta, choose the Inner Ring Road (without using the Access Road) and general roads to reach the port. This is due to the fact that using the Inner Ring Road already costs a toll (17,000 rupiah for large vehicles) and that continuing onto the Access Road to enter the port further increases the cost with an additional 30,000 rupiah. Due to the high tolls for even short distances on the Access Road, many large vehicles tend not to choose the Access Road after considering both the additional charges and the benefits of saving time. Meanwhile, the route from Cikarang and Cikampek in eastern Jakarta to the port is connected to the Outer Ring Road via the Jakarta-Cikampek Expressway, and the toll for the Access Road section is integrated into the Outer Ring Road toll (30,000 rupiah for large vehicles), so there is no additional charge. Considering these facts, it seems that, compared to before project implementation, the project's impact on improving access between the port and southern and eastern Jakarta is limited.

3.3.2 Impacts

3.3.2.1 Intended Impacts

(1) Improvement of Investment Climate

(a) Ease of logistics between Tanjung Priok Port and Industrial Parks on Java Island

As mentioned above, with the access improvements between Tanjung Priok Port and Cakung in East Jakarta and Cikarang (West Java) in the eastern suburbs of Jakarta, the logistics related to Tanjung Priok Port imports and exports has become smoother from the point of view of the industrial parks and tenant companies in those areas. Even for logistics companies, transportation efficiency and turnover rates have improved. While before project implementation freight transportation between the port and the industrial areas in the eastern suburbs of Jakarta such as Cikarang and Bekasi took place once a day, now it takes place about twice a day. Business efficiency for these companies has also improved. In the past, it was

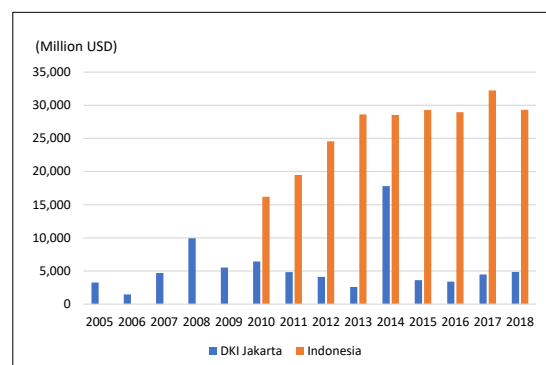
difficult to predict transportation time due to traffic congestion and drivers would often return between 9-10pm. Now, however, the situation has improved, and drivers are able to return to the company between 6-7pm. Similarly, shorter transportation time has helped with predictability and reduced overtime for warehouse employees.

(b) Reduction of Distribution Costs between Tanjung Priok Port and Industrial Parks on Java Island

Through interviews with logistics companies and tenant companies within the industrial parks, it became apparent that although the frequency of container transportation delivery has increased, distribution fees are based on individual contracts between the logistics company and its customer and are not necessarily determined by transportation time and costs. Therefore smooth distribution does not immediately lead to a reduction in distribution costs. On the other hand, the amount of cargo handled by logistics companies has increased due to the increased number of deliveries, and as a result, company profits have also increased. With the shorter transportation time, the punctuality of transportation times has improved, and logistics companies have been able to gain more customer trust, which has been a positive impact. In addition, tenant companies no longer need to pay extra overtime wages to employees who unload cargo as imported cargo now arrives earlier due to both the shortened transportation time and the fact that the times of cargo arrival, loading and unloading are predictable. With employees finishing their work during business hours, companies have also seen improvements in their business efficiency.

(c) Others

Cargo handling volume at Tanjung Priok Port increased to 58 million tons per year in 2012, but has remained at the level of 45 to 47 million tons per year for the last three years (2016-2018), as shown in Figure 1. The amount of domestic investment in the Special Capital Province of Jakarta (DKI Jakarta) increased significantly from 8.5 million rupiah in 2012 to 47 million rupiah in 2017 and 49 million rupiah in 2018. The



Source: Statistics Indonesia (BPS)

Figure 6: Foreign Investment in Jakarta

amount of foreign investment in DKI Jakarta temporarily increased to 17.8 million dollars in 2014, but has remained at the level of 3 to 4 million dollars since then. On the other hand, the amount of foreign investment in Indonesia has been on the rise since 2010, and remained steadily at a high level of 29 to 32 million dollars per year for the last three years (2016-2018)

as shown in Figure 6. According to the Indonesian Investment Coordinating Board, investment from countries such as China, Malaysia, the United States, and Singapore has increased since 2017, and in recent years, investment in the infrastructure sector has been noticeably increasing. Although various factors such as Indonesia's investment policy, industrial policy and macroeconomics may have triggered the increase in cargo handling volume as well as domestic and overseas investment, the Board recognizes that the improvements in the access to Tanjung Priok Port achieved through the project have contributed to further investment around Jakarta to a certain extent.

