Internal Ex-Post Evaluation for Grant Aid Project

conducted by Malawi Office: December 2016

Country Name	The Project for Replacement of South Rukuru Bridge on the Main Road M001
Republic of Malawi	

I. Project Outline

Background	The Main Road M001 (M1) is a trunk route of Malawi with total length of 1,108 km traversing the country from Songwe bordering Tanzania to Marka bordering Mozambique. It not only plays a critical role for domestic distribution of goods but also serves as an international artery to support distribution from and to Tanzania, Mozambique, Zambia and Republic of South Africa. The existing Rukuru Bridge was a one-lane bridge despite its location over M1, causing a bottleneck in traffic and distribution of goods. It was a temporary structure (a Bailey bridge), which became decrepit after more than 30 years of use. As a result, the speed limit (10 km/h) and load restriction (16.3 tons as design load) had been imposed. In addition, the South Rukuru River running beneath the Rukuru Bridge was joined by the tributary Lura River at a location 30 m upstream from the present bridge and the site around the bridge was filled with deposits of boulders and driftwood from the Lura River, severely damaging the bridge piers. Against the background, the Government of Malawi requested the Government of Japan for a grant aid for construction of a new bridge to replace the Rukuru Bridge.				
Objectives of the Project	To ensure smooth traffic and eliminate traffic bottleneck in crossing the South Rukuru River by replacing the existing Rukuru Bridge to the South Rukuru Bridge on M1, thereby contributing to growth in traffic volume as well as improvement of distribution of goods through M1.				
Contents of the Project	1. Project Site: Rumphi District, Northern Region 2. Japanese side: Construction of a reinforced concrete bridge (2 lanes), Bank protection work, Construction of access roads, Installation of sidewalks, Removal of boulders and driftwood associated with bridge construction, etc. 3. Malawian side: Building demolition/relocation, Land acquisition, Land renting, Surveillance of general construction sites, Withdrawal of the existing bridge, etc.				
Ex-Ante Evaluation	2009	E/N Date	17 February 2010 (Phase I) 30 March 2012 (Phase II)	Completion Date	31 July 2012 (Phase I) 12 December 2012 (Phase II)
		G/A Date	22 March 2010 (Phase I) 12 April 2012 (Phase II)		
Project Cost	E/N Grant Limit / G/N Grant Limit: 883 million yen (Phase I); 111 million yen (Phase II) Actual Grant Amount: 851 million yen (Phase I); 109 million yen (Phase II)				
Implementing Agency	Roads Authority				
Contracted Agencies	Central Consultant Inc., Dai Nippon Construction				

II. Result of the Evaluation

1 Relevance

<Consistency with the Development Policy of Malawi at the time of ex-ante and ex-post evaluation>

The project was consistent with Malawi's comprehensive national strategy "Malawi Growth and Development Strategy (MGDS)" (2006-2010) which aimed to ensure sustainable economic growth through infrastructure development as a step to poverty reduction and in which the transport development was placed as one of the six key priority areas. Under the current MGDS II (2011-2016), the transport infrastructure is categorized as one of the nine key priority areas and road infrastructure is also sub-categorized as one of the most important modes of the transport sector.

<Consistency with the Development Needs of Malawi at the time of ex-ante and ex-post evaluation>

The project has been consistent with Malawi's road transport needs that safe, highly-efficient and economical transport services in key corridors should be established.

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

The project was consistent with Japan's ODA basic policy towards Malawi (2009), which placed the transportation infrastructure development as one of the priority areas.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Effectiveness>

The project achieved its objective. As for one of the quantitative indicators "vehicle weight allowance of the South Rukuru Bridge," the weight allowance achieved 43 tons against the target of 43 tons. Although the exact data on this indicator could not be obtained at the ex-post evaluation since it requires a technical quantity survey, an acceptable weight of the Bridge was designed with a maximum load of 43 tons at the planning of the project and the weight allowance of constructed bridge should be 43 tons. As for another indicator "average traveling speed on the Bridge," the average speed is estimated to be approximately 40 km/h against the target of 60 km/h. Although the exact data on this indicator could not be obtained at the ex-post evaluation as well, the figure was estimated based on the interview with the Traffic Section of Rumphi District of Malawi Police Services as well as the result of actual measurement during site survey of the ex-post evaluation. One reason why the average speed does not reach 60 km/h as the target figure is that there are sharp bends on the approach (access road) to the Bridge and drivers need to reduce their speed before the Bridge. Another reason is that according to the Traffic Section of Rumphi District of Malawi Police Services, the speed limit is regulated under 50 km/h when drivers pass through the area so that the original target should have been set as less than 50 km/h. Considering these facts, this indicator can be judged as 'mostly achieved' since the average traveling speed on the Bridge increased from 10 km/h before the project to 40 km/h after the project.

