Malaysia

Malay National Railway Improvement Project

Report date: September 2000
Field survey: February 2000

1. Project Profile and Japan's ODA Loan

1.1. Background

This project covered railway routes in Kuala Lumpur, the capital of Malaysia, and its vicinities (the Klang Valley area). At the time of appraisal, the Klang River valley was the most urbanized and industrialized area in the country, and further population growth and industrial relocation were expected in the future. Consequently, increases in passenger numbers and in the volume of freight handled at Klang port, the biggest port in the country, were anticipated, making it necessary to double-track existing railway lines and to rehabilitate obsolete ones in the area. Meanwhile, local transport systems were based mainly on roads, and it was expected that traffic congestion would worsen in the years to come. In order to reduce traffic congestion on roads and to meet increased demand for rail transportation, it was considered important to improve the railway lines that function as a means of transportation for commuters.

1.2. Objectives

To introduce a railway-based mass transport system in the capital area and neighboring Klang River valley with the aim of providing an urban means of transportation for commuters and to increase freight transport capacity near the capital. The project also aimed to reduce traffic congestion in the area.

1.3. Project Scope

The project (actual) consisted of (1) rehabilitating and double-tracking existing railway lines in the capital area and the neighboring Klang River valley (the east-west line between the Klang port and Sentul and the north-south line between Rawang and Seremban), (2) installing new signaling and communications equipment along the two lines mentioned above, (3) procuring new locomotives, (4) installing new electrification facilities, and (5) providing consulting services.

1.4. Borrower/Executing Agency

The Malaysian government/The Malaya National Administration (later changed its name to Keretapi Tanah Melayu or KTM)

1.5. Outline of Loan Agreement

Loan amount/Loan disbursed amount	¥19,444 million/¥4,667 million
Exchange of notes/Loan agreement	March 1990/March 1990
Terms and conditions	Interest Rate: 2.9%, Repayment Period (Grace Period): 25 years (7 years), General untied
Final disbursement date	July 1995

2. Results and Evaluation

2.1. Relevance

The project plans, originally based on diesel locomotives, were substantially revised because the Malaysian government decided to electrify the project railway lines after entering into the loan agreement (L/A) with JBIC in December 1991. Specifically, it was decided that electrification facilities such as electric poles, electric wires and transformer substations would be installed in the project area and that new electric passenger locomotives would be procured. This decision made it unnecessary to procure the initially planned diesel locomotives, and these units were excluded. The Malaysian side cited three reasons for electrifying the railway lines: Compared to diesel locomotives, electric locomotives would (1) promote smooth operation and enable reinforcement of transport capabilities by means of electrification of control systems and other improvements, (2) ensure greater efficiency in energy use and lower operation and maintenance costs, and (3) reduce the negative effect on the environment. Although the decision to change the project was made after the conclusion of the L/A, the significance of the electrification plans was recognized.

2.2. Efficiency

(2.2.1.) Project Cost

The project cost was initially estimated at approximately ¥31 billion, but actual costs increased approximately 2.5-fold, to ¥79.6 billion, due to the implementation of the electrification plans and other revisions. On the other hand, the initially planned loan amount of ¥19.4 billion was reduced to ¥4.67 billion, about one-fourth of the original amount. This was because it became unnecessary to procure diesel locomotives as described above; instead, the Malaysian government procured electric locomotives. The loan amount was less also because JBIC did not include some components in the L/A due to problems relating to procurement procedures.

(2.2.2.) Implementation Schedule

Due to the implementation of the electrification plans, delays in procedures for the relocation of local residents and other factors, the project was completed in August 1995, two years and eight months later than initially planned.

(2.2.3.) Implementation Structure

The executing agency was initially the Malaya Railway Administration (MRA), which was under the direction of the Railway Division of the Ministry of Transport. In 1992, the MRA was divided into the Railway Asset Corporation (RAC) and the Keretapi Tanah Melayu (KTM), or Malaysia Railway Authority, and KTM assumed responsibility for project implementation.

2.3. Effectiveness (Operating Status and Quantitative Effects)

Commuter trains are being operated under favorable conditions, and the number of users has been increasing substantially since project implementation. In the pre-project period, there were, annually, 192,000passengers transported in the project area, but this number increased to 20,819,000 in 1998. In addition, the number of passenger trains operated per day increased from 36 (one way) in 1985 to 215 in the post-project period. These indicators suggest that the project has promoted the utilization of trains as a means of commuter transportation. Meanwhile, the growth in freight transport has been sluggish for the past few years, partly due to the Asian economic crisis. The financial internal rate of return (FIRR) calculated using actual figures remains low (2.1%), the main reason for this being the increase in project costs due to electrification and other plans.

