

Ex-Ante Evaluation

I. Name of Project
Country: The Kingdom of Thailand Project: Mass Transit System Project in Bangkok (Purple Line) (I) Loan Agreement: March 31, 2008 Loan Amount: 62,442 million yen Borrower: Mass Rapid Transit Authority of Thailand (MRTA)
II. Necessity and Relevance of JBIC's Assistance
<p>(1) Present situation and issues concerning the urban transportation sector in Thailand</p> <p>The Bangkok Metropolitan area has a population of approximately 9.79 million people (as of 2005) and is the political and economic center of Thailand. With Thailand's economic recovery following the Asian currency crisis, urban industrial activity has surged, leading to an increase in the number of automobiles and other vehicles. As a result, there has been a serious rise in traffic congestion in the transportation system, which depends heavily on the automobile. Moreover, air pollution caused by automobiles is recognized as a problem, and measures to ease the load on the environment are required.</p> <p>(2) Urban transportation policy in Thailand</p> <p>Since the 1970s, the development of mass transit system for the Bangkok Metropolitan Area has been planned, and in December 1999, the Skytrain began operation. In July 2004, the Blue Line subway, the construction of which was assisted by Japanese ODA loans, began operation. Like the subway, however, the Skytrain operates only in the central district of Bangkok and thus has a limited operating distance. Because connections with other transportation modes are inadequate, its ability to meet transportation demand is limited.</p> <p>In order to relieve traffic congestion and environmental problems in the Bangkok Metropolitan Area, the Government of Thailand adopted a 5-Year Development Plan (2005-2009) ("Mega Project") and has been implementing Mass Transit Investment Plan (2005-2012), which aims for investment in the development of seven lines in the Bangkok Metropolitan Area between 2005 and 2012. In the cabinet meeting on August 1, 2006, the construction of three lines was approved including the Purple Line between Bang Sue and Bang Yai to be built by MRTA, the extension of the Blue Line from Bang Sue to Tha Phra and from Hua Lamphong to Bang Kae, again to be built by MRTA, and the Red Line of the State Railway of Thailand linking Phaya Thai, Bang Sue and Rangsit. This plan was reviewed by the provisional government inaugurated following the coup d'état in September 2006, and as a result, construction of the Purple Line linking Bang Sue and Bang Yai was again approved to proceed according to the plan in the cabinet meeting held November 2006.</p> <p>Furthermore, the National Economic and Social Development Plan, which is enacted every five years by Thailand's National Economic and Social Development Board (NESDB), has, from the 7th Plan (1992-1996) to the 10th Plan (2007-2011), consistently stressed the importance of developing an urban transportation network in the Bangkok Metropolitan Area, indicating that this project has high priority as a policy objective.</p> <p>(3) JBIC's assistance strategy and performance in the urban transportation sector</p> <p>JBIC's Medium-Term Strategy for Overseas Economic Cooperation Operations (April 2005) regards development of a foundation for sustained growth as a priority area to be implemented through the provision of assistance to the development of economic and social infrastructure. This strategy also specifies the development of urban functions, including environmental improvement,</p>

as a priority area for assistance extended to Thailand. This project will contribute to relieving traffic congestion and reducing air pollution in the Bangkok Metropolitan Area through the development of an efficient mass transit system and thus is consistent with this strategy.

III. Project Objectives and Outline

The aim of this project is to increase in traffic demand and mitigate traffic congestion in Bangkok Metropolitan Area by constructing new mass transit railway line, thereby contributing to urban economic development and environmental improvement.

IV. Project Description

1 . Target Area

Bangkok Metropolitan Area

2. Project Outline

Construction of the Purple Line mass transit railway (between Bang Sue and Bang Yai) in the Bangkok Metropolitan Area. Japanese ODA loan is financed for (1) and (4) below.

(1) Civil works including elevated structure, stations, depot, and park and ride buildings

(2) Procurement of Mechanical and Electrical facilities including track work, signaling and communications systems, electrification systems, and operation control center

(3) Procurement of rolling stock

(4) Consulting services (including construction supervision and environmental management planning)

3. Total Project Cost

241,198 million yen (Japanese ODA Loan Amount: 62,442 million yen [funds required up to December 2010 of the 111,284 million yen total loan amount])

4. Schedule

October 2007 – February 2013 (65 months). Project Completion was defined as the start of commercial operation.

