

Indonesia

Ex-Post Evaluation of Japanese ODA Loan Project
Construction of Railway Double Tracking of Cikampek-Cirebon

Takako Haraguchi, International Development Associates

1. Project Description



Project site



Express train passing over the new track and bridge

1.1 Background

Railways in Indonesia are located in the islands of Java and Sumatra. The total railway length is 6,441km of which 4,500km is in Java. Among the three major lines in the island of Java, namely the North Line, the South Line and the Bandung Line, the North Line connects Jakarta (the capital city) and Surabaya (the second largest city in the country) in the east of the island via Semarang. The total length of the North Line is 751km, which is almost equivalent to the railway distance between Tokyo and Okayama in Japan.

On the North Line, a section near Jakarta (57km length between Bekasi and Cikampek)¹ had been double tracked by the time of the appraisal of this project, but all the rest was still single track. Thus, the single track section between Cikampek and Cirebon, which is also used by the South Line (828km-long line connecting Jakarta and Surabaya via Solo), was significantly congested.

In 1992, the number of trains run between Cikampek and Cirebon exceeded the line capacity, and the average delay time per train was 26 minutes. Under such circumstances, double tracking was needed to accommodate trains that were expected to further increase.

1.2 Project Outline

The objective of this project is to increase the number of trains and ensure safe, rapid and accurate railway transportation by constructing a new track along the existing track on the

¹ In addition, the Jakarta-Bekasi section connected to the mentioned section had been double tracked as part of the JABOTABEK Line, the mass rapid transit system.

section between Cikampek and Haurgeulis (54km length), as a part of double tracking on the section between Cikampek and Cirebon (134km length), thereby contributing to the economic development of the region.

Approved Amount/ Disbursed Amount	7,234 million yen / 7,201 million yen
Exchange of Notes Date/ Loan Agreement Signing Date	November, 1994/ November, 1994
Terms and Conditions	Interest Rate: 2.6% Repayment Period: 30 years (Grace Period: 10 years) Conditions for Procurement: General Untied
Borrower/ Executing Agency	Republic of Indonesia/ Directorate General of Railways (DGR), Ministry of Transportation
Final Disbursement Date	June, 2007
Main Contractor (Over 1 billion yen)	PT. Adhi Karya (Indonesia) - PT. John Holland Con (Indonesia) - Itochu Corporation (Japan) (JV)
Main Consultant (Over 100 million yen)	Japan Transportation Consultant (Japan) - Pacific Consultants International (Japan) - PT.Dardela Yasa Guna (Indonesia) (JV)
Feasibility Studies, etc.	Railway sector study, JICA, October 1993
Related Projects (if any)	JICA, Java North Line Track Rehabilitation Project (L/A signed in 1989) JICA, Java North Line Bridge Rehabilitation Project (1)(2) (L/A signed in 1992 and 1995) Railway Double Tracking of Cikampek-Cirebon (2) (L/A signed in 1998)

2. Outline of the Evaluation Study

2.1 External Evaluator

Takako Haraguchi, International Development Associates Ltd.

2.2 Duration of Evaluation Study

Duration of the Study: January 2010 – November 2011

Duration of the Field Study: April 1, 2010 – April 10, 2010 and May 9, 2010 – May 26, 2010

2.3 Constraints during the Evaluation Study

A careful consideration is required when analyzing project effect indicators: the double tracking of the Cikampek-Cirebon section consisted of the three projects, namely, (i) Segment 1 between Cikampek and Haurgeulis (this project), (ii) Segment 2 between Haurgeulis and Kadokangabus (project funded by the Government of Indonesia), and (iii) Segment 3 between Kadokangabus-Cirebon (funded by a Japanese ODA loan project “Railway Double Tracking of Cikampek-Cirebon (2)” approved in 1997/98, hereafter referred to as “the Phase 2 project”). Double tracking was completed for all of these three segments. This evaluation study first planned to collect and analyze effect indicators for Segment 1 only and for the entire Segments 1-3 separately. However, it was difficult to specify the effects of this particular project because data specifically about Segment 1 (especially about delay times, waiting times and transportation volumes) were not available and most of the baseline data (needed for the before-after comparison) were about the entire Segments 1-3.

In addition, it should be noted that in general, the positive trends of some effect indicators related to punctuality and safety of railway transportation do not directly mean the effectiveness of this project, for improved punctuality and safety can be attributed to many other factors such as the conditions of other infrastructures (e.g., existing track and bridges, which were partly rehabilitated in other Japanese ODA loan projects in case of this project), quantity and quality of locomotives and cars/wagons, and conditions of terminal facilities. For example, delays of trains did not improve much, even on the project section, after the double tracking because the train schedule was adjusted with consideration of the number of available locomotives and the train situation of other sections.