Number of Passengers Transported

	1985	After project completion			
Year		1995 (From August)	1996	1997	1998
Number of passengers transported (1,000 persons/year)	192	2,817	11,095	16,499	20,819
Growth in the number of passengers transported (%/year)	-	-	-	49	26

Source: KTM materials

2.4. Impact

(2.4.1.) Impact on Local Economy

The most significant impact of the project has been the increase in train utilization for commuting. In the long run, this is expected to reduce traffic congestion on roads in the capital area. The impact of the project on the economy of surrounding areas can also be observed in the development of new residential districts around new stations built on the project railway lines.

(2.4.2.) Impact on Society

The project involved the relocation of residents from 5,400 households that had settled illegally along the railway lines. The Malaysian government extended some

support to the relocated residents, including the provision of apartments and the development of fundamental infrastructure. Although there is no legislation concerning the relocation and support of illegal settlers in Malaysia, the government generally adopts measures for such people from a humanitarian standpoint. This project also implemented relocation procedures based on these measures. Residents were relocated to six different areas, all of which are relatively close to the city center; KTM says that many of the relocated residents continue to be engaged in the jobs they held before they were moved.

(2.4.3.) Environmental Impact

The electrification of railways has substantially reduced air pollution and noise resulting from diesel train emissions. Furthermore, the increasing utilization of commuter lines is expected to promote a shift from privately owned automobiles to electric trains, leading to long term reductions in air pollution in the capital area.

(2.4.4.) Technological Impact

The implementation of Malaysia's first railway electrification plan made technology transfer from foreign consultants to KTM engineers.

2.5. Sustainability (Operation and Maintenance Status)

The project is managed by KTM's railway operation, passenger service and freight service divisions, with the operation/maintenance of locomotives undertaken by KTM and that of railway tracks by RAC. There are currently no problems with operation and maintenance.

Kuala Lumpur Station (rush-hour peak aroud 5:00pm)

Comparison of Original and Actual Results

1. Project Scope

Project Scope (by Component)

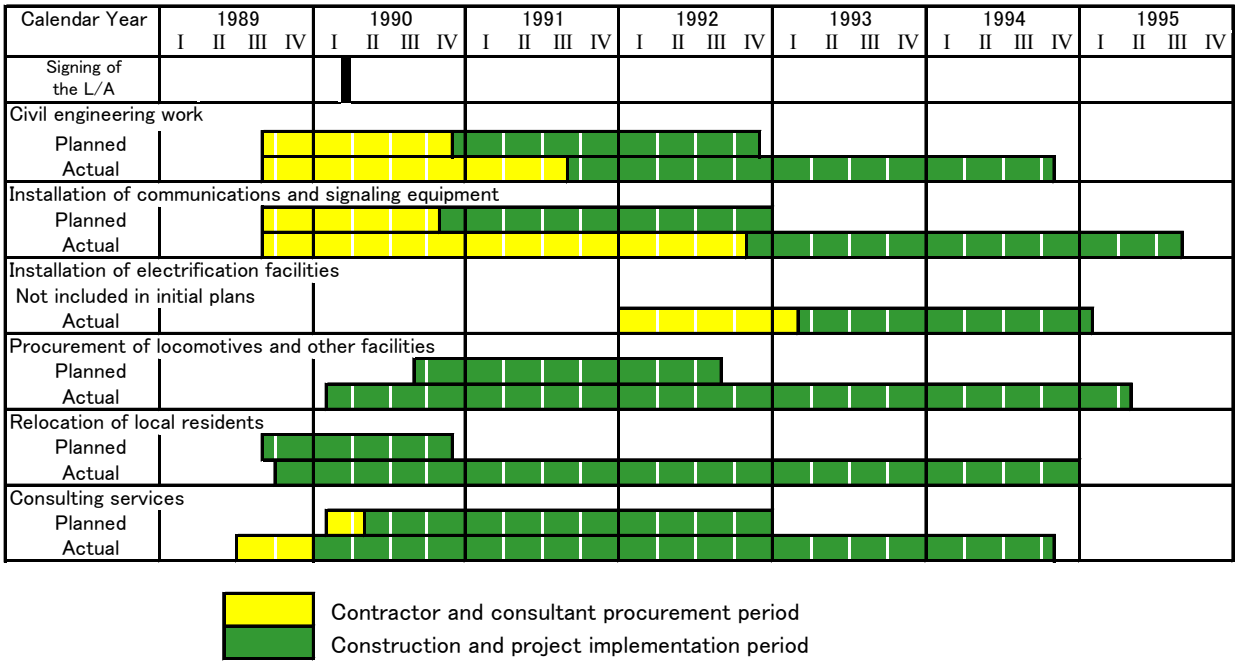
Description	Plan	Results
Double-tracking and repair of existing railway lines (civil engineering work)	(1) Sentul - Kuala Lumpur - Klang port (45 km) (2) Subang Jaya - Sri Subang (about 7 km)	(1) Same as left (2) Implementation cancelled due to the construction of a new airport
Double-tracking and construction of bridges and tunnels (civil engineering work)	Rawang – Seremban (about 105 km)	Same as left
Installation of communications and signaling systems	All railway lines	Same as left
Locomotives, etc.	(1) 10 diesel locomotives (2) 300 locomotives for containers (3) 18 diesel locomotives	Same as left for (1) and (2) For (3), the electrification plans made diesel locomotives unnecessary, leading to the cancellation of related procurement plans.
Electrification plans	Not included in the initial plans	(1) Electrification facilities were installed for all lines. (2) 62 passenger locomotives called "electric multiple unit (EMU)" were procured for electrified train service.
Consulting services	224 M/M	246 M/M

