Indonesia

Jabotabek Area Railway Project (VI)

Report Date: March 2001
Field Survey: August 2000

1. Project Profile and Japan's ODA Loan

Location Map of Project Area

Railway Section Elevated by the Project

(1) Background

Jabotabek area is a region in Indonesia consisting of one city and three provinces (Jakarta, Bogor, Tangerang, Bekasi) and covers an area of 550,000 ha (roughly equal to the area of Tokyo and Saitama Prefecture) with a population of 13 million people (as of 1987). Jabotabek serves as both the metropolitan area and major economic center for Indonesia. In recent years Jabotabek has been experiencing a continuous influx of people from the surrounding regions and this has resulted in a sharp increase in demand for distribution, travelers and commuters. However, the construction and maintenance of roadways were not kept pace with the increase in the number of cars. As a result, traffic congestion has gotten worse with each passing years.

Before implementing this project, 13 railway-related projects were selected in this area involving ODA loan agreements and the results, such as sudden increases in the number of passengers, were brought about. The requests from Indonesia for ODA loans have been in accordance with their "Railway Improvement Plan" that covers three stages. The first stage, or "Emergency Plan", covers the procurement of new railway cars, which is expected to have an immediate impact. In the second stage, or "Midterm Plan", small-scale improvements were made to the infrastructure, such as the replacement of deteriorating rails and crossings, in addition to the procurement of more railway cars. The third stage is the "Long-term Plan" based on the master plan for Jabotabek Area Railway Project that was drafted by Japan International Cooperation Agency (JICA) in March of 1981. This master plan consists of many large-scale infrastructure improvements such as changing single lines into multiple lines, electrifying non-electric lines, automating manual signals and elevating the tracks at some crossings.

Japan's ODA loans have already been provided for five stages of the "Long-term Plan" as "Jabotabek Area Railway Project". This project was positioned as the sixth stage of the Long-term Plan.

(2) Objectives

This project was implemented to provide smoother road transportation and contribute to faster train traveling speeds and increased transportation capacity by elevating sections of the region's main trunk line between Jakarta–KotaStation and Manggarai Station as the sixth stage of the "Jabotabek Area Railway Project".

(3) Project Scope

1) Construction of Track Elevation

Construction of the A zone (4,050m) of the northern end (Jakarta-Kota Station) of the elevated section (total length: 8,650m).

Note: Construction of zones B (2,100m) and C (2,500m) of the elevated section have already been completed.

2) Construction of Temporary Track

A portion of the existing track in a section of the A zone was moved to the west side in order to make room for the construction of the elevated tracks.

3) Consulting Service

Bidding assistance, construction supervision, overseas training.

Figure 1 Jabotabek Central Line and Location Map of Sections Covered by the Project

(4) Borrower/Executing Agency

Republic of Indonesia / Directorate General of Land Communication, Ministry of Communication

(5) Outline of Loan Agreement

Loan Amount/Loan Disbursed Amount	¥13,565 million / ¥11,375 million
Exchange of Notes/Loan Agreement	December 1987 / December 1987
Terms and Conditions	Interest rate: 3.0%, Repayment period: 30 years (10 years for grace period), General Untied (Partially untied for consulting services)
Final Disbursement Date	December 1993

2. Results and Evaluation

(1) Relevance

This project is a part of Japan's ODA loan project "Jabotabek Area Railway Project", which has been implemented for five stages in the past in accordance with Indonesia's long-term railway improvement plan and achieved desired effects. The objective of the project was to elevate a section of the Central Line, which is the main trunk line in the Jabotabek Area, in order to provide smoother road traffic and strengthen railway transportation capacity. This is regarded as relevant aim for the project. It was anticipated that numerous crossings along the Central Line between Jakarta-Kota Station and Mangarai Station would become "crossings that do not open" due to the sudden increase in the number of trains brought about by the completion of previous loan projects. Therefore, the elevation of the tracks through this project was a timely relevant course of action.

(2) Efficiency

This project was implemented by the Directorate General of Land Communication, Ministry of Communication, and completed in September of 1993, one month ahead of schedule. Efforts to reduce total project costs were also realized.

(3) Effectiveness

1) Smoother Road Traffic

The section between Jakarta-Kota Station and Manggrai Station (approximately 10km), running north-south in the Central Line of Jabotabek Area, cuts through the heart of Jakarta. Therefore, there are 19 east-west crossings along this section of track. There was a concern that the increased number of trains would result in "crossways that do not open", seriously impeding the flow of road traffic. However, this project is considered to solve this problem and contributed to smoother road traffic flows in the relevant areas by elevating the train tracks.