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

3.1 Relevance (Rating: a)

3.1.1 Relevance with the Development Policies of Indonesia

The objective of this project is in line with Indonesia’s development policies at the time of the appraisal as well as the ex-post evaluation. When looking at the national development plans issued by the National Development Planning Agency, the Sixth Five Year Development Plan (Repelita VI: 1994-1998) clearly mentioned the Cikampek-Cirebon section as one of the subjects of double tracking or new construction. In the Medium-term National Development Plan (RPJM: 2010-2014), the national development plan at the time of the ex-post evaluation, the infrastructure development program aims to increase transport capacity. The specific objectives the railway sector include enhancing safety and reliability and expanding the railway networks by such measures as track rehabilitation (239km), restoration of abandoned

track (534km), new track construction including double tracking (954km), purchase of rolling stocks, improvement of signaling systems and electrification.

The master plan of the Directorate General of Railways (DGR) (January 2010) accordingly holds optimum utilization of existing railway networks, double tracking and electrification of Java major lines and enhanced access to key industrial areas as its objectives. It also mentions land acquisition for a high speed train line to be constructed in parallel to the Java North Line.

However, high priority is not given to medium- and long distance railway transportation. The budget of the railway sector from the Ministry of Transportation was approximately 3 trillion rupiah or 23% in 2010, while shares of other sectors were 12% for road transport², 23% for maritime transport and 27% for air transport. The budget for railway infrastructure development is increasing and reached 2.3 trillion Rupiah in 2010. However, approximately 33% of it was to be allocated to the development of the JABOTABEK Line, the commuter train system in the Jakarta metropolitan area, and the budget for medium- to long-distance transportation (such as this project) does not show a rising trend.

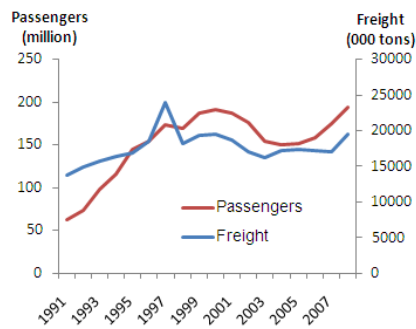
3.1.2 Relevance with the Development Needs of Indonesia

Since the railway traffic at the time of project planning had already exceeded the line capacity, a need for increasing line capacity by double tracking was justifiable. In 1992, the number of trains run between Cikampek and Cirebon was 63 per day in normal months and 75 per day in peak months, though the average line capacity was 62 per day. Thus, the delay time in the same year was 26 minutes per train, and the waiting time to give ways to passing- or oncoming trains was 13 minutes per train. Also, a head-on train collision on the Bogor Line in 1993 further raised the needs for double tracking including improvement of signaling and communication facilities.

On the other hand, railway demand is weaker than assumed at the time of the appraisal. Repelita VI envisaged the growth rate of railway transportation to be 7% per year during the target period. The actual annual average growth rates between 1991 and 2008 were the same 7% for passengers but 2% for freight. When only looking at the period between 2000 and 2008, moreover, the growth rates are much lower at 0.8% for passengers and 0.4% for freight (Figure 1). Also, while transportation volume shows an upward trend in all modalities including railway, road, air and water (among which the railway passengers and freight volume increased from 114 million persons to 197.8 million persons and from 16.4 million tons to 19.6 million tons, respectively) during the period from 1994 to 2008, the share of

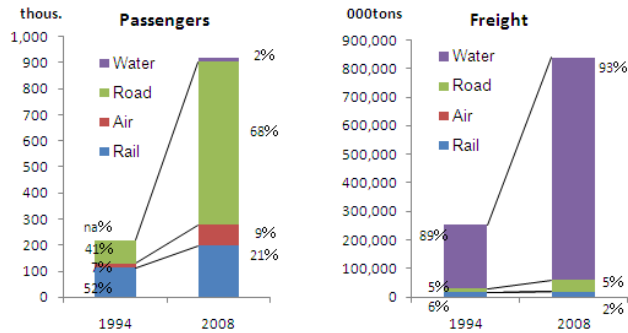
² Development of road infrastructure is under the responsibility of the Ministry of Public Works.

railway transportation³ have decreased from 52% to 21% (or 8% excluding the JABOTABEK Line) for passengers and from 6% to 2% for freight (Figure 2). As for the North Line, while details of transportation volume are discussed in 3.3 *Effectiveness*, the annual average growth rates between Jakarta and Surabaya during the 2000-2008 period are negative at -6.7% for freight and -0.1 for passengers.



Source: DGR

Figure 1: Trend of railway transportation in Indonesia



Note: Percentage shows the share of each means of transportation.
Source: DGR

Figure 2: Trend of transportation volume by means of transportation

As the reasons for such a slow or negative increase in railway demand, RPJM mentions poor services, underdevelopment of inter modal transportation, and declining transport capacity due to poor operation and maintenance. In addition, DGR points out the shift of freight transportation from railway to road due to the rapid development of road networks and the shift of passenger transportation to air after the emergence of low-cost air carriers.

Nevertheless, it is viewed that there are demands for railway transport at the time of the ex-post evaluation as well considering the fact that more than 16 million people still use the North Line (in 2008) and that trains were almost fully occupied when the evaluator visited the project site.

