

Republic of Indonesia

Ex-Post Evaluation of Japanese ODA Loan

“Depok Depot Construction Project”

External Evaluator: Hideyuki TAKAGI, Ernst & Young Sustainability Co., Ltd.

0. Summary

This project was implemented under conditions in which traffic demand was increasing rapidly in the metropolitan area in Indonesia. The objective of this project is to improve the capacity for maintenance and operation services by constructing a new depot with maintenance facilities in Depok near Jakarta and conducting consulting services on railway operations, thereby contributing to strengthening the transportation capacity of Jabodetabek railways (hereinafter referred to as “KRL Jabodetabek”) through the improvement of operational safety and the operating ratio of the railcars.

This project has been highly relevant to the development policy of Indonesia and its development needs, as well as Japan’s ODA policy. In terms of effectiveness, the Depok depot has been kept in operation as planned: it accommodates and maintains the increased number of railcars. The increase in the number of train passengers has been identified as having had a significant impact in this project. The construction of the depot and the consulting services of this project have contributed to this impact by supporting the increase in the number of railcars in operation and improving the train scheduling. With all these facts taken into consideration, the project effectiveness and impacts are considered to be high. The project efficiency is fair because the project period exceeded the plan although the project cost was within the plan. The sustainability of the project effect is considered to be fair because some problems are observed in terms of the institutional aspects of the operation and maintenance of the Depok depot. In light of the above, this project is evaluated to be satisfactory.

1. Project Description



Project location



Depok depot (Inspection shed)

1.1 Background

The national capital area of Indonesia is formed with Jakarta at the center together with the adjacent four cities of Bogor, Depok, Tangerang, and Bekasi. This large metropolitan area is called as the “Jabodetabek area” and is the base of economic activities for the whole country. Traffic demand has increased substantially, especially for commuting to Jakarta as the population in the region has increased year by year. With the development of the city, traffic congestion and the limitations of the capacity of the public transportation network have become serious, which has been recognized as a problem of large cities since the late 1960s. In this situation, the Indonesian government (hereinafter referred to as “the Government”) is focusing on the high-speed mass transit functions of the railway as one of the policies for overcoming traffic congestion in the metropolitan area. It represents a policy of developing the railway as a main urban transport facility: utilizing the existing railway facilities and making aggressive investments in the railway system (Presidential Decree No.26/1982 and its amendments in No.67/1983). The development of a commuting railway network was a matter of policy for healthy economic growth. In the process of urban development, it was necessary to mitigate the impact of the road traffic by raising the proportion of public transport, from various viewpoints such as coping with the increase in traffic, urban development and environmental measures.

The Japan International Cooperation Agency (hereinafter referred to as “JICA”) carried out a series of ODA loan projects, the “Jabotabek Railway Modernization Projects (I - IX)” for the improvement of the country’s railway system. These projects correspond to the subprojects specified as specific area of improvement in the “Jakarta Metropolitan Railway Transportation Plan (master plan)” (1982). The first phase of the projects began in 1982 and continued until the ninth phase was completed in 2001. Throughout their implementation, these projects performed a significant role in the improvement of KRL Jabodetabek (Refer to the table 3.4-5 in the Efficiency section). The number of subprojects has risen to 18, which covered the procurement of railcars, the improvement of tracks, the construction of communication facilities, electrification, the improvement of depots, maintenance factories and stations, automated signaling, double track railway lines, elevation of the Central Line, etc. Most of the improvements to the railway were financed by Japanese ODA loans. This project under evaluation was implemented for the purpose of resolving the lack of capacity for the accommodation of railcars, the number of which was planned to increase in accordance with the reinforcement of transportation capabilities through the Jabotabek Railway Modernization Projects (I - IX).

1.2 Project Outline

The objective of this project is to improve the capacity for maintenance and operation services by constructing a new depot with maintenance facilities in Depok near Jakarta and

providing consulting services on railway operations¹, thereby contributing to the strengthening of the transportation capacity of KRL Jabodetabek through the improvement of operational safety and the operating ratio of railcars.

Loan Approved Amount / Disbursed Amount	JPY 9,223 million / JPY 7,454 million
Exchange of Notes Date / Loan Agreement Signing Date	January 1998 / January 1998
Terms and Conditions	<p>Construction Works: Interest Rate: 2.7% Repayment Period: 30 years (Grace Period: 10 years) Conditions for Procurement: General Untied</p> <p>Consulting Service: Interest Rate: 2.3% Repayment Period: 30 years (Grace Period: 10 years) Conditions for Procurement: General Untied</p>
Borrower / Executing Agencies	Republic of Indonesia / Directorate General of Railways (DGR), Ministry of Transportation
Final Disbursement Date	February 2012
Main Constructors (Over 1 billion yen)	Mitsubishi Heavy Industries, Ltd. (Japan) / Hitachi Plant Services Co., Ltd. (Japan) / PT. Wijaya Karya (Indonesia) / Sumitomo Corporation (Japan) (JV)
Main Consultants (Over 100 million yen)	<p>Pkg. A: Pacific Consultants International (Japan) / The Japan Electrical Consultants Co., Ltd. (Japan) / Japan Transportation Consultants, Inc (Japan) (JV)</p> <p>Pkg. B: Japan Railway Technical Services (Japan) / PT. Metro Transportama Consultant (Indonesia) / OPMAC Corporation (Japan) (Japan) (JV)</p> <p>Pkg. C: Japan Railway Technical Services (Japan) / ALMEC Corporation (Japan) / PADECO Co., Ltd. (Japan) / OPMAC Corporation (Japan) (JV)</p>
Related Studies (Feasibility Study) etc.	Jakarta Metropolitan Railway Transportation Plan (Master Plan, 1982)
Related Projects	Japanese ODA Loan Project:

¹ Among the consulting services Package A: Consulting services related to the construction of the Depok Depot, Package B: Consulting Services on the Action Plan for the Better Operation of the Jabotabek Railways, Package C: Consulting Services on the Further Development of the Jabotabek Railway Project, Packages B and C are for the improvement of railway operations.

	<p>“Jabotabek Railway Modernization Project (I - IX)” (May 1982 – November 2001)</p> <p>Technical Corporation Project:</p> <p>“Study on the Integrated Transportation Master Plan for JABODETABEK (SITRAMP)” (2000 - 2004)</p> <p>“Project on Improvement of Service and Safety of Railway” (2004 – 2006), phase 2 (2007 – 2010)</p> <p>“Jabodetabek Urban Transportation Policy Integration (JUTPI)” (July 2009 – October 2011)</p> <p>Other International Cooperation Agencies:</p> <ul style="list-style-type: none"> - Procurement of railcars through loans from Belgium and Holland - Procurement of railcars through loans from KfW Bankengruppe
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2. Outline of the Evaluation Study

2.1 External Evaluator

Hideyuki TAKAGI (Ernst & Young Sustainability Co., Ltd.)