Regarding the improvement of the investment climate, the following issues have also been recognized.

(i) Lack of Roads exclusively used by Heavy Vehicles Connecting Major Industrial Parks

In the areas around Jakarta, transportation infrastructure between industrial parks and the city of Jakarta as well as the ports is improving. However, there are very few roads or bridges directly connecting industrial parks in the same area on the outskirts of Jakarta which can accommodate heavy vehicles. For this reason, it is necessary for many heavy vehicles to make a detour and go through toll roads even when going to a nearby industrial park. In improving transportation infrastructure, developing roads suitable for heavy vehicles that connect major industrial parks is also a key issue.

(ii) Import and Export Procedure Time

It has been pointed out that Indonesia has a longer import procedure (document procedure) compared to Thailand, Vietnam, Malaysia, and the Philippines. In addition to improving transportation infrastructure, speeding up port procedures is also a necessary task.

(iii) Structural Issues within Indonesia's Logistics Industry

In Indonesia, forwarder¹⁴ regulations (multi-license regulations) require separate companies to carry out forwarding and truck transportation, which is an obstacle to logistical efficiency. There are also restrictions on foreign-affiliated forwarding companies, which make it difficult to generate competition in the industry and therefore costs remain high.

Based on the above, it can be said that this project has had a positive impact to a certain extent in promoting smooth logistics between Tanjung Priok Port and industrial parks on Java Island, especially Cakung in East Jakarta and Cikarang (West Java) in the eastern suburbs of Jakarta. The development of the transportation infrastructure, including logistics, is key to improving

¹⁴ A forwarder means an operator who does not have a means of transportation by themselves, uses ships, aircraft, railroads, trucks, etc., and directly contracts with the shipper to transport freight.

the investment climate, and, therefore, this project has made a certain contribution to improving the investment climate on Java Island, centering on the areas around Jakarta.

3.3.2.2 Other Positive and Negative Impacts

(1) Impact on the Natural Environment

This project was classified as Category A because it falls under the highly influential sector listed in the Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Consideration (established in April 2002). As project sites were located in the residential, commercial, and industrial areas of northern Jakarta, which did not include nature reserves, valuable natural ecosystems, flora and fauna, or important landscapes, no impact on them was foreseen. Prior to project implementation, an Environmental Assessment Report, an Environmental Management Plan and an Environmental Monitoring Plan were prepared in accordance with Indonesia's domestic procedures, and approved by Indonesia's Ministry of the Environment in December 2004.

Regarding environmental monitoring during the construction phase, quantitative measurements of air, noise, and water quality were carried out based on the Environmental Monitoring Plan, and the contractor submitted an Environmental Monitoring Report to the executing agency every three months. In terms of air, noise and water quality, cases exceeding Indonesia's environmental standards were reported. According to the Environmental Monitoring Report, air and noise levels were above standard values due to multiple factors such as construction work and an increase in traffic volume, and it is difficult to identify whether this was directly caused by the construction work of this project. Regarding the water quality, which was also above standard levels, the possibilities of impact of excavation, foundation work, concrete work and operation of heavy machinery on site have been analyzed. As countermeasures against these, for air quality, (1) the main road was watered to suppress powder dust, (2) dirt on roads was cleaned, and (3) cargo on trucks was covered, for noise (4) appropriate work process procedures were implemented to suppress the noise and vibration of foundation work, and for water quality, (5) appropriate management of waste at the disposal site was carried out.

(2) Resettlement and Land Acquisition

For the construction of the Tanjung Priok Access Road, 145,569 m² of land was acquired. The actual land acquisition area was reduced against the planned land acquisition area of 161,886 m² because of the cancelation of W1 and W2 sections (Table 8).