3.1.3 Relevance with Japan's ODA Policy

The country assistance strategy for Indonesia (agreed in 1994) held the improvement of industrial infrastructure as one of the five priority areas, and assistance in the transportation sector was positioned in the area. In that way, this project was consistent with the Japan's ODA policy at the time of the appraisal.

This project has been highly relevant with the country's development plan, development needs, as well as Japan's ODA policy, therefore its relevance is high.

³ RPJM holds the national targets for railway shares at 23% for passengers and 7% for freight.

3.2 Efficiency (Rating: b)

3.2.1 Project Outputs

The planned outputs, consisting of the civil works (double tracking of the 54km-long section between Cikampek and Haurgeulis and installation of signaling for eight stations) and the consulting services, were mostly produced with some modifications (see *Comparison of the Original and Actual Scope of the Project* at the end of this report).

The double tracking works included the construction of permanent way, track and bridges. The major modifications and their reasons are as follows:

- Permanent way: roadbed works were partly redesigned and soil improvement was added to cope with more soft soil uncovered than planned.
- Bridges: the number of box culverts increased from 15 in the original plan to 95 as a result of the recount to include small open channels at the detailed design. As for steel bridges, 16 bridges were planned but 12 of them were constructed by this project because the rest had been constructed by another Japanese ODA loan project (Java North Line Bridge Rehabilitation Project (1), with the loan agreement signed in 1992).

The design and installation of the signaling system followed the system that had been used for the existing track between Cikampek and Cirebon. Therefore, no problem was seen about consistency of the new system with the existing connecting sections. The installed signaling system consists of centralized traffic control (CTC), automatic block system, and electric interlocking system⁴.

The consulting services including detailed design, tender assistance and construction supervision were provided as planned. In addition, final handover supervisory services and monitoring during the warranty period were provided. The work volume of the consultants increased due to the above-mentioned additional services and the extended implementation period (see 3.2.2.1 *Project Period*).

⁴ CTC is a system to remotely control courses and operation of trains on the designated sections from the control center (located at Cirebon station). Automatic block system is to automatically control signals so that only one train can exist on a certain section. Electric interlocking system is to interlock signals and switch machines through CTC device at each station.



Existing (left) and newly-constructed (right) steel bridges



Centralized traffic control (CTC) device as part of auto signaling system (Cipunegara station)

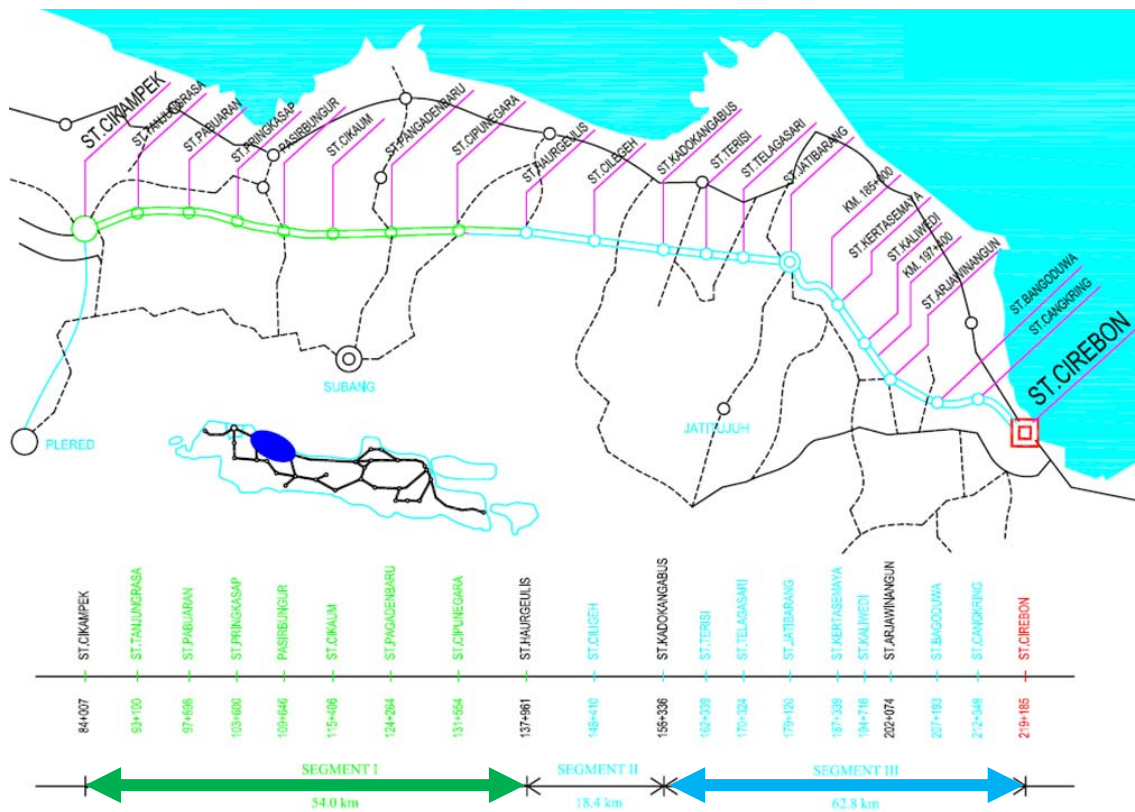


Figure 3: Map of sections under this project and related projects

3.2.2 Project Inputs

3.2.2.1 Project Period

In the appraisal, the project period was planned to be 76 months from November 1994 (signing on the loan agreement) to February⁵ 2001. The actual project duration was longer than planned – 114 months from November 1994 to April 2004, or 150% of the plan. According to the executing agency, the reasons for delays include the prolonged procedures

⁵ In this project, the project completion date was defined as the commencement date of commercial operation.

of tender and its approval⁶ and the political confusion following the Asian currency crisis.