2) Increased Transportation Capacity

Table 1 shows the number of annual railway passengers in the Jabotabek Area before the completion of the project (up until 1993) and after the completion of this project (1997~1998). The number of railway passengers in this region doubled during the five years from 1992 to 1998, increasing from just under 50 million passengers to around 100 million. The elevation of the tracks through this project helped to create an environment that allowed for increased density of train schedule and operation of more trains. Train operation of 12 to 20-minutes interval was planned, while, in fact, a train for every 12 minutes during the morning rush hour was achieved (as of December 1993). Before the project was implemented in 1993, only 123 trains were operating each day along the central line (total number of trips between Jakarta-Kota and Gambir), but this number had increased to 218 as of August 2000 (see Figure 2). In this manner the project was able to contribute to the realization of increased transportation capacity.

Table 1 Annual No. of Railway Passengers in Jabotabek Area (unit: 1,000 people)

	1991	1992	1997	1998
Annual No. of Passengers*	30,259	47,377	105,108	107,899

* The figures for 1991~1992 were determined by multiplying daily no. of passengers provided by the Ministry of Communication during the appraisal period by 365 days.
Figures for 1997 and 1998 were from the annual report (1998) issued by Perum KA (a railway public corporation).

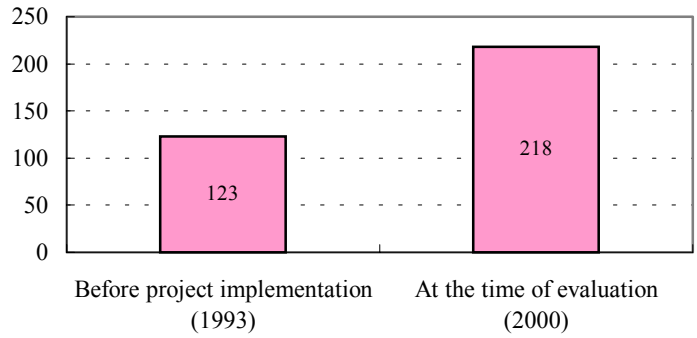


Figure 2 No. of Train Routes per Day for Section Covered by the Project

3) Reduction in Train Delays

Before the implementation of this project, trains frequently had to suddenly stop or reduce their speed due to illegal crossings at the railway crossings and those living illegally within railway sites along the tracks. However, this project helped to eliminate these problems, while raising train speeds and traveling efficiency. Table 2 shows the measurements of train delays, which is seen as a good indicator of traveling efficiency. Measurements were comparatively made both before and after project implementation of two inbound and two outbound trains. In both cases train delays were reduced on average by around 7 minutes. The train delays are an important element in affecting trust in Indonesia's public transportation system, and this project has helped to contribute to the improvement.

Table 2 Reduction in Train Delays along the Central Line (Unit: minutes)

	1992 (before implementation)			1993 (after implementation)			Train Delay Reduction
	First	Second	Average	First	Second	Average	
Inbound (Bogor→Jakarta)	7.3	13.3	10.3	2.7	3.8	3.3	Reduced average of 7.1 minutes
Outbound (Jakarta→Bogor)	7.8	20.5	14.2	7.2	7.9	7.6	Reduced average of 6.6 minutes

Source: Ministry of Communication .

(4) Impact

1) Environmental Impact

The implementation of this project did not result in any noticeable negative impacts on the surrounding environment. In fact, it is believed that this project has contributed to the environmental improvement due to the decrease of NOx and others originated from traffic congestion atthe crossings.

2) Social Impact

The implementation of this project involved the acquisition of land needed and relocation of the residents for the temporary track construction. However, the executing agency reported that the acquisition of this land did not result in any particular problems.

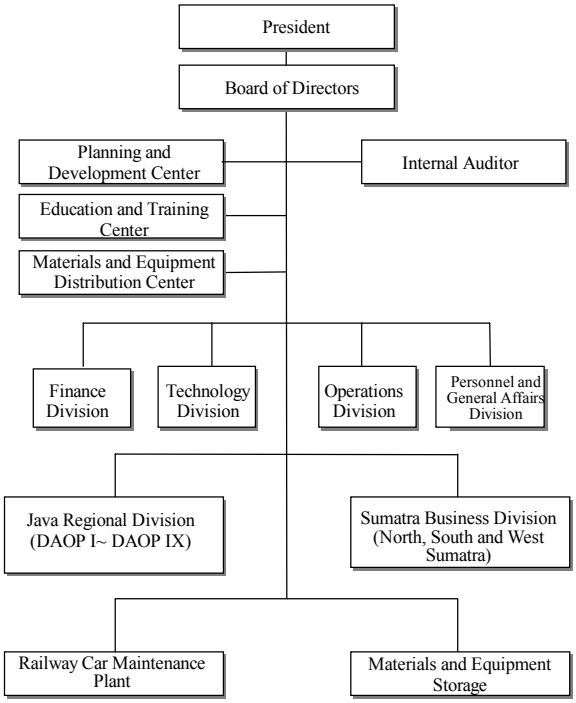
(5) Sustainability

1) Operation and Maintenance

Operation and maintenance of the constructed lines and facilities were entrusted to the No. 1 Java Regional Division (DAOPI) of the Railway Public Corporation(Perum KA), which used to be the Indonesia National Railway (PJ.KA). The No. 1 Java Regional Division consists of the following six sections: Signals and Communications, Train Operations, Railways and Bridges, Railway Cars, Business Operations and Employment / Health. These six sections provide to each region under its jurisdiction train routes, track maintenance, railway car maintenance, station management and other forms of management and maintenance associated with a railway service business.

