

Country Name	The Project for Reconstruction of Bridges in Chui Oblast
Kyrgyz Republic	

I. Project Outline

Background	Road traffic is very important in Kyrgyz as it had 90% share of freight and passenger transportation. In addition, international trunk road in Kyrgyz is a part of Asian highway network contributing to smooth distribution and economic growth in all Asia. However, the road infrastructures, including the project target bridges, were built in the former Soviet period, and they were not rehabilitated and reconstructed sufficiently due to economic stagnation after the independence in 1991.				
Objectives of the Project	To secure safe and stable traffic by replacing the heavily damaged bridges located on international trunk roads.				
Outputs of the Project	<ol style="list-style-type: none"> 1. Project Site: Chui Oblast 2. Japanese side: (1) Replacing the existing Alamedin bridge (Bridge No.1) with a new bridge (42.0m), pavement of approach road and revetment, (2) Replacing the existing Ala-Archa bridge (Bridge No.2) with a new bridge (28.0m), pavement of approach road and revetment, and (3) Replacing the existing Ken-Bulun bridge (Bridge No.14, only outbound) with a new bridge (23.4m), pavement of approach road 3. Kyrgyz Side: (1) to install the distribution facility of public electric to the temporary yard and (2) to secure land for temporary offices, construction works, storage yards and others. 				
Ex-Ante Evaluation	2007	E/N Date	(1) 3 October 2007 (2) 19 February, 2009 ¹	Completion Date	13 January, 2011
Project Cost	E/N Grant Limit : (1) 476 million yen (2) 635 million yen, Actual Grant Amount: 669 million yen				
Implementing Agency	Department of Roads, Ministry of Transport and Communications (MOTC)				
Contracted Agencies	Katahira & Engineers International and Iwata Chizaki, Inc.				

II. Result of the Evaluation

1 Relevance

This project has been highly relevant with Kyrgyz's development policies and development needs at the time of both ex-ante and ex-post evaluation. Development policies such as Country Development Strategy (CDS) (2006-2010) and National Sustainable Development Strategy of the Kyrgyz Republic (2013-2017) set the transport sector as one of the most prioritized areas and focus on improvement of road network. There have been development needs for rehabilitating the target three bridges on international trunk roads which play an important role for transportation of goods and people. The project is also consistent with Japan's ODA policy at the time of ex-ante evaluation as one of the priority fields of Japanese ODA for Kyrgyz was the improvement/establishment of economic infrastructures including road infrastructure. Therefore, relevance of this project is high.

2 Effectiveness/Impact

The project has largely achieved its objective to secure safe and stable traffic by replacing the heavily damaged bridges located on international trunk roads. As a result of the replacement of the old bridges, the loading capacity has increased as planned in all bridges (Indicator 2, 4, 6). In case of Alamedin bridge and Ala-Archa bridge, the passing speed on the both bridges also has increased as planned because of the flat surface after the replacement (Indicator 1, 3). In case of Ken-Bulun bridge, the traffic capacity has increased as planned as the width of the bridge was expanded (Indicator 5). At the time of ex-post evaluation, all three bridges are used with the increase of traffic volume of all types of vehicles². Before the project implementation, the traffic volume at Alamedin bridge and Ala-Archa bridge was 13,981 vehicles/day and 8,224 vehicles/day (2005) respectively, while the traffic volume after the project completion has increased to 29,106 vehicles/day³ (2014). The traffic volume per day at Ken-Bulun bridge, which is 8,850 vehicles/day in 2005, had also increased after the project completion, but it has decreased after the rehabilitation of a by-pass road which is located parallel to AH61 (Asian Highway where Ken-Bulun bridge is located) in 2013. The traffic volume per day at the time of ex-post evaluation (2014) is 8,174 vehicles/day, which is below the level before the project implementation.

All bridge users interviewed during the site survey including truck drivers, passenger car drivers and users of mini-buses noticed the increase of passing speed, the absence of traffic jams and the stability while passing the Alamedin bridge and the Ala-Archa bridge. Some drivers on Alamedin bridge told that if the bridge was not rehabilitated, they would not be able to



The Alamedin Bridge

¹ Due to the unsuccessful bidding, the consultant contract was terminated by completing the bidding documentation. After the termination of the above-mentioned consultant contract, the implementation review study was carried out in 2008 to re-examine the content and cost of the project; and another E/N was signed accordingly.