Nonetheless, the civil works portion was completed earlier than planned: the actual duration was 73% of the original plan (30 months). This may be because of the following two factors: first, the site clearance and the bridge piers for this project had been completed by a proceeding project (JICA, Java North Line Bridge Rehabilitation Project (1)), which lessened the workload of this project. Second, an engineer of the Indonesia Railways (PT. Kereta Api Indonesia or hereafter PT.KAI), the agency in charge of operation and maintenance of railways, joined the project implementation team from the start of the project till the completion. This enabled construction works to progress efficiently through prompt and on-site solutions to technical problems such as soft soils and by maintaining normal train services.

In consequence, the section between Cikampek and Cikaum (34km length) was open in December 2003, earlier than the opening of the entire section in 2004, by the President of Indonesia at the official ceremony held right before *lebaran*.

3.2.2.2 Project Cost

The planned total project cost estimated at the appraisal was 8,511 million yen, and the actual cost was lower than planned at 7,607 million yen. The Japanese ODA loan approved amount was 7,234 million yen, and the disbursed amount, 7,201 million yen, was almost same. The rest of the cost was paid by the Indonesian government. The major reason for the decrease in the project cost was the depreciation of the local currency⁷.

Although the project cost was lower than planned, the project period was longer than planned, therefore efficiency of the project is fair.

3.3 Effectiveness (Rating: a)

3.3.1 Quantitative Effects

3.3.1.1 Results from Operation and Effect Indicators

(1) Number of trains and traffic volume

The double tracking and automation of signaling increased the line capacity between Cikampek and Haurgeulis, the target section of this project, more than threefold compared to before the project. The line capacity of the entire section between Cikampek and Cirebon also increased after 2007, when the Phase 2 project completed double tracking up to Cirebon. Accordingly, the number of trains that actually operate increased up to approximately 80-90%

⁶ It is reported that there were 8 months delay after the project followed the procedures within the Ministry of Transportation, and 33 months delay due to re-tender after the first tender failed.

⁷ See Comparison of the Original and Actual Scope of the Project at the end of this report.

of the planned level in 2008 (five years after the project completion). The increase in trains is particularly noteworthy during the peak season (*lebaran*), when passenger transportation demand is concentrated (Table 1).

Table 1: Average line capacity and number of trains operating on the Java North Line

	Baseline (1992)	Planned (2006 = five years after completion)	(Unit: trains/day) Actual (ratio against plan)	
			2006 = three years after completion	2008 = five years after completion
Average line capacity				
- Cikampek-Haurgeulis	62	N.A.	192	192
- Cikampek-Cirebon	62	N.A.	85	170
Number of trains operating between Cikampek and Cirebon	63	101	80 (79%)	80 (79%)
- Normal season	75	122	104 (85%)	107 (88%)
- Peak season				

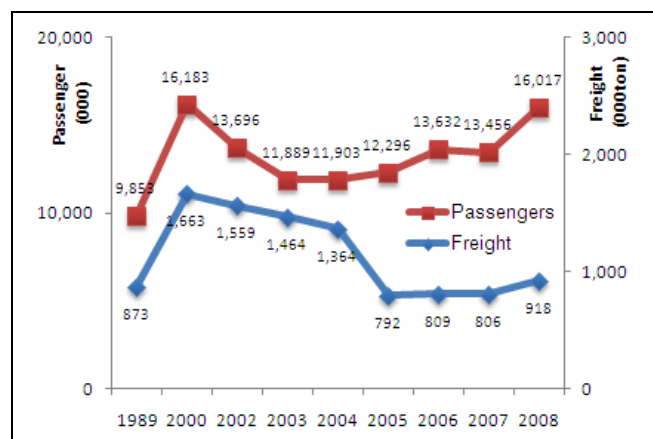
Source: DGR, PT.KAI

The passenger volume (Jakarta-Surabaya), after a downward turn in the 2000s, has increased again in 2004 when more than half of the project section was double tracked. In 2008, it reached 16 million⁸ or 80% of the planned volume (approximately 20 million).

Similarly, the freight volume was in a downward trend in early 2000s. It then turned into a slight increase, too, but the throughput in 2008 was approximately 920 thousand tons, which was less than 30% of the plan.