Table 8: Land Acquisition

Section	Plan ^(Note1) (m ²)	Actual (m ²)	Breakdown	
			Land acquisition by DGH (Target of the project budget)	Land owned by Indonesia Port Corporation No.2 (PELINDO II) (Public Land)
E1	0	0	0	0
E2, E2A	117,6663	130,286	25,461	104,825
NS Link	11,325	11,325	5,650	5,675
NS Direct	3,958	3,958	3,958	0
W1	4,334	0	0	0
W2	24,606	0	0	0
Total	161,886	145,569	35,069	110,500

Source: Special Assistance for Project Implementation (SAPI) for Tanjung Priok Access Road Project (2010) and documents provided by DGH

Note 1: The planned land acquisition areas were quoted from the SAPI report (2010). The planned land area included the public land.

Note 2: The actual land acquisition areas included the land acquired for widening of the existing roads from 4 lanes to 6 lanes in addition to the land acquired by this project.

At the time of appraisal, a total of 72 households, 14 legal dwellers and 58 illegal dwellers, were confirmed as the number of households subject to resettlement along the planned route. However, in reality, a total of 364 households, 273 legal dwellers (including shops)¹⁵ and 91 illegal dwellers, were estimated to be subject to relocation. These relocated households included those relocated by the widening of the existing roads which was out of the project scope. This procedure was implemented based on the relevant Indonesian domestic laws. The procedures for land acquisition and relocation of the dwellers were carried out by the executing agency DGH and the Jakarta Provincial Government based on the Land Acquisition and Resettlement Action Plan. Specifically, a land acquisition committee was set up to determine land owners and evaluate land prices, as well as to provide compensation using reacquisition prices of land and buildings for legal dwellers and stores, and loss compensation of buildings to illegal dwellers. These procedures were carried out appropriately in accordance with Indonesia's domestic law as well as related laws and regulations. On the other hand, according to the executing agency, there were cases of complaints about the land purchase price indicated by the committee, and 83 cases were under dispute. All these cases were settled in 2015.

(3) Measures Against Infectious Diseases such as AIDS

As a large number of workers were mobilized for civil engineering work in areas with a high HIV/AIDS infection rate, workshops on HIV/AIDS were held under this project for all workers at least once a year as a preventive measure to raise awareness. In addition, blood tests were

¹⁵ The land acquisition and resettlement report provided by the executing agency did not mention the specific number of households and stores to be relocated and only that 273 areas of land were acquired from citizens and 91 areas of public land managed by the community. As there is usually one household living in one area (one block), it is estimated that the households to be relocated included 273 legal dwellers and 91 illegal dwellers.

conducted semi-annually for all workers. According to the Indonesia consultant who engaged with this project, these preventive measures were effective.

The operation and effect indicators regarding traffic volume on the general roads around Tanjung Priok Port and the Tanjung Priok Access Road were not achieved and only some of the operation and effect indicators regarding the travel time between Tanjung Priok Port and Jakarta City along with four surrounding areas were achieved. However, alleviation of traffic congestion on general roads around Tanjung Priok Port and improvement of access between Tanjung Priok Port and the industrial areas in the Jakarta metropolitan area and eastern area have been recognized. In addition, a certain contribution was made to improving the investment climate, such as the creation of smoother logistics between Tanjung Priok Port and the industrial parks in the Jakarta metropolitan area and the eastern area.

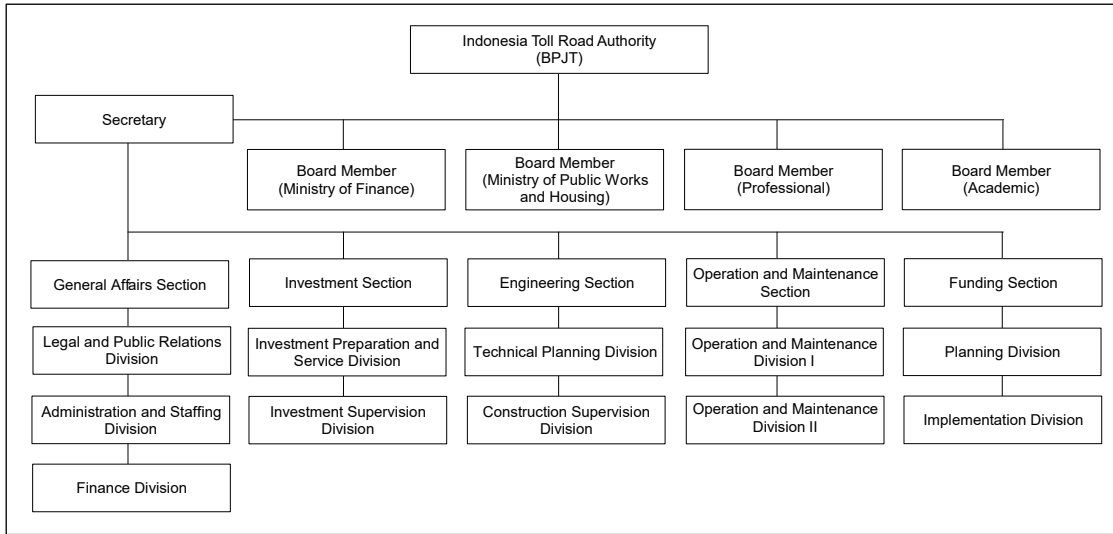
This project has achieved its objectives to some extent. Therefore, the effectiveness and impacts of the project are fair.

