

Ex-Ante Evaluation (for Japanese ODA Loan)

1. Name of the Project

Country: The Republic of the Union of Myanmar

Project: East-West Economic Corridor Improvement Project

Loan Agreement: October 16, 2015

Loan Amount: 33.869 billion yen

Borrower: The Government of the Republic of the Union of Myanmar

2. Background and Necessity of the Project

(1) Current State and Issues of the International Trunk Roadway Development in Myanmar

In Myanmar, three routes serve as key international trunk roadways, namely the East-West Economic Corridor, which extends from Mawlamyine, a city in central Myanmar, to Thailand, Laos, and ultimately Da Nang City in central Vietnam; the Three Pagodas Pass, which is a route that runs from Yangon to Bangkok, following the former Thai-Burma Railway; and the Southern Economic Corridor, which extends from Dawei, a city in southern Myanmar, to Bangkok, Thailand, Cambodia, and ultimately Ho Chi Minh City in southern Vietnam.

According to the preparatory survey carried out for this project, trade volume is expected to rise significantly going forward (by 2035, exports will increase by 7 times (28 million tons) and imports by 40 times (17.58 million tons) compared to 2011) in conjunction with the establishment of the ASEAN Economic Community in 2015 and as a result of economic development in Myanmar that will spur an increase in the number of production bases while stimulating consumption. At present, regarding transportation between Myanmar and Thailand, maritime transportation accounts for 75% of imports and 56% of exports, except for exports of gas via pipelines, and the transportation distance is approximately 4,000 kilometers (between Bangkok and Yangon, via Singapore), requiring an average of 21 days. The overland transportation route connecting Myanmar and Thailand has been developed within Thailand, to Mae Sot at the border (420 kilometers), such that heavy vehicles can travel smoothly (currently, it is being widened from two lanes to four lanes). On the other hand, in the Myanmar portion (450 kilometers), there are many bottlenecks, including single-lane roads with steep slopes and sharp curves that go over mountains, bridges where weight limits have been imposed due to deterioration, roads that are submerged during the rainy season, and sections that go through towns, resulting in traffic congestion. . Consequently, transportation between Yangon and Bangkok (870 kilometers) takes approximately 3.5 days and is expensive (costing three times as much as maritime transportation). Improving this situation is an urgent task.

(2) Development Policies for the International Trunk Roadway Development in Myanmar and Priority of the Project

The Myanmar government's Ministry of Construction formulated the 30-Year Road Development Plan (2000, revised in 2010), which clearly states that it will focus on developing roadways connecting to neighboring countries. Regarding the East-West Economic Corridor, the plan positions roadway development between Myawaddy and Mawlamyine as one of the trunk roadways where the number of lanes will be expanded to two by 2015, and self-funded development is partially underway. Additionally, the National Transport Master Plan (hereinafter, the "National Transport M/P") formulated in 2014 with JICA support also positions the East-West Economic Corridor as one of five priority corridors.

Among the traffic bottlenecks along the East-West Economic Corridor, the Myanmar government gave highest priority to three large-scale bridges for which neither the Thai government or the ADB (Asian Development Bank) plan to provide assistance, and which appear difficult to address with Myanmar's available level of technology; the Myanmar government thus requested provision of a yen loan from the Japanese government. Myanmar has scheduled the remaining Thaton Bypass, Chakale Bypass, and Nawlon Bridge for development in the future.

(3) Japan and JICA's Policy and Operations in International Trunk Roadways

The economic cooperation policy for Myanmar that was announced on April 21, 2012 stipulates a policy of "assisting in the development of infrastructure and systems necessary for sustainable economic development." This project contributes to sustainable economic development by stimulating trade and promoting foreign direct investment by developing the East-West Economic Corridor, which is key for overland transportation with Thailand, and is therefore in line with the policy.

(4) Other Donors' Activities

(1) ADB assists in development of the corridor in Mekong region countries and is considering assisting the Myanmar portion of the East-West Corridor (roadway improvement in the Kawkareik/Eindu section). Myanmar private enterprise performs operation, maintenance, and management of the section west of Eindu, and plans to perform maintenance, management, and widening based on a contract with the Ministry of Construction (no overlap with this project).

The Thai government (Ministry of Transport, Department of Highways) is assisting the development of the corridor in order to strengthen connectivity with neighboring countries. Regarding the East-West Economic Corridor, they are developing bridges and bypasses at the Myanmar border as well as considering additional assistance (for the Myawaddy/Kawkareik section).

(5) Necessity of the Project

As described above, the project is consistent with Myanmar's agenda, the development policy, and the assistance priority areas of the Japanese government and JICA. Therefore, JICA's support in implementing the project is highly necessary and relevant.

3. Project Description

(1) Project Objectives

By rebuilding three bridges in the Mawlamyine/Kawkaireik section that hinder the smooth flow of traffic along the East-West Economic Corridor to Mawlamyine and the Thai border (Myawaddy), this project will address rising transportation needs along that stretch of road, making distribution of domestic and international goods more efficient and thereby stimulating trade with other countries in the Mekong region as well as promoting direct investment in Myanmar.