5. Implementation Structure

(1) Borrower: Mass Rapid Transit Authority of Thailand (MRTA)

(2) Executing agency: Mass Rapid Transit Authority of Thailand (MRTA)

(3) Operation and Maintenance System: It is expected that the operation and maintenance of facilities following completion will be performed by a private sector company based on a concession agreement including system procurement.

6. Environmental and Social Considerations

(1) Environmental Impact/Land Acquisition and Resettlement

1) Category: A

2) Reason for Categorization: This project falls under category A because it concerns the railway sector and has characteristics that could have significant impact as given in Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Considerations (established April 2002)

3) Environmental Permit: Environmental Impact Assessment (EIA) was approved by the

National Environment Board (NEB) in January 2002 for the section between Bang Sue and Phra Nan Klao Bridge and in February 2007 for the section between Phra Nan Klao Bridge and Bang Yai.

4) Anti-pollution Measures: By taking such measures as erecting noise-blocking walls and tree planting in order to prevent air pollution, noise and other environmental impacts after the start of the project, it is expected that the project will satisfy Thailand's domestic environmental standards.

5) Natural Environment: The areas to be targeted by the project do not include areas easily affected such as national parks and their surrounding areas and it is expected that undesirable impacts on the natural environment will be minimal.

6) Social Environment: Concerning the resettlement of 498 residential households and the acquisition of sites of approximately 40ha, this project is moving forward with acquisition procedures through MRTA in line with site acquisition laws and other laws. Briefings for local residents in areas to be affected have been conducted by MRTA concerning site acquisitions and resettlement of residents and it has been confirmed that no particular objections exist.

7) Other/Monitoring: MRTA will monitor such impacts as noise, vibrations, and air quality for this project.

(2) Promotion of Poverty Reduction: None

(3) Promotion of Social Development (gender perspective, measures against infectious diseases such as AIDS, participatory development, consideration for the disabled and others):

- Measures against HIV/AIDS will be taken.
- Consideration will be given to disabled persons, the elderly and others (measures to avoid creating barriers to access and mobility)

7. Other Important Issues:

JICA Experts have been dispatched to the Office of Transport and Traffic Policy and Planning (OTP) of the Ministry of Transport in Thailand. Technical experts were also dispatched when construction of the existing Blue Line subway took place. Continuous dispatch of JICA experts is under consideration in order to take advantage of Japan's experience in construction and administration.

V. Output Targets

1. Evaluation Indicator (Operation and Effect Indicator)

Indicator name	Target (2015, 2 years after project completion)
Operating rate (%/year)	92
Running distance (1,000km/day)	31.7
Number of running train (runs/day)	246
Volume of passengers (passenger km/day)	1,816,546
Income from passenger (million baht/day)	6.49
Maximum speed (km/hour)	80

<p>2. Internal Rate of Return (Economic Internal Rate of Return)</p> <p>Based on the assumptions given below, the economic internal rate of return (EIRR) will be 13.2%. The financial internal rate of return (FIRR) will be a negative value.</p> <p>Cost: Project cost (excluding tax), operation and maintenance costs</p> <p>Benefit: Reduction in operating costs, saving of operating time</p> <p>Project Life: 30 years</p>
<p>VI. External Risk Factors</p>
<p>Stagnation/deterioration of the economy of Thailand and areas affected by project and natural disasters</p>
<p>VII. Lessons Learned from Findings of Similar Projects Undertaken in the Past</p>
<p>In the case of cities where roads are extremely congested and where there is high potential demand for elevated railways that are punctual and effective in reducing travel time, past ex-post evaluations of similar projects in the transportation sector recommended that studies for increasing the effectiveness of projects by stimulating potential demand should be conducted. This project will consider approaching the Government of Thailand through the project executing agency to urge (1) development of the area surrounding new stations; (2) coordination with bus services, which will compete with railways (including a review of operating routes and fares); (3) new bus services to and from new stations; (4) introduction of common tickets to encourage transfer between different modes of transportation such as subways, elevated railways, and buses.</p>
<p>VII. Plans for Future Evaluation</p>
<p>1. Indicators for Future Evaluation</p> <ul style="list-style-type: none"> (1) Operating rate (%/year) (2) Running distance (1,000km/day) (3) Number of running train (runs/day) (4) Volume of passengers (passenger km/day) (5) Income from passenger (million baht/day) (6) Maximum speed (km/hour) (7) Economic/financial rate of return <p>2. Timing of Next Evaluation</p> <p>Two years after project completion</p>