3.4 Sustainability (Rating: ③)

3.4.1 Institutional / Organizational Aspects of Operation and Maintenance

<BPJT>

After completion, the Indonesia Toll Road Authority (BPTJ) under the Ministry of Public Works and Public Housing has responsibility for the Tanjung Priok Access Road. BPJT is a regulatory body for toll road projects, and is also the organization that manages PPP operators of toll roads including the Tanjung Priok Port Access Road. However, the actual operation and maintenance work is outsourced to a private operator under a concession agreement. The Jakarta Outer Ring Road is divided into 7 sections and is operated and maintained by 4 private operators. The Tanjung Priok Access Road is also operated and maintained by a private operator based on a 40-year concession agreement, and BPJT regulates, evaluates, and supervises the private operator of the toll road. There are 113 BPJT staff, and 6 staff from the Operation and Maintenance Department are in charge of the Access Road. The organization chart of BPJT is shown in Figure 7.



Source: BPJT

Figure 7: Organizational Chart of Indonesia Toll Road Authority (BPJT)

<Private Road Operator>

The state-owned company PT. Hutama Karya has been in charge of the operation and maintenance of the Tanjung Priok Access Road since 2018, based on a 40-year concession agreement. The company participated in the construction work of the second phase of this project as a member (contractor) of the joint venture, and also constructed, operated and maintained the trans-Sumatra Toll Road (2,765 km) under a concession agreement with the Indonesian government.

The Tanjung Priok Access Road is under the supervision of the company's branch office. At the branch office, 8 full-time employees of PT. Hutama Karya (branch manager, operations manager, safety management manager, finance manager, accounting manager, traffic management manager, toll collection manager), and 207 temporary employees (from seven contractors under consignment agreements) carry out daily operation and maintenance work.

3.4.2 Technical Aspects of Operation and Maintenance

<BPJT>

BPJT conducts on-site inspections once or twice a year to check whether private operators satisfy minimum safety standards, and to evaluate quarterly reports submitted by these operators. The quarterly report includes the results of operation and maintenance work, the number of vehicles that have passed the toll stations (by vehicle type), the monthly revenue of the toll gates, and the number of accidents each month. In addition, staff training is conducted every year (three times a year) to promote understanding of the PPP scheme for toll roads.

<Private Road Operator>

The on-site branch manager of PT. Hutama Karya has 13 years of work experience at the company, and has been the branch manager of the Tanjung Priok Access Road since the company entered the concession agreement. Surveillance cameras are installed at 26 locations on the Access Road, and the headquarters and on-site branch office monitor them 24 hours a day. The company owns maintenance equipment such as ambulances, patrol vehicles, towing vehicles, maintenance vehicles, and special vehicles for elevated inspections, and uses them for the operation and maintenance of the Access Road. The branch inspects truck overload twice a month in cooperation with the police.¹⁶

Employees of PT. Hutama Karya headquarters and the operations manager of the branch receive training conducted by DGH related to traffic management, construction management, and safety management, and share the training information with branch employees, including temporary staff. In addition, the company's in-house training covers topics such as service, project management and leadership, and staff members receive this training as needed. The branch office evaluates the performance of temporary staff based on performance evaluation indicators every month and every 6 months. Indicators include attendance status, status of work implementation according to schedule, communication skills, and handling of lost and found items. Based on this performance evaluation, every year the most outstanding staff are commended and given the choice to become full-time employees of PT. Hutama Karya.