The number of trains and transportation volume were lower than planned due to the following reasons:

- Weak railway demand. Besides the economic crisis and shifts to road and low-cost air transportation, freight transportation is particularly facing problems of



Source: PT.KAI

Figure 4: Transportation volume of the North Line (Jakarta-Surabaya)

⁸ The period of the early 2000s when the passenger traffic was declining was also the period when the double tracking works of this project was going on. However, this decrease should not be associated with the construction works considering the fact that passenger traffic in the entire Indonesia showed a similar declining or stagnant trend during this period, and the double tracking works were carried out in a way to avoid disrupting operation on the existing track. Meanwhile, the number of passengers who used each of the stations on the double tracked section between Cikampek and Cirebon are generally increasing though comprehensive data were not available.

- underdevelopment of terminal facilities and limited access to freight stations (e.g., congested roads and lack of lines extended up to cargo ports).
- Difficulty to increase the number of trains due to lack of locomotives. Out of 269 locomotives owned by PT.KAI for operation in Java, only 191 are ready to use.

(2) Punctuality

As shown in Table 2, the average delay times on the fully double tracked section between Jakarta and Cirebon in 2008 were 5 minutes on departure, 26 minutes on arrival about passengers, and 13 minutes on departure and 28 minutes on arrival about freight. Among these figures, delay times on arrival of both passenger and freight trains and on departure of freight trains are shorter than the national averages. Quantitative comparison of delay times before and after the project was difficult due to lack of data of the North Line before double tracking. However, since PT.KAI adjusts train schedule to handle delays on bottleneck sections elsewhere⁹, double tracking does not always lead to reduction of delays.

Comparable data of waiting time to let other trains pass at stations were not available either¹⁰. However, average travel times of express trains between Jakarta and Cirebon in 2008 – 15 minutes (eastbound) and 19 minutes (westbound) shorter than in 2002 – possibly suggest the reduction of waiting time.

Table 2: Average delay times of the Java North Line (Unit: minutes/train)

	Baseline 1992	Actual			
		2006		2008	
		Departure	Arrival	Departure	Arrival
Average delay time					
- Passenger Jakarta-Cirebon	26*	5	28	5	26
- Freight Jakarta-Cirebon		11	30	13	28
(Reference) Passenger national average		7	46	5	37
(Reference) Freight national average		90	90	97	111
Travel time (Cirebon Express)	(2002)				
- From Jakarta to Cirebon	126	107		111	
- From Cirebon to Jakarta	114	111		95	

Note: The baseline data of average delay time are about Cikampek-Cirebon, and no distinction is made between passengers and freight and between departure and arrival.

Source: DGR, PT.KAI

On a visit to the project site for the ex-post evaluation, the evaluator observed that trains operated almost on schedule and did not need to stop at a station to let other trains pass on the

⁹ DGR points out the JABOTABEK section between Jakarta and Bekasi and single track sections east of Cirebon as the bottle necks.

¹⁰ The recorded waiting time before the project is 13 minutes per train between Cikampek and Cirebon in 1992. As for after the project, the only available data were the waiting time at the Cirebon station, which showed an increase from 6.7 minutes in 2006 to 25.8 minutes in 2008. DGR explained this increase that the track layout at the Cirebon station was inefficient thus could not handle the increased number of trains, and that the layout was being improved using the unused balance of the loan for the Phase 2 project.

section between Cikampek and Haurgeulis (the project section). The signaling system operated well, helping improve punctuality. The measured average speeds of a limited express train from Jakarta to Cirebon the evaluator rode on were 90km/h on Segment 1 (the section double tracked by this project), 85km/h on Segment 2 and 82km/h on Segment 3, which were satisfactory. Also, this particular train departed and arrived exactly on time.

(3) Safety

The number of accidents on the North Line was zero in 2006 and six in 2008. These six accidents were all derailment, and no direct causal relationship was identified between them or accident cases in other years (including causes for accidents) and this project. On the other hand, as shown in 3.3.2 *Qualitative Effects*, interviewed railway passengers felt the improved safety of railway transportation after the double tracking.

3.3.1.2 Results of Calculations of Internal Rates of Return (IRR)

(1) Financial internal rate of return (FIRR)

At the time of the appraisal, the FIRR of this project was calculated at 9.6%, with the project life of 35 years and taking the project cost and operation and maintenance cost as the cost items and the passenger fee revenue as the benefit item. At the time of the ex-post evaluation, the evaluator recalculated the FIRR substituting the actual figures of cost and benefit. The value turned out to be 2.01% when including passenger revenue only in the benefit (as done in the appraisal), and 7.56% when including both passenger and freight revenues¹¹. The recalculated FIRRs were lower than planned possibly because the use of railway transport was not as high as planned. However, this value should only be regarded as a rough reference value because the reliability or accuracy of some data about railway revenues was low (in particular, revenues from the North Line were not clearly specified among those from the sections shared by other lines).