² The traffic volume data before the project is based on the survey by the World Bank conducted in 2005. The traffic volume at the time of ex-post evaluation was counted by the following measures: For Alamedin bridge and Ala-Archa bridge, collection point was 234km of Almaty-Bishkek-Tashkent Road (Asian Highway 5) and the data was counted on March 31, 2014, for 24 hours. For Ken-Bulun bridge, collection point was 57km of Bishkek-Naryn-Torugart Road (Asian Highway No.61) and the data was counted on April 7, 2014, for 24 hours.

³ The traffic data after the project completion was collected by MOTC's DEP 39 in April 2014 on 234km of Almaty-Bishkek-Tashkent Road, which is the middle point between two bridges. (The distance between the two bridges is 4 km).

avoid huge traffic jams under ongoing traffic volume. As for Ken-Bulun bridge, both Traffic Police Data and interviews with DEP 954 confirmed the decrease of traffic accidents⁴ from approximately 5-6 accidents (2007) to 1 accident during 2011-2013. For pedestrians, improved bridges' sidewalks as well as special protecting concrete walls that were newly constructed under the project have ensured safety pass. As for Ken-Bulun bridge, residents nearby mentioned that pedestrian's safety on this section is critically important because the bridge is located on the road along the two villages, Ken-Bulun and Drujba villages, and used by the villagers of the two villages including children for their commuting roads⁵.



Painted and repaired shoulder in the Ken-Bulun bridge

As for impacts, freight traffic has increased along Almaty-Bishkek-Tashkent road where Alamedin and Ala-Archa bridges are located (5,444 trucks/day in 2014)⁶ partly because of the better road and the bridge conditions after the project's rehabilitation. In addition, the neighboring residents noticed improvement of their access in overall not only to the nearest facilities, like bazaar, but also to places (home, work, etc) on the way by passing the bridge. As for Ken-Bulun Bridge, the access to education and health facilities has improved since the bridge is located on the road along two villages, Ken-Bulun and Drujba, where the villagers go and down the bridges to use most of those basic services.

No land acquisition occurred under this project, and no negative impacts on natural environment were observed. According to DEPs, there is a positive impact of cost savings of prevention measures against spring flooding which took place annually before the project implementation, as there was a high risk that old bridges' are destroyed. Additionally, capacity building of local construction companies and MOTC was mentioned as a positive impact appeared under the project during the Interview with MOTC. MOTC appreciates that it was a very good chance and practice for both local contractors and for MOTCs organizations to learn the Japanese technologies in bridge construction.

Therefore, the effectiveness/impact of this project is high.

Quantitative Effects

Indicator	Year 2007 (before the project) Actual value	Year 2009 (target year) Target value	Year 2011 (year of completion) Actual value	Year 2014 (ex-post evaluation year) Actual value
Alamedin bridge				
Indicator 1: Increase of vehicle speed for crossing the bridge	5km/hour	60km/hour	Not less than 60km/hour	Not less than 60km/hour
Indicator 2: Loading capacity	27.1t	40.9t	40.9t	40.9t
Ala-Archa bridge				
Indicator 3: Increase of vehicle speed for crossing the bridge	10km/hour	60km/hour	Not less than 60km/hour	Not less than 60km/hour
Indicator 4: Loading capacity	23.5t	40.9t	40.9t	40.9t
Ken-Bulun bridge (Outbound)				
Indicator 5: Increase of traffic capacity	1,900 vehicles /hour	2,270 vehicles /hour	2,270 vehicles /hour	2,270 vehicles /hour
Indicator 6: Loading capacity	28.4t	40.9t	40.9t	40.9t

Source: (Year 2007 and 2009) Basic Design; (Year 2011 and 2014) Interviews with DEP 39 and DEP 954, and actual measuring during the site survey on June 6, 2014

3 Efficiency⁷

Although the outputs were produced as planned, both the project cost and the project period exceeded the plan (ratio against the plan: 141%, 217%). The project cost exceeded the plan due to an unexpected and unavoidable price escalation which derived from rise of oil price and construction materials and machinery prices in the Middle East and Russia. The project period was extended due to the rebidding caused by the unsuccessful bidding as well as due to the civil unrest that occurred in 2010. Therefore, efficiency of this project is low.