In 1999 Perum KA was privatized and is now PT. KAI. As of August 2000, PT. KAI's No. 1 Java Regional Division had some 4,400 employees (3,000 assigned to inspections and maintenance, 1,400 assigned to train operations). Figure 3 shows the overall organizational structure of Perum KA (current PT. KAI).

Figure 3 Perum KA (current PT. KAI) Organizational Structure



Note: PT. KAI has 35,000 employees

The basic organizational structure did not change when Perum KA was privatized. This privatization was conducted in the so-called "top-bottom separation" method in which the main considerations are handled by a public agency in charge of infrastructure (the central government), while the management of train operations and maintenance is placed in the hands of a private railway company. Land, tracks, station buildings and other such properties are owned by the government, while the railway cars and other movable assets are transferred to PT. KAI. The private company improves the quality of service and increases profits by outsourcing track maintenance, station management and other services to other companies, while the government shares the role of improving infrastructure effectively and efficiently from the viewpoint of regional development.

The fare system, which is supervised and controlled by the Directorate General of Land Communication (DGLC), is divided into three classes: economy class, business class and VIP class. Economy class fares are set directly by DGLC from the viewpoint of public responsibility. Fares for the other classes are set by the operator, PT. KAI, from the viewpoint of earning profits. However, these fares must be approved by the DGLC in accordance with the 1992 Railway Law.

2) Operation and Maintenance Status

<Track Maintenance Activities>

The Jabotabek Area has 11 track sections and a maintenance team is assigned to each of these sections. The teams consist of six to eight members including a leader. These teams make inspection patrols of their track sections every morning before the first trains depart. These teams can handle minor repairs, but a special team is waiting in case regional teams cannot technically deal with. There is only one special technical team that is in charge of the entire Jabotabek Area. In addition to these daily morning inspections,

track maintenance activities also include regular inspections such as high-speed track running tests (every six months) and vibration speed measurements (every three months). Furthermore, track sections are replaced once every two years by the No. 1 Java Regional Division.

<Employee Training>

The railways have the responsibility, as a public transportation organization, to quickly and safely transport a large volume of passengers and freight. Therefore, it is very important to maintain and even improve the level of skill and technical expertise held by the railway employees. Table 3 shows the overall training results for Perum KA (before privatization) in 1998. This table shows that the number of trainees and the number of training days were roughly half of the target stipulated in the original plan. According to PT. KAI these results were basically the same in 1999 as well. The results for the New Employees Course and the Specialists Course were fairly good, but the results for the Advanced Course and Re-training Course, both of which target experienced employees, were not very good.

Table 3 Employee Training Results

Course Name	Plan	Actual	Success Rate
No. of trainees	8,411	4,732	56.3%
New Employee Course	313	314	100.3%
Advanced Course	1,440	375	26.0%
Specialist Course	1,446	2,034	140.7%
Re-training Course	5,212	2,009	38.5%
No. of training days	532,452	258,608	48.6%
New Employee Course	50,040	46,530	93.0%
Advanced Course	36,000	7,575	21.0%
Specialist Course	155,700	187,775	120.6%
Re-training Course	290,712	16,728	5.8%

Source: Perum KA Annual Report (1998)

<Staffing Levels>

Table 4 shows staffing levels (excessive or insufficient) for different occupations. There is an excessive number of drivers, but there are shortages in all other areas. PT. KAI has been reducing the number of excessive employees through rationalization, while trying to supplement areas where there is insufficient manpower.

Table 4 Staffing Levels for Operational and Maintenance Personnel (Unit: person)

Occupation	1994	1995	1996	1997	1998
Driver	147	136	122	112	100
Mechanic	-81	-81	-107	-125	-131
Trackman	-67	-81	-128	-137	-150
Electrician	-91	-114	-114	-114	-115
Signals and Communications	-7	-16	-25	-30	-29

* JBIC materials

3) Sustainability

As mentioned above, a regular execution system has been established for track maintenance. However, continuous attention needs to be given to the operation and maintenance scheme, including status of personnel training, staffing levels and O/M budget allocations from the viewpoint of project sustainability.