(2) Project Site/Target Area: Mon State, Kayin State

(3) Project Components

- 1) Construction of the new Gyaing Kawkaireik Bridge (bridge: approximately 850 meters, approach road: approximately 900 meters) and removal of the existing bridge (international competitive bidding)
- 2) Construction of the new Gyaing Zathabyin Bridge (bridge: approximately 900 meters, approach road: approximately 1,000 meters) and removal of the existing bridge (international competitive bidding)
- 3) Construction of the new Atran Bridge (bridge: approximately 800 meters, approach road: approximately 900 meters) and removal of the existing bridge (international competitive bidding)
- 4) Consulting services (detailed design, bidding assistance, construction supervision, technology transfer, etc.) (short-list method)

(4) Estimated Project Cost: 38.555 billion yen (Loan amount: 33.869 billion yen)

(5) Schedule

The project period will be from October 2015 to August 2023 (total of 90 months). Project completion is defined as completion of removal of the existing bridges (August 2023).

(6) Project Implementation Structure

- 1) Borrower: The Government of the Republic of the Union of Myanmar
- 2) Guarantor: N/A
- 3) Executing Agency: Department of Bridge, Ministry of Construction
- 4) Execution, Operation/Maintenance, and Management: Department of Bridge, Ministry of Construction

(7) Environmental and Social Considerations/Poverty Reduction/Social Development

1) Environmental and Social Considerations

(i) Category: B

(ii) Reason for Categorization: The project does not fall under the category of large-scale harbors, transmission lines, substations, and distribution lines for the power sector as specified in the "Japan International Cooperation Agency Guidelines for Environmental and Social Considerations" (issued in April 2010, hereinafter, the "JICA Guidelines"), and is deemed to have minimal adverse impacts

on the environment. In addition, the project does not have any characteristics likely to cause an impact or areas that are susceptible to impacts as specified by the JICA Guidelines.

- (iii) Environmental Permits: Myanmar's domestic laws do not require preparation of an Environmental Impact Assessment (EIA) report concerning the project.
 - (iv) Anti-Pollution Measures: During construction work, measures such as use of equipment with low dust emissions as well as water sprinkling, appropriate wastewater treatment, use of soundproof walls, and exercising restraint in nighttime construction will be taken. After the facilities are placed into service, the impact of noise and vibrations as well as air pollution will be mitigated by speed limits, etc., thereby minimizing the negative impacts on the environment.
 - (v) Natural Environment: The project's target area is not a sensitive area such as a national park, nor nearby such an area; therefore, adverse impacts on the natural environment are expected to be minimal.
 - (vi) Social Environment: The involuntary relocation of 42 residents and land acquisition of approximately 8.4 ha are expected. Based on the simple resettlement plan created in accordance with the JICA Guidelines for Environmental and Social Considerations, appropriate compensation and relocation will occur. During the discussions with residents, there have been no strong dissenting opinions against project implementation.
 - (vii) Other/Monitoring: During construction and after the facilities are in service, water quality, air quality, and noise/vibrations, etc. will be monitored. The construction company will perform monitoring during construction and the executing agency will perform monitoring while in service.
- 2) Promotion of Poverty Reduction: None
 - 3) Promotion of Social Development (e.g. Gender Perspectives, Measures for Infectious Diseases including HIV/AIDS, Participatory Development, Considerations for People with Disabilities, etc.): None
- (8) Collaboration with Other Donors: None

4. Target Outcomes

(1) Quantitative Effects

1) Performance Indicators (Operation and Effect Indicators)

Indicator		Baseline (Recorded in 2014)	Target (2024) 【1 year after completion】
Gyaing Kawkareik Bridge	Daily traffic (vehicles/day)	1,794	10,490
	Daily traffic (PCU ^{*1} /day)	2,410	14,500
Atran Bridge	Daily traffic (vehicles/day)	1,176	7,270
	Daily traffic (PCU/day)	1,485	10,400
Gyaing Zathabyin Bridge	Daily traffic (vehicles/day)	1,176	6,930
	Daily traffic (PCU/day)	1,485	9,830
Driving time between Mawlamyine/Kawkareik (via Eindu)	Time	2.39	2.04

*1: PCU definition: Passenger Car Unit

(2) Qualitative Effects: Stimulation of trade, promotion of direct investment

(3) Internal Rate of Return: Based on the following preconditions, the Economic Internal Rate of Return (EIRR) is 16.2%. (Since there will be no toll collection, the FIRR (Financial Internal Rate of Return) was not calculated.)

【EIRR】 Costs: Project costs (excluding taxes), operation/maintenances; Benefits: Reduced travel costs, reduced travel times; Project life: 20 years

5. External Factors and Risk Control

- Completion of roadways with assistance from Thailand and the ADB according to plan; appropriate operation, maintenance, and management
- Appropriate operation, maintenance, management; widening of the roadways (operated by private enterprises) around the bridges targeted by this project

6. Lessons Learned from Past Projects

(1) Results of Evaluations of Similar Past Projects

In the ex-post evaluation of a similar project, the "Second Magsaysay Bridge and Butuan City Bypass Road Construction Project" in the Philippines, problems related to design and supervision of construction work were identified, such as ground subsidence due to soft ground at the approach to the bridge, potholes that emerged on the road over the bridge,

and the bypass road becoming impassable due to overflowing of rivers during heavy rains.

(2) Lessons for the Project

For this project, a ground/geological survey will again be carried out during detailed design, and the design will enable a 50-year flood to be withstood.

7. Other

(1) Indicators to Be Used in Future Evaluations

- 1) Daily traffic volume (PCU/day)
- 2) Required time (minutes)
- 3) Economic Internal Rate of Return (EIRR) (%)

(2) Timing of the Next Evaluation

One year after project completion