Source: KTM data

Initial JBIC Loan Plan and Results by Loan Package

L/A package	Description	Initial plan	Results
Package A	Repair and double-tracking of the existing railway line between Sentul and Klang port	JBIC	Malaysian government
Package B	Construction of bridges and other structures on the section between Rawang and Kajang	JBIC	Malaysian government (additional loans were granted by JBIC for 4 urgently required bridges)
Package C	Construction of bridges, tunnels and other structures on the section between Kajang and Seremban	JBIC	JBIC
Package D	Installation of all new signaling and communications facilities in the project area	JBIC	JBIC and the Malaysian government
Package E	Double-tracking of the Rawang-Seremban section	Malaysian government	Malaysian government
Package F	Installation of electrification facilities in the entire project area	Not included in initial plans	Malaysian government
-	Procurement of diesel locomotives	JBIC	Procurement cancelled due to the introduction of electrification plans
-	EMUs for electrified train services	Not included in initial plans	Malaysian government
-	Container locomotives and diesel locomotives	Malaysian government	Malaysian government
-	Consulting services	Grant assistance by JBIC and the U.K.	Grant assistance by JBIC and the U.K.

2. Implementation Schedule



Source: KTM materials

(Note) Railway track-related work was commenced in areas in which relocation of local residents had been completed.

3. Project Costs

Item	① Plan (M$1 million)	② Results (M$1 million)	Balance (②－①) (M$1 million)
Civil engineering work and the installation of electrification facilities	306.2	897.7	+591.5
(covered by ODA loan funds)	(179.4)	(48.8)	(-130.6)
Installation of communications and signal facilities	62.3	254.0	+191.7
(covered by ODA loan funds)	(62.3)	(51.5)	(-10.8)
Procurement of locomotives and other facilities	182.2	655.6	473.4
(covered by ODA loan funds)	(91.7)	(0)	(-91.7)
Consulting services	5.8	13.5	+7.7
(covered by ODA loan funds)	(5.8)	(6.4)	(+0.6)
Total	556.6	1,820.8	+1,264.2
(covered by ODA loan funds)	(339.3)	(106.8)	(-232.5)
Reserve funds	27.5		
(covered by ODA loan funds)	(27.5)		
Total loan amount	366.9	106.8	-260.1
Yen equivalent (reserve funds included at the time of planning) Unit: ¥1 million			
Total project cost	30,960	79,569	+48,609
(covered by ODA loan funds)	(19,444)	(4,667)	(-14,777)

Source: JBIC and KTM materials

Exchange rate: M$1.00 = ¥53.00 (1992) for “Plan” and M$1.00 = ¥43.70 (average for the loan disbursement period) for “Results”

(Note) Since the actual project cost was only calculated in local currency, the figures for the plan are compared with those for the results in Malaysian dollars; the Japanese yen equivalent is only indicated for total project cost (bottom row).