4 Sustainability

The operation and maintenance (O&M) of the bridges has been carried out by MOTC (DEP 39 is responsible for the Alamedin bridge and Ala-Archa bridge, and DEP 954 is responsible for the Ken-Bulun bridge)⁸. Both DEPs carry out daily inspection and routine maintenance including patching, pavement, and cleaning works. Such implementation structure is sustained as considered at the time of ex-ante evaluation and the number of O&M staff is considered enough for continuity of project

⁴ At the time of ex-ante evaluation, decrease in the number of traffic accidents on the Ken-Bulun bridge was anticipated by improving the bridge's line shape.

⁵ Additionally, it was found in the Interview that, during the construction, the local government authority requested the Japanese contractor to install small pedestrian bridges inside one of the neighboring villages for children to go to school safely and to avoid the main trunk road which was not safe for kids. As a response, the contractor agreed to install two small metal pedestrian bridges so that the additional safety for children was ensured.

⁶ Big trucks come from China pass through Alamedin bridge, which is on the way to the biggest markets in Central Asia.

⁷ The evaluation judgment on efficiency was based on the following comparison: [Project period] Comparison between the 18.2 months specified in ex-ante planning sheet and the actual 36.1 months (from E/N signed date in 2007 to the project completion date). [Project cost] Comparison between the E/N Grant Limit amount 476 million yen calculated based on the Basic Design Study in 2007 and the actual Grant amount 669 million yen.

⁸ Between the MOTC and DEPs, there is Road Management and Maintenance Departments (PLUADs) that are located in the regions and responsible for making plans for maintenance, repair and construction of roads and bridges and requesting budget to MOTC. .

effectiveness. There is no problem in the technical level of the staff in two DEPs since they are carrying out routine maintenance works on time by using equipment procured under the Japan's grant aid project⁹. Moreover, at the time of ex-post evaluation, capacity building training for bridge maintenance is conducted under the JICA's technical cooperation (TC)¹⁰ for all DEPs across the country including staff from DEP 39 and DEP 954. Additionally, the TC supports the development of several new manuals for bridge maintenance.

The implementing agency has no problem in the financial aspect of O&M of the constructed bridges. According to the data from MOTC, the overall budget for O&M has been increasing. Moreover, both heads of DEPs during Interview confirmed the sufficient budget has been allocated from MOTC for bridges maintenance. As for the current status of O&M, during site-visit under this ex-post evaluation it was confirmed that all three bridges are in a good condition. For example, DEPs have repaired and painted the bridge's shoulders. Bridge's O&M are carried out properly and regularly by DEPs through routine inspection (every two weeks), structure inspection (twice per year), patching pavement (when necessary).

Thus, there is no problem in institutional, technical and financial aspects of the implementing agency and current status of O&M. Therefore, the sustainability of this project effect is high.

5 Summary of the Evaluation

This project has largely achieved its objectives by securing safe and stable traffic and transportation at target three bridges on international trunk roads as a result of the increased vehicle speed for crossing the bridges (the Alamedin bridge and the Ala-Archa bridge), the increased loading capacity (all target bridges), the increased traffic capacity (the Ken-Bulun bridge). According to interview results with DEPs, the number of traffic accidents have decreased after the project completion. As a result, positive impacts were identified such as smooth distribution of goods and stable usage of international trunk roads including people's access to social services. As for sustainability, no problems have been observed in institutional, technical and financial aspects and the proper operation and maintenance have been carried out. For efficiency, the cost and project period exceeded the plan.

In the light of the above, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations to implementing agency:

1. At the time of ex-post evaluation, JICA's TC provides series of trainings for master trainers to formulate maintenance management plans and develop bridge database system. The MOTC including PLUADs/DEPs are recommended to further strengthen the capacity of their staff for bridge maintenance by utilizing the TC's outputs such as trainings on Bridge Maintenance and Inspection, special manuals on Bridge Inspection, Condition Rating and Bridge Repair as well as operating the Bridge Database System.
2. MOTC on a regular basis should collect and analyze data related to traffic volume, traffic accidents etc to measure the continuity of the project effects.

Lessons learned for JICA:

The combination of TCs and grant aid projects proved to be effective for the sustainability of the project effects of the grant aid. The project's target bridges are operated and maintained properly by the implementing agency's staff who utilize knowledge and experience that were obtained through other TCs and grant aid projects, where these staff learned how to evaluate bridge condition, how to repair bridges in the case of severe damage, how to keep record of and maintain database etc.

⁹ "The Project for Improvement of the Equipment for Road Maintenance in Issyk-Kul and Chui Oblasts" (2010-2011)

¹⁰ "The Project for Capacity Development for Maintenance Management of Bridges and Tunnels" (2013-2016)