2.2 Duration of the Evaluation Study

Duration of the study: January 2014 – December 2014

Field study: April 14 – May 10, 2014 and August 25 – September 6, 2014

2.3 Constraints during the Evaluation Study

Regarding the consulting services Pkg. C, sufficient information could not be gathered from the parties concerned (i.e., consultants and Indonesian counterparts) due to their retirement, etc. Therefore, this component of the project has been eliminated from the evaluation study.

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

3.1 Relevance (Rating: ③³)

3.1.1 Relevance to the Development Policy of Indonesia

At the time of both project appraisal and this ex-post evaluation, a focus on the mitigation of traffic congestion in the metropolitan area and strengthening of the transportation capacity of KRL Jabodetabek have been priority agenda items in the national policy of Indonesia. At the time of project appraisal, reinforcement of the transportation capacity of KRL Jabodetabek was listed as a railway development target of the transportation sector in the national medium-term development plan (REPELITA VI: 1994 - 1998). The Presidential Decree No.26/1982 (and its

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

³ ③: High, ②: Fair, ①: Low

amendments in No.67/1983) also indicated a policy of developing the railroad as a main urban transport facility. A plan for the substantial shift from road traffic to the railroad was one of the policies for overcoming traffic congestion in the metropolitan area.

At the time of the ex-post evaluation, the national medium-term development plan (RPJMN I: 2010 - 2014) stipulates the reinforcement of the transportation system in four large cities of the county, including Jakarta and the network among these systems, as one of priority development goals in the field of infrastructure development. The priority policy for traffic congestion in the Jakarta metropolitan area (2010) promotes action for the improvement of metropolitan area traffic flows through cooperation among the related ministries (i.e., the Economic Coordination Minister Office, the Ministry of Transportation and the Ministry of Public Works) and the related local governments, including the special capital region of Jakarta. The “National Railway Master Plan” (April 2011) prepared by the Ministry of Transportation stipulates the development of the railroad network and improvement of services in the urban area, as one of priority strategies to cope with the expected increase in demand from railway users by 2030. In this master plan, development of a mass transit system in Jakarta metropolitan area is a main project to achieve the strategic target. In addition, the Presidential Decree No.83/2011 sets a target of an increase in the number of passengers for KRL Jabodetabek from approximately 300,000 people/day in 2010 to 1,200,000 people/day by 2018, by newly establishing a route that links the Soekarno Hatta International Airport with Tangerang city and by the development of a loop line. Based on the development plan and the Presidential Decree mentioned above, the Indonesian railway company PT. Kereta Api (hereinafter referred to as “PT. KAI”) calculated the necessary increase in the number of railcars to be approximately 1,000 railcars, and it has moved to implement a plan for increasing and renewing railcars that targets an increase in 200 railcars and renewal of 16 to 20 old railcars per year from 2013 through 2018.

3.1.2 Relevance to the Development Needs of Indonesia

3.1.2.1. Changes in the population and the number of commuters in the Jabodetabek area

Population of the Jabodetabek area has been increasing and the number of commutes from various places into Jakarta has increased as well. The population in the Jakarta metropolitan area who are assumed to be the main users of KRL Jabodetabek has increased approximately 1.3 times, from 21.2 million in 2000 to 27.9 million in 2010. In addition, the number of the commuters from various places within the Jabodetabek area into Jakarta has increased approximately 1.5 times, from 743,000 trips in 2002 to 1,105,000trips in 2010⁴.

⁴ Source: Report of the Jabodetabek Urban Transportation Policy Integration (JUTPI)

3.1.2.2. Trends in the number of railway passengers

While the number of the commuters has been increasing as described above and the boarding rate of the railcars was high during the commuting hours⁵, the overall number of passengers using KRL Jabodetabek was stable at around 120 million per year up to 2011. One of the factors affecting this situation was related to the railway operations, and another factor was related to the change in the means of commuting: an increase in train scheduling was not realized and motorization has progressed, including the use of motorcycles.

The commuter train services started in 2011 in order to meet the demand from commuters, who had been at the forefront of the large increase in the number of the passengers (Refer to the Figure 3.3-1 “Trends in the average number of railway passengers per day” in the Impact section). It is considered that the self-directed management efforts of the railway companies in recent years have been leading to improvements of its operations. Their efforts include "increase in train scheduling and the number of air-conditioned railcars", "improvement of security and convenience" and “revision of the rate system and the improvement of ticketing⁶”. The fact that the boarding rate for railcars was high before the implementation of this project and improvements by railway companies have led to a considerable increase in the number of passengers indicates that the demand from commuters to use the train has been high from the time of project appraisal through to this ex-post evaluation.

3.1.3 Relevance to Japan’s ODA Policy

This project was relevant to Japan’s country assistance policy for Indonesia at the time of the project appraisal. It was included in the environmental management sector, one of the priority areas for assistance, in order to improve the residential environment to cope with the situation faced by population concentrations in a rapidly developing metropolis.

This project has been highly relevant to the country’s development policy, development needs, as well as Japan’s ODA policy, and therefore its relevance is high.

3.2 Effectiveness⁷ (Rating: ③)

In this ex-post evaluation, the external evaluator set the quantitative indicators and qualitative effects based on the project purpose assumed at the time of the appraisal. The prospective effects of every component of the project are arranged as follows.

- Construction of the Depok Depot and consulting service Package A: This component is

⁵ The boarding rate of the Bogor Line and the Bekasi line reached 300 - 400%. (Source: Report of the "follow-up study on the economic cooperation for the transportation sector")

⁶ The convenience for the passengers has been improved due to the introduction of a prepaid card and automatic ticket gates, which enabled ticket purchases and the entry and exit to the station yard more user-friendly.

⁷ The evaluation results of the project impacts are incorporated into the Effectiveness rating.

the main part of the project, and the effects of this component are regarded as the direct effects of the project, which is therefore valued as being the most important in the analysis of effectiveness. The main points analyzed in this evaluation are the quantitative indicators of the “number and percentage of railcars accommodated by the Depok Depot” and the “Number and percentage of inspections and repairs for railcars undertaken in the Depok Depot”.