3.4.3 Financial Aspects of Operation and Maintenance

<BPJT>

BPJT supervises the operation and maintenance of private operators as part of their routine work, and therefore there is no special budget for this supervision work. If a facility is damaged due to unavoidable occurrences such as natural disasters, repairs are covered by insurance. Any other incidents are covered by the private operators under a concession agreement.

<Private Road Operator>

According to the concession contract, PT. Hutama Karya will receive 30.2% of the toll revenue for the entire Jakarta Outer Ring Road. Once the toll revenue is collected by the company's headquarters, the headquarters then allocates the budget for operation and maintenance of the Access Road to the branch. However, in addition to toll revenue, concession contracts also allow revenue from advertising and other businesses. There is no financial support from the government such as government subsidies for PT. Hutama Karya. The operation and maintenance costs borne by the company include the maintenance costs for structures such as bridges and columns of elevated roads, as well as road surfaces, fences, and toll gates. Table 9

¹⁶ According to the branch, 40% of the vehicles inspected so far were overloaded.

shows the operation and maintenance costs of the Tanjung Priok Access Road. According to the branch manager, the necessary operation and maintenance costs were allocated. As for tolls, the initial toll price is decided by the Department of Transportation based on the concession plan, and a revision of toll prices is permitted every two years in accordance with inflation.

Table 9: Operation and Maintenance Cost for Tanjung Priok Access Road

Unite: Rupiah

Item	2018	2019	2020
Operation cost	88,250,932,258	93,421,554,379	98,895,123,250
Maintenance cost	-	6,847,597,048	7,121,500,930
Total	88,250,932,258	100,269,151,427	106,016,624,180

Source: BPJT

3.4.4 Status of Operation and Maintenance

The paved surfaces and structures of the project facilities are kept in good condition, and no particular issues have been found. PT. Hutama Karya formulated an Operation and Maintenance Plan that complies with the Toll Road Maintenance Plan, Toll Road Maintenance Guidelines and the Service Level Agreement (SLA) / Standar Pelayanan Minimum (SPM) established by the Indonesian government, and operates and maintains the Access Road based on this plan (Table 10). PT. Hutama Karya has mentioned that the soundproof wall installed on part of the road is made in Japan, and if damaged, a replacement would need to be procured from Japan, which would be a costly burden.

Table 10: Maintenance Plan for Tanjung Priok Access Road

Type	Frequency	Contents
Routine Maintenance	Every day	Inspection of elevated structure of road, cleaning of drainage
Periodic Maintenance	Every 2 weeks	Cleaning of concrete barriers (fences) at toll gates
Major Maintenance	Every 3 years	Repair of cracks on the road surface, marking of carriage lanes, replacement of broken street lamps, signage, and guard rails

Source: PT. Hutama Karya

According to the on-site inspection conducted by the evaluator, the project facilities have been kept in good condition. When compared with other sections of the Jakarta Outer Ring Road, which are operated and maintained by a different private operator, the road quality, cleanliness, and the friendliness of the toll station staff were good.

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

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

The objective of this project was to alleviate traffic congestion by improving access from the Jakarta area to Tanjung Priok Port by introducing a traffic surveillance system and constructing an access road connecting the northeastern part of the Jakarta Outer Ring Road and the Jakarta harbor road, thereby contributing to improvement of the investment climate in Java. The relevance of the objective is high, as it is consistent with Indonesia's development plan and development needs, as well as with Japan's ODA policy.

While the project cost was within the plan, the efficiency is fair as the project period significantly exceeded the plan. The operation and effect indicators such as the traffic volume of general roads around Tanjung Priok Port and Tanjung Priok Access Road did not achieve the target values. Meanwhile the target values for travel time between Tanjung Priok Port and Jakarta City, as well as four surrounding areas, were only partially achieved. For general roads, however, it is difficult to accurately determine the degree of achievement of the goals as the preconditions at the time of appraisal and the time of ex-post evaluation were different. This project was also found to improve access between Tanjung Priok Port and the industrial areas in and around the Jakarta metropolitan area. As the development of transportation infrastructure, including logistics, is a key element in improving the investment climate, it is believed that this project has made a certain contribution to improving the investment climate in Java, mainly in areas around Jakarta. For these reasons, the effectiveness and impact of the project are fair. Under the executing agency's supervision, the operation and maintenance of the road constructed by this project are outsourced to a private operator. The private operator owns the equipment necessary for maintenance and provides training for their staff. The private operator covers the necessary operation and maintenance costs, and the project site visit conducted as part of this ex-post evaluation confirmed that the facilities constructed by this project were in a good condition. From the above, it can be said that the sustainability of the project effects 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

The introduction of a traffic surveillance system for the entire Jakarta Outer Ring Road was planned within this project, but due to a change of scope triggered by soaring costs, it was removed from the project scope and will be developed by the Indonesian government in the future. As traffic surveillance systems play an important role in ensuring the safety, smoothness, and comfort of toll roads, it is proposed that consideration of introducing this system continue.