(2) Economic internal rate of return (EIRR)

The planned EIRR value calculated at the appraisal was 12.5%. The cost items included the cost for double tracking and operation and maintenance for the entire section between Cikampek and Cirebon, and the benefit items included the savings of waiting time due to double tracking and the time savings of future passengers who would not have to switch to alternative transportation means (i.e., buses) due to increased railway transport capacity. At

¹¹ The project cost for Segment 2 (funded by the Indonesian government and completed in 1998) was not included because data were not available. Also, the only available data on benefits were those on revenue from the Jakarta-Cirebon section, not the Cikampek-Cirebon section. In other words, the cost items substituted at the time of the ex-post evaluation were smaller than those used at the appraisal, and the benefit items were bigger; therefore, if the value of each of those items was the same as the plan, the recalculated value would have been higher than planned.

the end of the project, the executing agency recalculated the EIRR to be 16.1%, which was higher than the planned value. This recalculation was different from the calculation made at the appraisal in that it included the cost and benefit of this project (Segment 1) only. At the ex-post evaluation, the evaluator did not recalculate the EIRR because the traffic or time saving data on the project section were not fully available.

3.3.2 Qualitative Effects

(1) Increase in the number of limited express and express trains

The double tracks enabled the increase in the number and travel distance of limited express and express trains between Jakarta and Cirebon. For example, the Cirebon Express, one of the major express trains on the North Line, used to run four times a day between Jakarta and Cirebon before the project, and it now runs seven times a day between Jakarta and Brebes (east of Cirebon).

(2) Opinions of railway customers on punctuality and safety

In the beneficiary survey conducted at the ex-post evaluation¹², most of the interviewed customers of the North Line (passengers and freight owners) said that safety and punctuality of railway transportation had improved after the double tracking (Table 3).

Table 3: Opinion of the North Line customers on safety and punctuality
(Percentage of the interviewees who had used the North Line
before the double tracking and answered “yes” to each question)

	Safety was improved after double tracking	Delays were reduced after double tracking
Freight owners (n=11)	100%	82%
Passengers (n=50)	96%	92%



Interviewing with passengers
(Haurgeulis station)



Loading freight on the North Line
(Jakarta Kota station)

¹² The outline of the beneficiary survey conducted at the ex-post evaluation is as follows: location – project site; respondents – total 184 persons (36 freight owners, 112 passengers and 36 residents, shop owners or drivers along the project section); data collection method – questionnaire-based structured interview conducted by Indonesian consultants.

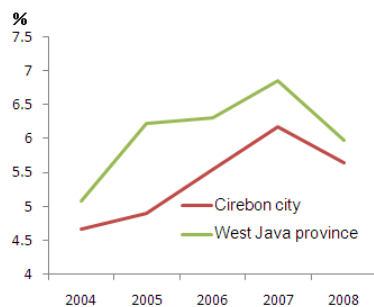
This project has largely achieved its objective, therefore its effectiveness is high. Although the freight transport volume was far below the planned level, other quantitative and qualitative information showed more than 80% achievement of the plan on more direct indicators such as the number of trains run, punctuality and safety. Thus, the overall effectiveness can be judged as “high” .

3.4 Impact

3.4.1 Intended Impacts

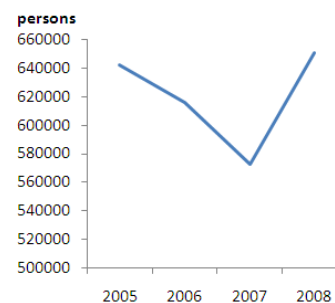
According to DGR, the double tracking of the North Line and the following increase in limited express and express trains have improved access to Cirebon city (population: approx. 300 thousand), thus contributing to the economic development such as the increased investment.

However, statistics from Cirebon city do not clearly show a connection between the economic development after the project and railway transportation. The gross regional domestic product (GRDP) growth rate of the city fluctuated between 4.7% and 6.2% during the period from 2004 to 2008. Although this level is lower than the entire West Java province where Cirebon city is located (4.8-6.5%), an increasing trend is observed except the year 2008. On the other hand, the number of medium- and large-scale enterprises in Cirebon city generally continues to be flat around 60 enterprises (the new investment amount was not available about large-scale enterprises and 2.1 billion Rupiah about medium- and small-scale enterprises in 2008). During the same period, the number of passengers using the Cirebon station fluctuated between 570 thousand and 650 thousand per year, though a clear upward trend is not seen.



Source: Statistical Bureau of Cirebon city

Figure 5: Trend of GRDP growth rate in Cirebon city



Source: Statistical Bureau of Cirebon city

Figure 6: Trend of passengers who used the Cirebon station

In addition, out of the interviewed 19 shop owners or taxi (cars or motorcycles) drivers, only three persons said that their income increased due to more passengers and trains after the

double tracking (and other three persons mentioned a very slight increase in their income), while most of them said that their income have not changed.

Therefore, it can be concluded about the intended impact that although this project is inferred to have supported economic activities in the region through strengthening transportation infrastructures, it has not given big changes.

3.4.2 Other Impacts

(1) Impacts on natural environment

By the nature of this project that was to construct a new track besides the existing one, there were no obvious environmental problems. During the construction works, the consultants monitored dusts and other effects of the disposal sites for excavated materials.