- Consulting service Package B: With regards to the effects of this component, its contribution to the improvement of railway operations is analyzed in terms of the qualitative effects and the impacts. In the determination of the sub-rating of effectiveness of the Project, effect of this component is weighted based on its cost which accounts for a small portion of the project as a whole.
- Consulting service Package C: It was assumed that the effects of this component would be measured by the degree of contribution that the investments made to the improvement of transport capacity and safe railway operations. However, due to the constraints during the evaluation study as mentioned above, this component of the project has been eliminated from the evaluation study.

3.2.1 Quantitative Effects (Operational and Effect Indicators)

Indicator 1: “Number and percentage of railcars accommodated by the Depok depot”

1) Target of the indicator

At the time of project appraisal, the capacity for railcar accommodation in KRL Jabodetabek had a shortfall of 20 railcars. In addition, it was expected that the shortfall in accommodation capacity would further worsen to 100 railcars by the end of 2000, taking the plan for increasing the number of railcars into consideration. In addition, a further increase in the number of railcars was anticipated in the near future. Therefore, a lack of accommodation capacity was predicted for 282 railcars in total. The target for the “number of railcars to be accommodated by the Depok depot” was set as the designed accommodation capacity of the Depok depot⁸. The designed accommodation capacity depends on the train formation: the target is set at 224 railcars if all trains consist of 8 cars and 336 railcars in the case of 12-car trains. Also the target of the “percentage of accommodated railcars to the lack of accommodation capacity⁹” was set at 79% as the minimum if all trains consist of 8 cars and at 119% as the maximum if all are 12-car

⁸ The accommodation capacity of the Depok depot was designed to include 14 stabling tracks based on the existing accommodation capacity of the KRL Jabodetabek and the expected increase in the number of railcars at the time of project appraisal, and the land area of the project site. The accommodation capacity of 14 stabling tracks depends on the train formation: a maximum of 224 railcars can be accommodated if all trains have the conventional number of 8 cars, and a maximum of 336 railcars can be accommodated if all are 12-car trains in the future.

⁹ The target for the “percentage of railcars accommodated in the Depok depot” was set as the percentage of accommodated railcars to the lack of accommodation capacity expected at the planning of the project.

trains.

2) Achievement of the target

At the time of the ex-post evaluation, all the trains accommodated in Depok depot are 8 cars (as of the end of August 2014). The “number of railcars accommodated in Depok depot” at the time of the completion of Depok depot construction (in other words, start of the operation of Depok depot in 2008) was 212, which almost achieved the target of 224 railcars. The “percentage of accommodated railcars” in relation to the lack of accommodation capacity of KRL Jabodetabek as a whole¹⁰ was 75%, which almost achieved the target of 79% (percentage of achievement is 95% for both targets). However, after the start of the operation of Depok depot, the “number of accommodated railcars in Depok depot” had been at a low level due to the disposal of old railcars such as economy class trains. At the time of the ex-post evaluation, the “number of accommodated railcars” has recovered to 212 railcars (95% of the targeted number of railcars), since the replacement of the old railcars has almost been completed by then. (Refer to the Table 3.2-1)

Table 3.2-1 Actual percentage of the total number of railcars and the number and percentage of railcars in-use accommodated in the Depok depot

		2008 ²	2009	2010	2011	2012	2013	2014 ³
Target number of the railcar accommodation capacity	(a)	282	282	282	282	282	282	282
Designed number of the railcar accommodation capacity ¹	(b)	224	224	224	224	224	224	224
Total number of accommodated railcars	(c)	212	186	178	188	184	176	212
% of accommodated railcars to the target capacity	(d) (c) / (a)	75%	66%	63%	67%	65%	62%	75%
Number of accommodated railcars (overhauled or retired)	(e)	52	28	12	14	40	32	16
Number of accommodated railcars in operation	(f) (c) – (e)	160	158	166	174	144	144	196
% of accommodated railcars in operation	(g) (f) / (b)	71%	71%	74%	78%	64%	64%	88%

Source: Prepared by the external evaluator based on the information regarding the number of accommodated railcars provided by PT. KCI

Notes: ¹ Railcar accommodation capacity in the case of 8-car trains / ² At the time of project completion / ³ Data as of August 2014

3) Number and the percentage of accommodated railcars in operation

In addition to the total number of railcars, an analysis was also made also for the “number

¹⁰ After the beginning of 2014, 10-cars trains have been introduced and accommodated at the Bunkit Duri depot. It is expected that this indicator will be highly achieved in the future as the 10-cats train increase and accommodated in the Depok depot.

and the percentage of accommodated railcars in operation”. At the time of the completion of the Depok depot construction, the “number of accommodated railcars in operation” was 160, and the “percentage of accommodated railcars in operation” compared to the lack of accommodation capacity of KRL Jabodetabek as a whole was 71%. The “percentage of accommodated railcars in operation” had been at the 70% level at that time, because the rate of non-operating railcars was high because they were kept in the depot waiting for an overhaul for the effective practical use of the old railcars. In addition, the “percentage of railcars in operation” had been reduced from 2012 through 2013 as the old cars without air conditioners were retired when the operation of commuter trains started. At the time of the ex-post evaluation, as the replacement of old railcars had mostly been completed, the number of railcars in operation had increased. The “number of accommodated railcars in operation” was 196, and the “percentage of accommodated railcars in operation” compared to the lack of accommodation capacity of the KRL Jabodetabek as a whole was 88%. (Refer to the Table 3.2-1)

Indicator 2: “Annual number and percentage of inspections and repairs for railcars in the Depok depot”

Basically, every railcar in operation accommodated in the Depok depot undergoes a routine inspection and repairs. Therefore, the “number and percentage of trains under inspection and repair” in the Depok depot are the same as the “number and the percentage of accommodated railcars in operation” analyzed at the indicator 1 above. The “number and percentage of inspection and repair for railcars” in the Depok depot were 160 and 71%, respectively, at the time of the completion of the Depok depot construction; 196 and 88% at the time of the ex-post evaluation. (Refer to the Table 3.2-1)

As a result of the quantitative analysis, it is confirmed that the level of utilization of the Depok depot has been high. It has been operated as planned; in other words, the depot provides the accommodation and maintenance of railcars in accordance with the design of its facilities. The “number of accommodated railcars” at the time of the completion of Depok depot construction was high because the number of railcars accommodated in the depot equals 95% of its designed accommodation capacity. While the “number of accommodated railcars in operation” was only 71% at the time of the completion of the Depok depot construction, it rose to 88% by the time of the ex-post evaluation after the replacement of old railcars. The “number and percentage of inspections and repairs” followed the same course of events as the “number of accommodated railcars in operation”. The percentage is 88% at the time of ex-post evaluation, a high level of utilization of the depot facilities.