In addition, the NS Direct section is designed to accommodate future traffic volume only up to 2025, and therefore the necessity for the construction of W1 and W2 sections, which were

also removed from the project scope, remains high. Therefore, it is proposed that specific plans for the construction of W1 and W2 sections should be considered.

4.2.2 Recommendations to JICA

None.

4.3 Lessons Learned

Necessity to Evaluate Operation and Effect Indicators

For this project, (1) the annual average traffic volume (vehicles / day) on general roads and access roads, and (2) the required time to travel between Tanjung Priok Port and four locations in and around Jakarta were set as operation and effect indicators. The target road for this project is a part of the Jakarta Ring Road, and has a distance of only 11.4 km. However, of the four locations shown in the time required index, only Cakung (13 km) is close to the project road, while Cikarang (43 km), Citeureup (43 km), and Balaraja (72 km) are located outside Jakarta. Tanjung Priok Port can be accessed from these three locations by using existing routes such as general roads and different toll roads, but the time required will vary depending on the road conditions at the time. Despite these differences in conditions, the target value was set assuming that the time required between the port and these three locations would decrease uniformly after the completion of the Tanjung Priok Access Road, which was not appropriate for accurately analyzing the effectiveness of the project. In the future, when using reduction of travel time as an operation and effect indicator in similar projects, it should be required that the relationship between the target project and the target section used for measuring the effect of shorter travel time is analyzed together with other factors external to the project which might also affect the shorter travel time. The target section and target value as an aforementioned indicator should be set after certain preconditions have been clarified.

End

Comparison of the Original and Actual Scope of the Project

Item	Plan	Actual
1. Project Outputs (1) Construction of Tanjung Priok Access Road	Total length: 12.05 km (elevated road) <Phase I scope> • Section E-1 = 3.4 km • Section E-2 = 4.18 km <Phase II scope> • Section NS Link = 2.24 km • Section W-1 = 2.84 km • Section W-2 = 2.91 km	Total length: 11.40 km (elevated road) <Phase I scope> • Section E-1 = 3.4 km • Section E-2 = 2.74 km <Phase II scope> • Section E2-A = 1.92 km • Section NS Link = 2.24 km • Section NS Direct = 1.1 km (additional scope) • Section W-1: Not implemented (outside the scope) • Section W-2: Not implemented (outside the scope)
(2) Installation of Traffic Surveillance System (TSS)	<Phase II scope> • Traffic Information Center • Traffic Surveillance such as CCTV • Traffic Information Control System such as Traffic Information Providing System and Traffic Information Communication • Axle Load Scale and Control System	• Not implemented (outside the scope)
(3) Consulting Services	• Preparation of detailed engineering design, assistance of tender and construction supervision for target road section • Preparation of detailed engineering design, assistance of tender and construction supervision for target road section for TSS <Phase I scope> • International experts: 473 M/M • Local experts: 684 M/M <Phase II scope> • International experts: 447 M/M • Local experts: 618 M/M • Supporting staff: 1,320 M/M	• Same as planned <Phase I scope> • International experts: 418 M/M • Local experts: 958 M/M <Phase II scope> • International experts: 422 M/M • Local experts: 710 M/M • Supporting staff: 2,738 M/M
2. Project Period	March 2005 – December 2011 (82 months) (At the time of Phase I appraisal)	March 2005 – March 2018 (157 months)
3. Project Cost		
- Amount Paid in Foreign Currency	21,295 million yen	N.A.
- Amount Paid in Local Currency	43,419 million yen (3,689,931 million rupiah)	N.A.
- Total	64,714 million yen	47,578 million yen
- ODA Loan Portion	52,926 million yen	41,036 million yen
- Exchange Rate	1 rupiah = 0.012 yen (As of September 2004) 1 rupiah = 0.0115 yen (As of September 2005)	1 rupiah = 0.0098 yen (Average between 2005 and 2017)
4. Final Disbursement	(Phase I) January 2018 / (Phase II) December 2016	