Regarding the qualitative effects of the project, according to the interviews with four drivers who was crossing the South Rukuru Bridge

as well as eight local residents who live around the area at the field survey of the ex-post evaluation, traffic congestions on the Bridge have never happened since the project completion. While traffic congestions on the old Rukuru Bridge were usually caused by single lane which allowed only one vehicle at a time, two vehicles can cross the new South Rukuru Bridge from both directions now. In addition, according to the interview with local residents, the risk of accidents around the Bridge has reduced significantly owing to installation of sidewalks. The Rumphi Police Station also indicated that no traffic accident had been reported since the Bridge was constructed. Furthermore, according to the Roads Authority, raising the height of bridge and access roads by 2.5m and conducting bank protection works have mitigated flood damage.

<Impact>

Regarding the growth in traffic volume and improvement of distribution of goods through M1, any clear evidence on the expected impact of the project could not be obtained at the ex-post evaluation. According to the traffic survey[1] conducted for this ex-post evaluation, approximately 30 vehicles per hour on average passed the South Rukuru Bridge, which are almost the same volume of traffic obtained at the traffic survey conducted at the ex-ante evaluation and it means the traffic volume has been maintained after the project. On the other hand, according to an interview with three grocery stores in the neighborhood of the Bridge, they reduced their business sales after the new bridge was constructed since they used to have more sales because of stranded drivers and passengers by the frequently broken down bridge, but in reality the number of grocery stores increased from five at the time of the ex-ante evaluation to more than 10 at the time of ex-post evaluation. In fact the parking bay was placed around the Bridge with a view to maintaining their commercial opportunities.

At the ex-ante evaluation, removal of four buildings (not residences) and land acquisition around the Bridge were planned to be made due to the project and the compensation for the removed buildings and land acquisition was to be dealt with in accordance with the relevant laws and regulations of Malawi. According to the Roads Authority, the number of affected households was 17 in the end and the compensation to them was properly made in accordance with the laws and regulations of Malawi. The District Commissioner's office of Rumphi also mentioned that they used the same formula prepared by the Ministry of Lands and Housing in compensating people in similar situations across the country. On another front, no negative impact on natural environment has been observed in the project[2].

<Evaluation Result>

In light of the above, a certain effect of the project has been observed. Therefore, the effectiveness/impact of the project is fair.

Quantitative Effects

Indicators	Baseline 2009 Baseline Year	Target 2013 Completion Year	Actual 2013 Completion Year	Actual 2014 1 Year After Completion	Actual 2015 2 Years After Completion	Actual 2016 3 Years After Completion
Indicator 1 Vehicle weight allowance of the Bridge	16.3 tons	43 tons	43 tons	43 tons	43 tons	43 tons
Indicator 2 Average traveling speed on the Bridge	10 km/h	60 km/h	N.A.	N.A.	N.A.	Approximately 40 km/h

Source: JICA internal documents, interview with the Traffic Section of Rumphi District of Malawi Police Services and drivers passing the Bridge

3 Efficiency

This project consists Phase I and II. Some construction works such as bank protection, part of ditch digging, asphaltic pavement and lane marking were cut out of Phase I as a consequence of readjustment of the original project scope due to a delayed schedule as well as an increase in the project cost. The cancelled works at Phase I, however, were constructed and completed in Phase II and the final project outputs produced by Phase I and II were as planned.

Based on the above, the planned project cost was 883 million yen (Phase I only) and the actual cost was 960 million yen (including Phase I and Phase II) (ratio against the plan: 109%). Due to rapid escalating prices of construction material as well as fuel from 2011 onward, the project cost exceeded the plan. The planned project period was 26 months (Phase I only) and the actual period was 33 months (including Phase I and Phase II) (ratio against the plan: 127%). Due to a worsening situation of fuel shortage in Malawi from the beginning of 2011, the construction work was also significantly delayed, resulting in a seven-month delay in total.

In light of the above, the efficiency of the project is fair.

4 Sustainability

<Institutional Aspect>

The Roads Authority under the Ministry of Transport and Public Works is in charge of construction, maintenance and inspection of roads and bridges throughout the country. The Roads Authority has three regional offices namely Northern, Central and Southern, and the Northern Region Office is in charge of maintenance of the South Rukuru Bridge. The Northern Region Office had five civil engineers and three inspectors at the time of ex-ante evaluation and has eight qualified engineers including inspectors at the time of ex-post evaluation. The actual maintenance works for the South Rukuru Bridge and access roads have been undertaken by private companies contracted by the Roads Authority on a need basis and according to the Northern Region Office, the present number of engineers is sufficient to manage the regular maintenance works of the Bridge and the inspection of the Bridge has been actually conducted under these engineers on a monthly basis.