Photo 1. Commuter trains accommodated on the stabling tracks



Photo 2. Maintenance of railcars using a wheel tread reprofiling machine

3.2.2 Qualitative Effects

1) Improvement in the railway operation and services

In the consulting services package B “consulting services on an action plan for the better operation of the Jabotabek railways”, technical assistance was provided mainly on the basic railway operation. Specifically, action plans to reduce inadequate operations such as human error in the preparation of train diagrams, train accidents caused by human error and illegal passengers (taking a free ride) were made and implemented. According to the former project manager of the Indonesian counterpart of this consulting package, the knowledge and skills transferred are taught in the academy of transportation¹¹, where he is now an instructor, since these are essential elements for the improvement of railway operations. The staffs of the railway companies apply what they learned at the academy. The former Japanese site project manager sees the effects of the consulting service likewise: according to him, the action plan has been implemented through the efforts of the railway companies themselves, and the effects can be currently observed in the better operation of the trains. It is concluded that the implementation of the consulting package has contributed to the development of technical capacity that has led to the improvement of railway operations, as described in the “Trends in the number of railway passengers” in the “Relevance to the Development Needs of Indonesia” section.

It is presumed that it took years for train passengers to recognize the improvement since the action plan had not been implemented as was planned due to the lack of a maintenance budget and insufficient number of railcars etc., and also the implementation of the action plan is the basic requisite for proper railway operation. (According to the

¹¹ This is a facility for land transport education and training under the Ministry of Transportation. Staff from the Ministry of Transportation and private companies who are engaged in land transport take lectures here.

interview survey conducted in this ex-post evaluation, improvement of the railway operation and services has been recognized by the passengers after 2013)¹².

3.3 Impact

3.3.1 Intended Impacts

At this ex-post evaluation, the impact indicators were reset. Those indicators are a “decrease in problems with the railcars”, the “Improvement of operational safety” and the “strengthening of the transportation capacity”. However, it was identified during the evaluation study that the data necessary for the comparison analysis of each indicator could not be gathered due to events such as organizational changes in the railway company or data loss due to flood damage. Therefore, the analysis of the impacts was made based on information from interviews with the persons in charge in the railway company.

1) Reduction in the problems with railcars

Indicator 1: “Decrease in the annual number of problems with railcars and delays”

According to PT. KAI Commuters Jabodetabek (hereinafter referred to as PT. KCI) which operates the commuter trains, its management made a decision to stop using the old railcars after 2011 in order to improve the services for users. The company has replaced old railcars in recent years, and the number of problems with railcars and delays have decreased compared to previous years.

2) Improvement of operational safety

Indicator 1: “Decrease in the annual number of train accidents”

The trend in the number of train accidents is shown in the table below, and these were caused by operational failures, the entering of a vehicle onto a railroad level crossing, etc. The effects of the project including the consulting package B “consulting services on an action plan for the better operation of the Jabotabek railways” on this indicator were not analyzed, since the data necessary for the comparison analysis could not be obtained. However the number of train accidents per year in the period following the project implementation was none or only a few.

¹² At this ex-post evaluation, an interview survey was conducted to gather information about the improvement of the railway operation covering a small number of people. A total of 26 people were selected at random, consisting of 16 males and 10 females aged more than 20 years old. The survey was conducted by a local assistant using a questionnaire: the local assistant asked questions and wrote down the answers on the questionnaire. The results of the survey indicates that the safety, convenience and comfort for passengers significantly improved after around 2013.

Table 3.3-1 Trends in the number of train accidents involving KRL Jabodetabek
(Unit: Number of accidents)

2002 - 2005	2006 - 2007	2008	2009	2010 - 2012	2013
1	0	1	3	0	1

Source: PT. KAI

Indicator 2: “Decrease in the annual number of derailments”

Since the start of PT. KCJ’s operations in 2009 there have been only three derailments (one in 2012 and two in 2013). The effects of the project were not analyzed for this indicator either, since the data necessary for the comparison analysis could not be obtained during the evaluation study. Similar to the indicator of train accidents, the number of derailments per year in recent years was none or only a few.

3) Strengthening of the transportation capacity

Indicator 1: “Improvement in the operating ratio of railcars through shortened maintenance periods”

According to PT. KCJ, railcars are maintained in accordance with a schedule that provides for an inspection both daily and monthly. As described in the Effectiveness section, the replacement of old railcars has almost been completed. Therefore, old railcars that required considerable time and labor to repair had already been retired at the time of the ex-post evaluation. For these reasons, the company is now able to provide maintenance in accordance with the schedule at its facilities for the inspection and repair of railcars, including the Depok depot. It is considered that the number of railcars in operation has increased under this situation. This project has performed the role of supporting an increase in train scheduling through its contribution to enabling an increase in the number of railcars in operation and development of the technical capacity for railway operations. The operating ratio of the railcars of KRL Jabodetabek as a whole declined during the period when the old railcars were being replaced, but it has increased up to 80% at the time of the ex-post evaluation as the replacement has almost been completed. (Refer to the Table 3.3-2)

Table 3.3-2 Trends in the number of railcars, the operating ratio and train scheduling in KRL Jabodetabek

	1997 ¹	2004	2005	2006	2007	2008 ²	2009 ³	2010	2011 ⁴	2012	2013 ⁵	2014 ⁶
Total No. of railcars	200	352	384	392	407	456	480	520	559	669	584	612
No. of railcars in operation	148	246	264	268	319	344	312	341	400	456	418	490
Operating ratio	74%	70%	69%	68%	78%	75%	65%	66%	72%	68%	72%	80%

No. of scheduled trains per day ⁷	-	284	-	-	337	423	447	485	459	530	568	669
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Source: PT. KAI (before 2009), PT. KCI (after 2009)

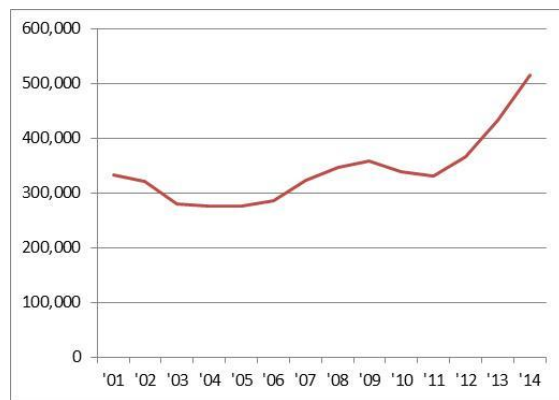
Notes: ¹ At the time of the project appraisal /² Operation of Depok depot started /³ Operation of PT. KCI started /⁴ Express train services were discontinued, commuter train services started /⁵ Change in the fare structure (July) /⁶ Data as of August /⁷ Number of scheduled trains per day increased about 2.4 times from 248 trips per day in 2004 to 669 trips per day at the time of the ex-post evaluation (as of May 2014)

Indicator 2: “Increase in the number of railway passengers as the effect of the improvement in the operating ratio”

The number of passengers had been around 300,000 per day from the time of the project appraisal through to the beginning of the Depok depot operations. The number of passengers has been increasing since the start of commuter trains in 2012 and it exceeded 500,000 per day at the time of the ex-post evaluation (as of the end of March 2014).