Table 5 shows the financial condition of PT. KAI, which is responsible for operation and maintenance. These results are for 1999, the first year after privatization, as well as the previous two years. Roughly 70% of the operating income comes from passenger fares. According to the executing agency, roughly 80% of the income from passenger fares comes from the business and VIP classes, which are used by only 20% of the passengers. Furthermore, the economy class fares are restricted by the government from the viewpoint of public responsibility and fixed government subsidies are provided each year in return. In 1997, before PT.KAI was privatized, a loss would have been recorded if not for these subsidies and in 1998 only a very small profit was achieved. However, in 1999, the first year after privatization, a profit was recorded despite the government subsidies being cut by 60% for previous year.

Table 5 Financial Conditions (unit: one million rupees)

Before Privatization ← | → After Privatization

	1997	1998	1999
Operating Income	726,359	937,976	725,189
Operational Service Revenue ①: Passenger	498,981	671,560	562,874
Operational Service Revenue ②: Cargo	200,573	217,453	162,315
Ancillary Revenue	23,425	40,413	n.a.
Other	3,381	8,550	1,601
Government Subsidies	31,500	31,500	18,375
Overall Income	757,859	969,476	745,165
Operating Expenses	557,128	787,244	555,471
Overall Operating Profit	200,731	182,233	189,693
General Administrative Expense	235,847	246,161	187,526
Operating Profit	-35,116	-63,928	2,168
Non-operating Profit and Loss	65,486	101,777	28,497
Ordinary Profit	30,370	37,848	30,665
Special Profit and Loss	-1,869	-8,712	446
Earning Before Tax	28,501	29,137	31,111
Accrued Income Taxes	0	8,732	3,532
After-tax Profit	28,501	20,404	27,579

*From the 1998 Annual Report and PT. KAI accounting documents

Table 6 shows the main financial indicators for PT. KAI from 1995 to 1999. The net profit margin for the term, which is a good indication of overall profitability, improved from 2.18% in the year before privatization to 3.7% for the first year of privatization. The asset turnover ratio, which indicates how efficiently assets are being handled, has been in an upward trend since 1996 and has settled at around 0.4x in recent years. The liquid ratio and the quick ratio are two measures of liquidity, which is a good indicator of a company's ability to make payments. It is normally said that a company is stable if it has a liquid ratio of more than 200% and a quick ratio of more than 100%. PT. KAI has easily cleared both of these marks.

Table 6 Main Financial Indicators

Before Privatization ← | → After Privatization

	1995	1996	1997	1998	1999
Net Profit Margin for the Term (%)	1.76	2.53	3.76	2.18	3.70
Asset Turnover Ratio	0.32x	0.12x	0.35x	0.40x	0.40x
Liquidity (%)					
Liquid Ratio	672	801	440	888	554
Quick Ratio	387	484	328	591	307

*From the 1998 Annual Report and PT. KAI accounting documents

Before PT. KAI was privatized, it received subsidies from the government and thus was able to obtain a certain degree of profitability and stability as a business. There have been some indications that the rationalization of operations brought about by the privatization has bolstered profitability. It is hoped that the privatized PT. KAI will be able to reach a level of profitability at which it will no longer need to rely on government subsidies. This can be accomplished by building on its current secure base (corporate strength), by further improving the efficiency of its operations and by bolstering marketing in order to attract new passengers.

3. Lessons Lerned

None.

Comparison of Original and Actual Scope

Item	Plan	Actual
①Project Scope		
(1) Construction of elevated lines	4,050m between Jakarta Kota Station and Juanda Station	No change
(2) Construction and reconstruction of station buildings	Jakarta Station Mangga Besar Station Juanda Station Sawah・Besar Station	Same as above
②Implementation Schedule		
Selection of consultant	May 1987 ~ Sep. 1987 (5 months)	Jan. 1988 ~ May 1988 (5 months)
Consulting service	Oct. 1987 ~ Oct. 1993 (73 months)	Jul. 1988 ~ Sep. 1993 (63 months)
Bidding	Oct. 1987 ~ Mar. 1988 (6 months)	Apr. 1988 ~ Aug. 1989 (17 months)
Construction of elevated lines	Apr. 1988 ~ Jan. 1992 (46 months)	Jun. 1989 ~ Jun. 1992 (37 months)
Construction and reconstruction of station buildings	Feb. 1992 ~ Oct. 1993 (21 months) ☆To be completed in October 1993☆	Oct. 1992 ~ Sep. 1993 (12 months) ☆Completed in September 1993☆
③Project Cost		
Foreign currency	¥9,496 million	¥8,368.0 million
Local currency	¥5,565 million	¥3,389.4 million
Total	¥15,061 million	¥11,757.4 million
ODA Loan portion	¥13,565 million	¥11,757.4 million
Exchange rate	1Rp. ＝ ¥0.094 (Feb. 1987)	1Rp. ＝ ¥0.0711 (Weighed average between 1988 and 1993)