Japanese ODA Loan

Ex-Ante Evaluation (for Japanese ODA Loan)

1. Basic Information

Country: The Republic of Ghana

Project: Construction of a New Bridge across the Volta River on the Eastern Corridor Project

Loan Agreement: December 5, 2016

2. Background and Necessity of the Project

(1) Current State and Issues of the Transportation Sector in Ghana

Economic Community of West African States (ECOWAS) is developing an international corridor in order to integrate the region's economy. In Ghana, transit cargo for landlocked countries and its neighboring countries have been increasing in recent years. This is partly due to the political instability in Ghana's neighboring country, Cote d'Ivoire. The social and economic importance of domestic transport in Ghana is becoming increasingly important as a lifeline for landlocked countries in West Africa. In Ghana, road transportation accounts for approximately 95% of the country's total cargo transport out of road, rail, water and air transportation. Against the backdrop of recent high economic growth, the necessity to widen and extend roads is rapidly increasing to accommodate the increase in the volume of logistics. The north-south corridor runs from the coastal region of Ghana to its northern region and extends to Burkina Faso. Currently, only the Central Corridor (Accra–Paga border) is almost fully paved. However, this corridor is relied upon for all logistics and transport, and has sustained significant damage. In addition, traffic is always congested around Accra (the capital) and Kumasi (the second largest city). To combat these issues, the Ghanaian Government is advancing corridor development by prioritizing the Eastern Corridor (Tema–Kulungugu border) and the Western Corridor (Elubo–Hamile border). Particularly, the Eastern Corridor connects the Port of Tema (the largest port in Ghana) with the Burkina Faso border. It is the shortest route and does not pass through the urban areas of Kumasi, which suffer from heavy congestion. Its development has been given high priority since this corridor is expected to substantially reduce transportation times. However, a load limit has been imposed on the Adomi Bridge, a part of the Eastern Corridor and which spans the Volta River, due to structural deterioration. It has become a

logistics bottleneck in the Eastern Corridor, and urgent countermeasure must be taken.

(2) Development Policies for the Transportation Sector in Ghana and the Priority of the Project

Ghana's medium-term national development policy, "Ghana Shared Growth and Development Agenda: 2010–2013," specifies infrastructure construction as one of five priority areas. In 2008, Ghana established the National Transport Policy, stating strategic goals such as becoming a traffic hub of the West African region and achieving sustainable growth. The Construction of a New Bridge across the Volta River (hereafter referred to as "the Project") plans to construct a new bridge spanning the Volta River in the Eastern Corridor (National Trunk Road N2). The Ghanaian Government places the highest priority on the development of the Corridor, and the bridge will enhance the transportation capacity of the Eastern Corridor and vitalize international logistics among neighboring countries. The Project is consistent with the policies of the Ghanaian Government.

(3) Other Donors' Activities

- World Bank, EU: Construction of roads, etc. for the Western and Eastern Corridors
- African Development Bank (AfDB): Construction of roads, etc. for the Accra capital region and its suburbs
- Emerging donors: Construction of roads, etc. for the Eastern Corridor (China, Brazil, and other countries)

3. Project Description

(1) Project Objective

The Project involves the construction of a new bridge spanning the Volta River in the Eastern Corridor, which connects the Port of Tema (the largest port in Ghana) and Kulungugu (the Burkina Faso border). It will enhance the transportation capacity of the region and vitalize logistics between the southern and northern regions of Ghana. It will also improve international logistics and trade with Burkina Faso and other countries, contributing to Ghana's sustainable economic growth.

(2) Project Site/Target Area: Eastern Region (Volta Province) (Eastern Corridor and Volta River)

(3) Project Components

1) Construction of a new bridge (large two-lane cable-stayed bridge of

approximately 520 m) and an approach road (two-lane road of approximately 1 km) in the Eastern Corridor (National Trunk Road N2) (international competitive bidding)

2) Consulting service (review of detailed design, bidding assistance, supervision over construction, etc.) (by a short-list system)

(4) Estimated Project Cost/Approximate Loan Amount:

15,027 million yen (Loan amount: 11,239 million yen)

(5) Schedule

From March 2016 to January 2023 (83 months in total)

The Project will complete when all the facilities are put into service (January 2022).

(6) Project Implementation Structure

1) Borrower: The Government of the Republic of Ghana

2) Guarantor: None

3) Executing Agency: Ghana Highway Authority

4) Operation and Maintenance System: Ghana Highway Authority

(7) Cooperation with Other Projects, Other Donors, etc. and Independent Activities

1) Assistance from Japan

By grant aid cooperation, Japan provided support for the "Construction of Small Scale Bridges (1996)," the "Construction of Small and Medium Scale Bridges (2001–2003)," and the "Rehabilitation of Trunk Road (2002–2006)." The country is currently supporting the "Rehabilitation of National Trunk Road N8 (2009–2013)." As part of its loan aid, Japan provided support for the "Industrial Road Repair Project (1987)," the "Kumasi–Paga Road Repair Project (1990)," "Rehabilitation of Trunk Road Phase 1 (1996)," and other projects. We expect that the Project and the results of this assistance will bring about synergistic effects.

2) Assistance by other donors, etc.: AfDB will finance the construction of the approach road to the new bridge.