The number of passengers on weekdays was around 500,000 per day as of July 2013, right after a substantial reduction in the fare under the conventional rate structure due to the revision of the rate system, and it increased to 600,000 per day by the time of the ex-post evaluation.

(Unit: People)



Source: PT. KAI, PT KCI

Figure 3.3-1 Trends in the average number of railway passengers per day

3.3.2 Other Positive and Negative Impacts

There have been no particular impacts on the natural environment, either positive or negative, observed as a result of this project. The acquisition of the land for project site (about 20 ha) was completed before the project appraisal and no issues were reported in relation to resettlement and land acquisition. Regarding the Environment Impact Assessment (EIA), explanation and talks to neighboring inhabitants were carried out appropriately during its process, and it was completed before the bidding for the construction work. However, the original EIA expired because of a delay in the start of construction. The assessment was carried out again at the time of an application for construction permission to Depok city, which was approved in 2004. During the process of the 2nd EIA, an underpass and overpass were added to the construction work, accepting

the requirement from the neighboring inhabitants on securing a community road¹³.

As a result of the impact study, it was confirmed that the current situation related to the impact indicator has basically been improved. In particular, a substantial increase in scheduled trains per day and the number of passengers has been recognized in terms of the “strengthening of the transportation capacity” after the commuter train services started. The construction of the depot and the consulting services for this project have contributed to the strengthening of the transportation capacity by supporting an increase in the number of railcars in operation and improved train scheduling.

It is considered that the depot constructed by the project has been effective as planned, and it has contributed to the realization of impact to a certain degree. Therefore its effectiveness and impact is high.

3.4 Efficiency (Rating:②)

3.4.1 Project Outputs

1) Construction work and consulting package A

There were additional works compared to original plan for the construction of the Depok depot as follows. The additional works were carried out based mainly on the consideration of technical aspects; therefore the changes in the plan are regarded as relevant. The renewal of a Depok electricity substation, which was added to the project, is also regarded as relevant since it was found in the process of the project implementation that the substation facilities were too old to supply power to the Depok depot and its renewal could solve a capacity shortfall on the Bogor line, which is expected to improve train scheduling, and enable the number of railcars with air conditioners to be increased. The final disbursement date was re-extended due to the decision on the substation renewal work. Construction work on Depok depot is classified as follows.

Table 3.4-1 Original plan and additions to the construction work

Classification	Original plan	Additional work
Depok Depot		
Track work	14 Stabling tracks, 500 m of access track, Inspection tracks, Car cleaning track, Train make-up track	Track layout revision, Extension of the wheel tread profiling track
Inspection facilities	Inspection shed, Railcar washing machines, Machines, tools and instruments for inspection and repair	—
Wheel tread re-	Wheel tread re-profiling shed, Wheel	—

¹³ Additional works for the Depok depot construction and classified as roads

profiling facilities	tread re-profiling machine, Machines, tools and instruments for wheel tread re-profiling	
Buildings	Administration building, Maintenance staff office, Store house, Signal cabin building	Mosque, Dormitory for train drivers
Electricity	Power station and power distribution systems, Signal and telecommunication systems	Power distribution system (500 kVA), Modification of the signaling system Telecommunications
Water facilities	Water supply storage, Drainage system, Effluent treatment facilities, Concrete box culverts for drainage	Flood control
Roads	Roads for depot access, Patrol and outer access roads, 3 over bridges for pedestrians and bikes	Underpass, Overpass
Other than Depok Depot (Utilization of contingent budget of the loan)		
Substation	—	Depok substation renewal work (at Depok Station)

Source: PT. KAI

2) Unused maintenance machinery

The Depok depot was designed as a modern rolling stock base with large maintenance machines. However, an operation program necessary for the mechanization of railcar maintenance was not introduced together with the installation of this machinery. As a result, the current situation seems that some of these machineries have not been fully utilized at the time of ex-post evaluation. It is conjectured that the need for the installation of this machinery itself or the introduction of an operation program should have been considered in detail at

the design stage of the project.



Photo 3. Unused maintenance machinery (Wheel-set washing machine)

3) Consulting package B

This consulting service provided the preparation and implantation of concrete action plans for better operation of the Jabodetabek railways. The main focus of the action plans were “securing safety in train operations”, “improving passenger services” and “improving maintenance efficiency”. According to the final report of the consulting service, a short-term action plan has been put into practice following its preparation in 2000. Likewise, a medium-to-

long term action plan has been put into practice with necessary modification since it was formulated in 2002.

4) Consulting package C (Reference only)

At the consulting package C, a short and medium-term investment plan for KRL Jabodetabek was prepared. The following are the priority area for improvement in the investment plan.

Table 3.4-2 Classification and major investment items of the short and medium-term investment plan

Classification	Major investment items
Strengthening transportation capacity	Construction of the MRT and connection to KRL Jabodetabek, Double-double tracking of the Bekasi line, etc.
Improvement of safety	Backup safety system (ATS: Automatic Train System or ATC: Automatic Train Control), Upgrading the overhead catenary systems, New workshop and depot, etc.
Improvement of intermodal and convenience	Construction of a new line to Soekarno-Hatta international airport, etc.

Source: Final report of the consulting package C (Consulting Services on the Further Development of the Jabotabek Railway Project)

The implementation of consulting package C was postponed until the completion of “the Study on the Integrated Transportation Master Plan for JABODETABEK (SITRAMP)” in order to reflect the results of study, which aimed to develop a general urban traffic master plan and conduct a feasibility study on specific prioritized projects or program. The TOR of the consulting service was also modified in order to reflect the results of SITRAMP, and to respond to the observation that the status of operation and maintenance of the KRL Jabodetabek was still poor at that time. After the modification of the TOR, a comprehensive medium-term investment plan for the KRL Jabodetabek¹⁴ was prepared, which presented a vision of the railway operations and management in 2020, prioritizing and arranging the investment plans.