<Technical Aspect>

[1] The survey was conducted for two days during 12:00-14:00 hours on 15 June 2016 and 9:00-12:00 hours on 16 June 2016.

[2] There was a consideration on the issue of sexually transmitted diseases (STD) caused by construction workers of the project at the ex-ante evaluation and some measures on this issue had been actually taken during the project period: e.g. a workshop on HIV/AIDS prevention was organized collaborating with the Japan Overseas Cooperation Volunteers (JOCV) deployed around the Rumphi area, and contraceptive devices, enlightening pamphlets and posters on prevention of STD were distributed at the project office. Although no statistical and quantitative evidence which verifies the casual relationship on this issue was found at the ex-post evaluation, according to the interview with local residents, they indicated that promiscuity and marital problems had happened around the Rumphi area during the construction works of the Bridge since many construction workers came from outside the area.

The civil engineers of the Northern Region Office have good knowledge on the maintenance of roads and bridges. According to an interview with these engineers at the ex-post evaluation, they are competent in undertaking their tasks and conducting regular inspection. In addition, the Roads Authority has a training plan which assures improvement of technical skills on their works: e.g. they have been dispatching the staff to the training program offered by donor agencies such as EU, World Bank and JICA. For instance, some staff from Roads Authority joined the JICA's training programs such as "Road Maintenance and Management" and "Comprehensive Bridge Engineering."

<Financial Aspect>

The maintenance works required after the completion of South Rukuru Bridge consist of daily inspection, cleaning and repair, the cost of which was estimated to be 3,780,000 MKW on the annual average at the ex-ante evaluation. While there had been no budget allocation for the maintenance of the South Rukuru Bridge in the first two years after the project completion since the Bridge was still new, the amounts allocated in subsequent years were 7,542,000 MKW in FY2014/15 and 12,570,000 MKW in FY 2015/16, which are more than the planned annual budget.

<Current Status of Operation and Maintenance>

The Roads Authority has carried out the following maintenance activities of the South Rukuru Bridge: 1) removal of sand and dirt accumulating in bridge deck, drain pipes, areas around bearings, gutters and other drain facilities; 2) inspection and repair of bank protection and riverbed protection works after floods, 3) removal of boulders, driftwood, etc. after floods; 4) weeding of road shoulders and slope surfaces. Although there was no major damage observed at the Bridge and access roads by the field survey of ex-post evaluation, some small manhole covers of drainage ditches and an ODA signboard got stolen after the project completion. These items have not been replaced after the theft due to the following reasons; the function of bridge itself has not been affected by their absences, there has been no serious effect on vehicles and pedestrians passing the Bridge, and appropriate materials for them have not been in stock at the Roads Authority.

<Evaluation Result>

In light of the above, no problem has been observed in terms of the institutional/technical/financial/current status of operation and maintenance aspects of the implementing agency. Therefore, the sustainability of the project effect is high.

5 Summary of the Evaluation

The project achieved its objective, to ensure smooth traffic and eliminate traffic bottleneck in crossing the South Rukuru River. Although the exact data on the quantitative indicators could not be obtained at the ex-post evaluation, with the increases in vehicle weight allowance of the South Rukuru Bridge as well as in average traveling speed on the Bridge, it is confirmed that the problem of traffic congestions on the Bridge has been resolved with two lanes and that the risk of traffic accidents of pedestrians has been also reduced with sidewalks. However, any clear evidence on the expected impact such as growth in traffic volume and improvement of distribution of goods through M1 could not be obtained at the ex-post evaluation. Regarding the sustainability of the project, no problem has been observed in the institutional, technical and financial aspects of the Roads Authority and no major damage was observed at the current Bridge and access roads at the time of ex-post evaluation. On the other hand, the project cost as well as project period exceeded the plan due to a worsening situation of fuel shortage in Malawi from 2011 onward and rapid escalating prices of construction material and fuel accordingly.

Considering all of the above points, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Lessons learned for JICA:

- The exact data on the quantitative indicators as well as on project impacts could not be obtained at the ex-post evaluation and it was difficult to evaluate especially the project impacts based on clear evidences. JICA and the implementing agency should make a consensus at the time of ex-ante evaluation on the contents of quantitative indicators to be set to measure the project's effects and when, who and how often the data on indicators should be collected. JICA also should properly inform the implementing agency that the ex-post evaluation of the project is to be conducted three to five years after the project completion and the implementing agency is responsible for providing the data on the set indicators. In addition, JICA should regularly check whether the implementing agency is monitoring the data on indicators. In case they are not monitoring or the set indicators themselves are not adequate, it is important to consider a solution after discussion with the implementing agency.

South Rukuru Bridge

Interviewing with a truck driver who passed the Bridge