(2) Land acquisition and resettlement

No particular problems are found. Although the land for the new track all belonged to PT.KAI (State Railway Corporation (PERUMKA) at the time of the appraisal of this project), 91 houses (8,367.5m²) near the Cikampek station had to be relocated. The project planned to start the civil works after it obtained the consent of owners of those houses to evacuate in accordance with the concerned laws and procedures. In addition, a large part of the construction site was illegally used as farmland. The project was to gain the acceptance of such illegal occupants as well before starting the construction.

In implementing the project, the relocation of the 91 houses was completed without problems. As this project did not have a component to develop resettlement sites in its scope, affected people moved to new sites themselves after they received compensation. Negotiations with illegal occupants were handled by the central and local governments, and no problems are reported. Although the information were not available on whether they prepared a resettlement action plan and whether the resettlement was proceeded in accordance with the plan, the executing agency reported that the compensation and resettlement process followed the designated laws and procedures

(3) Other positive and negative impacts

In the beneficiary survey for the ex-post evaluation, none of the 36 interviewed residents, shop owners or drivers said they were negatively affected by this project.

Other information and reports collected for the evaluation also indicate that there were no particular negative impacts of this project. At the same time, positive impacts other than mentioned above were not found either.

3.5 Sustainability (Rating: a)

3.5.1 Structural Aspects of Operation and Maintenance

The operation and maintenance (O&M) of all railway infrastructures including this project are carried out by PT.KAI, a 100% state-owned enterprise. The ownership of railway infrastructures and facilities follows the two-tiered system: Article 13 of the 1992 Railway Law stipulates that tracks, bridges and signals are owned by the government and leased without charge to PERUMKA, the predecessor of PT.KAI, while rolling stocks, railcar shops and stations are owned by PERUMKA.

PERUMKA, after established as a public corporation from the national railways in 1991, became a state-owned company with the new name PT.KAI. The O&M of railway infrastructures and facilities is still based on the two-tiered system.

PT.KAI continued to use the track maintenance system of PERMUKA: the section constructed by this project is under the responsibility of the Operation Area I (DAOP I; up to the Cikampek station) and the Operation Area III (DAOP III; after the Cikampek station). DAOP III is responsible for track maintenance of 410km length including the Cikampek-Cirebon section, and assigns a track manager for every 30km. Private sector is not involved in the O&M of railways.

As seen above, there is no drastic change in ownership, management and O&M system of railway infrastructures and facilities even after the O&M agency was converted to a state-owned company, and no serious problem is found.

3.5.2 Technical Aspects of Operation and Maintenance

Technical problems are not seen either. Each DAOP has 24 technical staffs. They are required to receive trainings of 300-350 hours every year. Trainings are provided by the PT.KAI training center, universities and government training centers.

Operators of the CTC system always carry the standard operating procedures in small size so that they could soon refer to it in case of trouble.

3.5.3 Financial Aspects of Operation and Maintenance

O&M budget for railways is determined based on track length. The government provides subsidy for O&M of railway infrastructures to PT.KAI, but that is offset by the rent for the infrastructures paid by PT.KAI to the government. Therefore, the O&M cost for railways is substantially borne by PT.KAI¹³.

As for the section developed under this project, the approved O&M budget (excluding indirect cost) for the fiscal year 2004 was approximately 1.6 billion Rupiah while the

¹³ The total O&M budget of PT.KAI (excluding indirect cost) for the fiscal year 2009 was approximately 2.6 trillion Rupiah, and the government subsidy for O&M (which was offset by the rent for infrastructures) was approximately 990 billion Rupiah. According to the ex-post evaluation of Java North Line Bridge Rehabilitation Project (2005), the O&M subsidy provided by the government is about a third of the needed amount.

requested amount was approximately 1.4 billion Rupiah. The approved budget for the fiscal year 2008 was approximately 3.9 billion Rupiah, which were increased reflecting the double tracking.

As of the project appraisal, PERUMKA had been continuously in a deficit since the time of the national railways. After becoming a state-owned enterprise, PT.KAI turned a profit. In the fiscal year 2009, the current profit reached 200 billion Rupiah (equivalent to approx. 2 billion yen) and the net profit after tax 150 billion Rupiah. However, PT.KAI points out the following cost constraint in railway management:

- Subsidy for economy class fares: currently, the fares for economy class are kept very low, given the Public Service Obligation (PSO) subsidy provided by the government to PT.KAI to cover losses¹⁴. However, the amount of PSO subsidy is smaller than the operation cost of economy class trains¹⁵.

Therefore, although there is a point where government subsidies are not enough, the financial status of PT.KAI is relatively good compared to the time of the appraisal of this project, covering the cost necessary for the O&M of this project.

3.5.4 Current Status of Operation and Maintenance

Track and bridges are subject to the following O&M program:

- Track: maintenance is applied for provision of ballast, ballast compaction and sleepers and fasteners once a month or depending on the condition.
- Bridges: maintenance is applied for superstructure, steel component, bearing shoe, piers, rivet abutment and painting.

According to DGR, the infrastructures and facilities developed by this project are in good conditions. Damages or defects were not found on the site visit at the time of the ex-post evaluation.

To strengthen the freight transport capacity, DGR and PT.KAI respectively plan and implement several projects as follows. It is considered that those projects will positively affect the future effectiveness of this project.