3.4.2 Project Inputs

3.4.2.1 Project Costs

The actual project cost of 9,155 million yen was within the plan of 12,297 million yen (74% of the planned cost). The planned and actual project costs are compared in the table below,

¹⁴ Although the plans related to MRT (Strengthening transportation capacity) made up the major part of investment plans prepared by the consulting package C, the feasibility of the plans had already been examined in the SITRAMP completed in 2004 before the start of this consulting service. In this consulting service, an analysis was made on the medium-to-long term financial needs as an additional study on the master plan. The development of a new rail network to the airport (improvement of intermodal transfer and convenience) has been promoted as a part of the Metropolitan Priority Area for Investment and Industry (MPA) that the Japanese government drew up in 2010. On the other hand, the introduction of a backup safety system (improvement of safety) has not been introduced so far, as its technical aspects need to be re-examined.

itemized by the project components.

Table 3.4-3 Comparison of the planned and actual project costs

(Unit: Million yen)

Component	Plan			Actual			Difference
	Foreign	Domestic	Total (a)	Foreign	Domestic	Total (b)	(b) – (a)
Construction work	6,101	1,637	7,738	4,966	2,727	7,693	- 45
Price contingency	583	324	907	—	—	—	—
Physical contingency	668	196	864	—	—	—	—
Sub-total	7,352	2,157	9,509	4,966	2,727	7,693	- 1,816
Consulting Pkg. A	676	386	1,062	554	119	673	- 389
Consulting Pkg. B	218	185	403	258	76	334	- 69
Consulting Pkg. C	128	77	205	146	49	195	- 10
Sub-total	1,022	648	1,670	958	244	1,202	- 468
Tax	—	1,118	1,118	—	260	260	- 858
Total	8,374	3,923	12,297	5,924	3,231	9,155	- 3,142

Source: JICA internal material

The main reason that the actual project cost exceeded the plan was a dramatic exchange rate fluctuation influenced by the Asian financial crisis which started in Thailand in July 1997. The value of the Indonesia rupiah against the Japanese yen dropped to 0.010 on average for the period during which the disbursements were made for the construction of the Depok depot, whereas it was 0.052 at the time of the project appraisal.

3.4.2.2 Project Period

The actual project period was 168 months, which far exceeded the plan of 81 months (more than 200% of the plan)¹⁵. The planned and actual project period are compared in the table below, together with the differences and being itemized by the project components.

Table 3.4-4 Comparison of the planned and actual project periods

Component	Plan		Actual		Difference	
	Period	No. of months	Period	No. of months	Period	%
Construction work:						
Depok depot and Depok substation	'97/11-'04/ 7	81 mo.	'98/1-'11/12	168 mo.	87 mo.	207%
Consulting services						
Consulting Pkg. A	'97/11-'03/ 6	68 mo.	'98/1-'07/8	116 mo.	48 mo.	171%

¹⁵ The completion of this project is defined as the start of the use of the constructed Depok depot and the delivery date for the Depok substation renewal work.

Consulting Pkg. B	'97/11-'01/ 6	44 mo.	'98/1-'03/7	67 mo.	23 mo.	152%
Consulting Pkg. C	'97/11-'99/12	26 mo.	'98/1-'06/10	106 mo.	80 mo.	408%

Source: JICA internal materials

The main reasons for the differences on both the Depok depot construction and the consulting package A are the delay in the selection of consultants (26 months) and the bidding of contractors due to a technical review for the signaling system (48 months). Consulting package B was delayed mainly because it took a long time for the selection of the consultants thereby delaying the start of its implementation (13 months), and the extension of the project period for one year due to a delay in the assignment of the Indonesian side counterparts. Consulting package C was delayed mainly because it was postponed until the completion of SITRAMP in order to reflect the results of study and modifications made to its TOR (80 months).

3.4.3 Results of the Calculation of the Internal Rates of Return (Reference only)

Financial Internal Rate of Return (FIRR)

In terms of the FIRR, the project is an investment for the improvement of the operation and maintenance of KRL Jabodetabek. In other words, the project does not directly relate to an increase in income from railway freight, which is a financial benefit of this investment. Therefore, the calculation of the FIRR was excluded from the appraisal and the ex-post evaluation of this project.

Economic Internal Rates of Return (EIRR)

The EIRR was calculated at the time of the project appraisal, which analyzed the comprehensive effects of the costs and benefits of the "Jabotabek Railway Modernization Project (I - IX) ¹⁶" implemented before this project. According to the report of the project appraisal, the result of the calculation was 13.4%, at a level where economic rationality was recognized. Elements of the calculation are as follows.

Costs: Investment amount for the "Jabotabek Railway Modernization Project (I - IX)" and construction costs for the Depok depot, and operation and maintenance costs of the railway

Benefits: Time saving benefits for railway passengers, benefits from the elevation of the central line (time saving benefits for the passengers and drivers of road vehicles and the cargo of trucks, risk avoidance at railroad crossings, use of the land under the elevated railroad track, etc.)

¹⁶ The projects were implemented based on the "Jakarta Metropolitan Railway Transportation Plan (master plan)" (1982), which performed a significant role in the improvement of the railway.

Recalculation of the EIRR was performed at the time of the ex-post evaluation, by updating only the investment for the construction of the Depok depot among the cost items. The effect of the results of the recalculation was very little after all since this investment amount accounts for only a small percentage of all the cost items. In the “impact study on transportation projects in Jabotabek” (2003), an evaluation was made for Japanese ODA loan projects for KRL Jabodetabek, including the “Jabotabek Railway Modernization Project (I - IX)”. In this report, the EIRR of the 18 projects including this project before completion was reported to be about 15%.