(8) Environmental and Social Consideration/Poverty Reduction/Social Development

1) Environmental and Social Consideration

① Category: B

② Reason for Categorization: The Project is not considered to be a large-scale bridge project, is not located in a sensitive area, and has none of the sensitive characteristics under the "Guidelines for Environmental and Social Considerations of the Japan International Cooperation Agency"

(announced in April 2010), it is not likely to have significant adverse impact on the environment.

③ Environmental Permit: An Environmental Impact Assessment (EIA) report on the Project has already been submitted to the Environmental Protection Authority. Checking and approval procedures are underway.

④ Anti-Pollution Measures: Mitigation measures will be taken, such as by sprinkling water, treating seepage-water, planting trees, and placing speed regulation on vehicles. By doing so, the impacts forecast to occur during construction and service operation are expected to satisfy the domestic criteria.

⑤ Natural Environment: The target region of the Project is not in or near any national parks or other areas that may easily be affected by the Project. Accordingly, the Project is supposed to have only minimum undesirable impact on the natural environment.

⑥ Social Development: The Project needs a land acquisition of approximately 9 ha, but no resettlement is expected. The acquisition will be implemented according to the "Guidelines for Environmental and Social Considerations of the Japan International Cooperation Agency (April 2010)" and domestic procedures of Ghana.

⑦ Other/Monitoring: For the Project, the contractor will monitor air quality, noise.

2) Cross-cutting Issues

Since the Project is infrastructure construction project in a region with a high HIV/AIDS infection rate, implementation of countermeasures against AIDS will be included in the contract with the contractor.

3) Gender Category: "(GI) Project of Survey and Analysis of Needs for Gender Mainstreaming"

(9) Other Important Issues

Detailed design is under implementation by technical support on onerous account (i) Survey content: Baseline evaluation, measurement, structural calculation, drawing, estimation of approximate construction costs, creation of draft bid documents, etc.: ii) Survey period: May 2014 to March 2016 (approximately 23 months))

4. Targeted Outcomes

(1) Quantitative Effects

1) Outcomes (Operation and Effect Indicators)

Indicator (Draft)	Baseline	Target [Expected value 2 years after project completion]
Average traffic volume (vehicles/day)	4,540 (the Adomi Bridge in 2012)	15,353 (5,925 for the Adomi Bridge and 9,428 for the new bridge)
Time required to travel between the Asutsuare Junction and the Asikuma Junction (min)	67 min (via the Adomi Bridge)	50 min (via the new bridge)

2) Impact: Reduction in travel time

(2) Qualitative Effects

Economic growth, improvement of the road traffic network, economic integration of the West African region, and vitalization of trade

(3) Internal Rate of Return (IRR)

The economic internal rate of return (EIRR) of the Project is calculated to be 15.39% on the following premise. Since tolls are not collected, its financial internal rate of return (FIRR) is not calculated.

[EIRR]

Cost: Operating cost (excluding taxes)

Benefit: Reduction in transport time and cost

Project Life: 30 years

5. Preconditions and External Factors

1) The effects of the Project will not be brought about until the following are satisfied: that AfDB's financing is decided before the Exchange of Note (E/N) and Loan Agreement (L/A) of the Project; and that, the approach road to the new bridge come into service before the bridge comes into service. Therefore, it is necessary to keep in close contact with AfDB to have a handle on progress.

2) No Japanese ODA Loan projects have been implemented in Ghana for a long time, and GHA has no experience in supervising the construction of a cable-stayed bridge. Accordingly, it is necessary to consider following up by dispatching a short-term procurement support expert. This expert will support the procurement activities taken by a construction supervisory consultant, and technical cooperation so that procedures for borrowing and procurement, in addition to maintenance and management will appropriately be deal with.

6. Lessons Learned from Past Projects

(1) Findings from Past Projects: The Study Council on Preventing the Recurrence of the Can Tho Bridge Collapse Accident compiled "Improvements Required of Project Management for Japanese ODA Loan Projects and Recommendations on Preventing the Recurrence of the Accident" on the collapse accident in the "Cuu Long (Can Tho) Bridge Construction Project" in Vietnam. According to the recommendations, it is important to provide support for enhancing the safety management capability of the governments of borrowing countries and project implementation-organizations. As such, it is necessary to provide safety management training and the like.

(2) Lessons for the Project: GHA has no experience in the maintenance and management of a cable-stayed bridge. To prevent accidents, their ability to perform safety management through supervising the construction and monitoring of the foundations and structures needs to be enhanced. Accordingly, it is necessary to consider providing OJT at the construction stage, training in Japan, and the like in order to enhance the safety management ability of the implementing organizations to supervise construction, monitoring, and other operations.

7. Findings

The Project involves the construction of a part of the Eastern Corridor, which will contribute to the vitalization of physical distribution and trade in Ghana and its neighboring countries. The Project is consistent with Ghana's policies on issues and development and Japan's aid policies. Accordingly, it is highly necessary for JICA to support the implementation of the Project.

8. Plan for Future Evaluation

(1) Indicators to be used

1) Average traffic volume (vehicles/day)
2) Time (min) required to travel between the Asutsuare Junction and the Asikuma Junction

(2)Schedule

Criteria for the number of passengers and the amount of freight transportation will be determined two years after the project completion, and evaluation will be performed according to the criteria.