- By DGR: construction of 5km-long railway from Tanjung Priok (Pasoso station) to the premise of the Tanjung Priok port; double-double tracking of the section between Jakarta and Bekasi; and double tracking of the section between Cirebon and Keroya (the South Line) (partly completed).
- By PT.KAI: development of freight handling facilities at the Jakarta and Surabaya

¹⁴ For example, the economy class tariff between Jakarta and Tegal (approx. 330km length) is 11,500 Rupiah, equivalent to approximately 115 yen as of April 2010.

¹⁵ There was a newspaper report that with the insufficient subsidies, PT.KAI was considering a fare raise for economy class (*Jakarta Post*, 22 December 2009), though PT.KAI did not provide a clear comment on this raise. On the other hand, a documentation from the government (DGR) showed that 96% of the required PSO was subsidized, which is contradictory to the above-mentioned press report.

stations (planned to start in 2011); and purchase of rolling stocks (200 cars and 150 locomotives planned in 2011).

No major problems have been observed in the operation and maintenance system, therefore sustainability of this project is high.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

While the efficiency of this project is fair due to implementation delays, the other evaluation items all satisfy the criteria for high marks in spite of some concerns such as slowdown of demands and budget for the railway sector, especially for medium- and long distance transport (relevance), and little growth in freight traffic on the North Line.

In the light of above, this project is evaluated to be (A) highly satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency and the O&M Agency

DGR, the executing agency is recommended to eliminate the bottlenecks on the North Line (i.e., west of Bekasi and east of Cirebon) by carrying out the planned infrastructure development projects.

PT.KAI, the O&M agency is recommended to further promote the use of railways by carrying out the planned projects such as the development of freight facilities and the purchase of rolling stocks.

4.2.2 Recommendation to JICA

In order to identify effectiveness and impact of railway development more precisely, JICA is recommended to consider an ex-post evaluation of all development projects for the North Line, including track rehabilitation, bridge rehabilitation and double tracking, after the Phase 2 project is completed.

4.3 Lessons Learned

(1) Involvement of the O&M agency in project implementation

An important factor for the early completion of the civil works was that an engineer of PT.KAI, the O&M agency of this project had been continuously present in the consultant team together with staffs of the executing agency, and provided his opinions to solve construction problems promptly on site. In this way, options to solve technical problems on site could be proposed and implemented more promptly during the project implementation by involving an engineer of the O&M agency in the construction supervision team.

Comparison of the Original and Actual Scope of the Project

Item	Original	Actual
1. Project Outputs		
Double tracked section:	54km length between Cikampek and Haurgeulis	Same as planned
Civil works:	Embankment length 54km; average height 2.5m	Mostly same as planned
- Permanent way		
- Track	Main line 54km; siding 5km	Mostly same as planned
- Bridges	15 box culverts (RC); 16 steel bridges (span>5m)	95 box culverts (including open channels); 12 steel bridges
- Signaling	Centralized traffic control (CTC) for 8 stations; automatic block system; electric interlocking system	Mostly same as planned
Consulting services	Foreign engineers 243M/M Local engineers 532M/M	Foreign engineers 261M/M Local engineers 662M/M
2. Project Period	November 1994 – February 2001 (76 months)	November 1994 – April 2004 (114 months)
3. Project Cost		
Amount paid in Foreign currency	4,229 million yen	5,260 million yen
Amount paid in Local currency	4,282 million yen (85,640 million Rupiah)	2,347 million yen (179,704 million Rupiah)
Total	8,511 million yen	7,607 million yen
Japanese ODA loan portion	7,234 million yen	7,201 million yen
Exchange rate	1 Rupiah = 0.05 yen (As of April 1994)	1 Rupiah = 0.013 yen (Average between 1996 and 2006)

Third party opinion

28 October 2010

Ex-post evaluation of Japanese Oda loan project

Construction of railway double tracking of Cikampek-Cirebon

Aristides Katoppo

Railways in Indonesia has been lagging in development and investment compared to road contraction. This project was intended to increase capacity and ensure safe, rapid and reliable railway transportation in an important segment Cikampek-Cirebon of the strategic north line linking the major port cities in Java, especially Jakarta-Surabaya. Although there are questions about weak growth in demand, especially for freight, in general, all criteria about relevance, effectiveness, efficiency and sustainability are quite positive. Also many lessons learned about enhancing project management such as the need to involve key stakeholders during the contract implementation. Another important related lesson perhaps is for the user to boost demand by a promotion campaign explaining the increased availability of more capacity. Noting the fact that in the same time period there was multiple increase in air traffic including intensive competition through marketing/advertising. Of course improved tracks with subsequent increase of carriages/locomotives are also essential. Also often voiced demand for freight is that loading facilities needs equal dispatch, especially direct connection to port loading embarkation points. The question is whether this aspect could be addressed in subsequent design, if the intended result is increased servicing capacity for freight delivery. One significant benefit is that this project has provided learning experience for the recipient about the pitfalls, potential problems and unforeseen challenges in implementing and quality control of projects.