Table 3.4-5 Summary of the Jabotabek Railway Modernization Projects (I - IX)

Phase	L/A Date	Summary of the project
I	May 1982	Procurement of rails, crossing facilities, trains (12 railcars), and engineering services.
II	Sept 1983	Renovations of carriage depots and factories, procurement of trains (4 railcars), and engineering services
III	Jun 1984	Procurement of trains (4 railcars) and diesel cars (28 railcars)
IV	Dec 1985	Signaling improvements (between Manggarai and Bogor on the Central line 44.9 km), double track construction (Between Manggarai and Depok on the Central line 22.8 km), detailed design of the two level crossings at Manggarai station, and project management services.
V	Mar 1987	Electrification of the Bekasi line (14.8 km), improvement of the vicinity of Kamppom and Bandan stations (The looping of the Western and Eastern lines), procurement of trains (Central line 8 railcars), new station and bridge construction, temporary line construction and signaling improvements.
VI	Dec 1987	Construction of section A (4,050 m) of an elevated bridge (whole length 8,650 m) of the northern end (on the side of Jakarta and Kota station), electrification and track construction, consulting services.
VII	Dec 1989	Elevated bridge construction, track construction and consulting services.
VIII	Sept 1991	Enlarging and raising the platforms of 4 stations (Manggarai, Jatinegara, Pasar Sunen and Tanah Abang), improvement construction of footbridges, procurement of trains (24 railcars), project management services and supplying training machinery and materials.
IX	Oct 1992	Automatic signalization of the Eastern line and Western line, train operation supervision system, procurement of trains (24 railcars), consulting services.

Source: Impact Study on Transportation Projects in Jabotabek (JICA, 2003)

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

3.5 Sustainability (Rating: ②)

3.5.1 Institutional Aspects of Operation and Maintenance

3.5.1.1 Institutional aspects of operation and maintenance of KRL Jabodetabek

The operation and maintenance of this project have been undertaken by the DGR of Ministry

of Transportation, PT. KAI and PT. KCJ.: DGR is the executing agency for the project and it oversees the railway operations as a supervisory authority, PT. KAI is the railway operator and PT. KCJ is a subsidiary company of PT. KAI, which operates the commuter trains. At the time of the ex-post evaluation, it was observed that the effect of this project has been sustained systematically, considering that the number of railway passengers has been increasing as a result of the management reform of the railway operators based on the regulations of the Ministry of Transportation.

Each agency assumes the roles as follows.

1) Directorate General of Railways (DGR)

The DGR draws up and implements the policy and the technical standards for railways as a supervisory authority. For example, inspectors are dispatched to each office of the railway operator every 6 months in compliance with the Ministerial regulation No.9/2011. At the inspection, the implementation situation of the service standards is checked, which is stipulated by the regulation for the improvement of railway operations.

2) Railway operators

a) PT Kereta Api (PT. KAI)

PT. KAI was established as a private corporation in accordance with privatization of a public railway corporation PERUMKA, based on the regulation No.19/1998 of Ministry of Transportation. The roles of PT. KAI in the operation of KRL Jabodetabek are the improvement and maintenance of the infrastructure, such as tracks, signals and railroad crossings. PT. KAI consists of regional departments, and KRL Jabodetabek is under the control of DAOP 1 Jakarta, which covers the Jakarta area.

b) PT.KAI Commuter Jabodetabek (PT. KCJ)

PT. KCJ was established in September 2008 as a subsidiary company of PT. KAI, which owns nearly 100% of its shares, and started operations in 2009. PT. KCJ operates the commuter trains in the Jabodetabek area, and the maintenance of electric railcars at depots including that in the Depok depot has currently been the role of the company. Until the operations of PT. KCJ started, the operation and maintenance of the Depok depot had been undertaken by PT. KAI since the depot came into use.

3.5.1.2 Institutional aspects of the operation and maintenance of the Depok Depot

The technical departments of PT. KCJ perform the operation and maintenance of the Depok depot. PT. KCJ needs to secure enough personnel in the depot since it has been getting hard to

continue the operation and maintenance of the depot with the current number of staff, under the situation in which the number of railcars has been increasing. According to the personnel in charge of depots in PT. KCJ, the current number of staff at the Depok depot is 119; however, there it needs more than 30 additional staff with the increase in the number of railcars (in total, including 4 sub-depots, more than 60 additional staff are required). Securing additional personnel is also necessary for replacing retired staff, which numbered 23 in the past 3 years. It was observed in the study that there is a difference in the recognition of the personnel setup between the management side and the personnel in charge of the depots¹⁷. It is expected that information regarding the current condition of the depots is shared by both sides, so that the depots can have the appropriate number of staff in their personnel organization. (Refer to ‘4.2. Recommendation’.)

No specific problem is observed in the institutional aspects of the operation and maintenance of KRL Jabodetabek as a whole. However, the Depok depot needs to secure enough personnel.

3.5.2 Technical Aspects of Operation and Maintenance

3.5.2.1 Technical aspects of operation and maintenance of KRL Jabodetabek

The technical aspects of the operation and maintenance of KRL Jabodetabek seem to keep improving: the railway operation has improved due to managerial efforts and it is engaged in actions for further improvement such as through cooperation with JR East in Japan.

3.5.2.2 Technical aspects of operation and maintenance of the Depok Depot

There is a system of training personnel for the maintenance of the railcars: the staffs in the Depok depot are required to take training courses at a training center and in-house training¹⁸. Although manuals on the maintenance of the machinery are not complete and some of them have been lost, there have been no problems because the in-house training covers the handling of this machinery, according to the maintenance staff in the Depok depot. At the maintenance site, staff is allocated based on their technical level, and railcars are maintained in accordance with a maintenance schedule. The railcars are maintained based mainly on a daily and monthly basis by 2 groups of staff for which the most capable and experienced person is selected as the

¹⁷ According to the opinion of those who are in charge of the depots, it is necessary to increase the number of depot staff to provide an appropriate level of maintenance for the railcars. According to the human resources department of the company, the assignment of staff is made based on the workload at each place; however, it considers that there a need for more communication between the management side and the personnel in charge of the depots to correct the situation.

¹⁸ The staff of PT. KAI and PT. KCJ are required to take training courses at a training center in Bekasi. The courses consist of 4 levels: the first 2 levels focus mainly on technical training, and the 3rd and 4th level include management. The training provides both classroom learning with text books and practice using simulators. Technical training covers from the basics to specific equipment, such as from air conditioners to traction motors. In-house training is given as needed aimed at enhancing knowledge of the technical aspects.

leader. Based on the current situation of training and maintenance, the technical level of operation and maintenance of Depok Depot is considered to be sufficient to sustain the effects of the project.

No specific problem is observed in terms of the technical aspects of the operation and maintenance of both KRL Jabodetabek as a whole and the Depok depot, as the operation has been improved by the company's managerial efforts.

3.5.3 Financial Aspects of Operation and Maintenance

3.5.3.1 Financial aspects of operation and maintenance of KRL Jabodetabek

The management of PT.KCJ is substantially a business segment of its parent company PT. KAI in all aspects including its finance and human resources management. In other words, PT. KCJ performs part of the business of PT. KAI. The financial condition has been stable for the past 3 years on a consolidated basis, including the subsidiaries. There have also been large amounts of capital investments in the cash flows for investment activities, which indicate managerial efforts for the further improvement of railway operations.

Table 3.5-1 Financial stability of PT. KAI (Consolidated financial information)

(Unit: Million Rupia)

Item	2010	2011	2012
Debt (interest bearing)	161,824	518,922	1,498,760
Equity capital	3,997,810	3,948,195	5,323,413
Debt-equity ratio (Debt / Equity)	4%	13%	28%

Source: Financial statements of PT. KAI and calculation by the external evaluator

3.5.3.2 Financial aspects of operation and maintenance of the Depok depot

Although the financial information was not provided by PT. KCJ from the viewpoint of confidentiality, according to the financial department, the budget for the operation and maintenance of the Depok depot has basically been allocated as requested by the related departments. It is therefore considered that there is no concern with the financial aspects in keeping the maintenance of railcars in accordance with the schedule, as the necessary budget has been secured.

Financial information on PT. KAI shows the strong financial condition of the company, including its subsidiaries. Budget allocation for the operation and maintenance of the Depok depot has been made appropriately. The current fare structure applying a government subsidy has had positive effects on the rise in the number of railway passengers. Therefore, it is

considered that no specific problem exists in terms of the financial aspects of the operation and maintenance of the Depok depot.

3.5.4 Current Status of Operation and Maintenance

According to the technical staff of PT. KCJ, the facilities of the Depok depot are kept in good condition except for the unused machinery described in the Output section, and these facilities are utilized well in the maintenance of railcars. However, problems have occurred even in the replaced railcars since these are secondhand and the old parts fail more frequently¹⁹. It is difficult to obtain spare parts for the old types of railcars in general; therefore, the depot recycles parts from retired railcars.

Some problems have been observed in terms of the institutional aspects of the operation and maintenance of the Depok depot. Therefore the sustainability of the project effect is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

This project was implemented under conditions in which the traffic demand was increasing rapidly in the metropolitan area in Indonesia. The objective of this project is to improve the capacity for maintenance and operation services, by constructing a new depot with maintenance facilities in Depok near Jakarta and providing consulting services for railway operations, thereby contributing to the strengthening of the transportation capacity of Jabodetabek railways (hereinafter referred to as “KRL Jabodetabek”) through the improvement of operational safety and the operating ratio of railcars.

This project has been highly relevant to the development policy of Indonesia and its development needs, as well as Japan’s ODA policy. In terms of effectiveness, the Depok depot has been kept in operation as planned: it accommodates and maintains the increased number of railcars. The increase in the number of train passengers has been identified as a significant impact of this project. The construction of the depot and the consulting services for this project have contributed to the impact by supporting an increase in the number of railcars in operation and improved train scheduling. With all these facts taken into consideration, the project effectiveness and impacts are considered to be high. The project efficiency is fair because the project period exceeded the plan although the project cost was within the plan. The sustainability is considered to be fair because some problems are observed in terms of the institutional aspects of the operation and maintenance of the Depok depot. In light of the above,

¹⁹ According to the technical staff of PT. KCJ, problems with the railcars due to the old parts occur especially in the traction control devices, which may cause delays in the train operation.

this project is evaluated to be satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Executing Agencies

None

4.2.2 Recommendations to the railway operators (PT. KAI and PT. KCJ)

- To increase the number of staff in depots: According to the personnel in charge of depots in PT. KCJ, it is necessary to secure enough personnel to provide appropriate maintenance of the railcars under a situation in which the train scheduling has been increasing. While the number of railcars is prospected to increase in the future, the current number of staff who maintains the railcars has not been sufficient. Therefore, it is expected that the information regarding the current personnel setup of the depots will be shared by both the management side and the personnel in charge of the depots, thereby enabling the depots to have the appropriate number of staff for the maintenance of railcars in their personnel organization.

4.2.3 Recommendations to JICA

None

4.3 Lessons Learned

- Necessity for careful examination for an installation of large maintenance machinery at the planning of a project: Depok Depot was designed as a modern rolling stock base with large maintenance machinery. However, an operation program necessary for the mechanization of railcar maintenance was not introduced together with the installation of this machinery because a decision was made to prioritize and use budget for the additional works for renewal of the Depok substation work over the operation program. As a result, the current situation seems that some of this machinery has not been utilized as it had been intended by the time of ex-post evaluation. In the case of designing a facility in which a process is to be mechanized aiming the operation to be efficient in a similar way to this project, there needs to be an introduction such as in the form of an operation program for any newly adopted technology, otherwise there is a possibility that the machinery will not be utilized and the expected effects will not be achieved. The following points should be addressed for the future development of cooperation projects: 1) understanding of the technical level of the executing agency (in the case of this project, the railway company as the operator) in the designing of the facility

(including the machinery to be installed), so that the feasibility of its operation and management is secured as it was expected to, 2) detail consideration of comprehensive technical assistance, which also covers the operation and management of the facility.

Comparison of the Original and Actual Scope of the Project

Item	Original	Actual
(1) Project Outputs	<ul style="list-style-type: none"> • Construction of a depot (construction work and consulting service Pkg. A) • Consulting services on an action plan for the better operation of Jabotabek railways (consulting services Pkg. B) • Consulting Services on the Further Development of the Jabotabek Railway Project (consulting service Pkg. C) 	<ul style="list-style-type: none"> • Construction of a depot and substation renewal work (construction work and consulting services Pkg. A) • Consulting services on an action plan for the better operation of the Jabotabek railways (consulting services Pkg. B) • Consulting Services on the Further Development of the Jabotabek Railway Project (consulting services Pkg. C)
(2) Project period	<p>Depok depot construction work: Nov. 1997 – July 2004 (81 months)</p> <p>Renewal work for the Depok substation: March 2009 – Feb. 2011 (24 months)</p>	<p>Depok depot construction work: Jan. 1998 – Jan. 2008 (121 months)</p> <p>Renewal work for the Depok substation: March 2009 – Dec. 2011 (34 months)</p>
(3) Project cost		
Amount paid in Foreign currency	8,374 million yen	5,924 million yen
Amount paid in Local currency	3,924 million yen (75,453 million rupiah)	3,231 million yen (318,867 million rupiah)
Total Japanese ODA loan portion	12,297 million yen	9,155 million yen
Exchange rate	9,223 million yen 1 rupiah=0.052 yen (As of January 1997)	7,454 million yen 1 rupiah=0.010 yen (Average of the construction period of the Depok depot: 2004 - 2008)