

Summary of Joint Terminal Evaluation

I. Outline of the Project		
Country: Kyrgyz Republic		Project Title: Project for Capacity Development for Maintenance Management of Bridges and Tunnels
Issue/Sector: Transport		Cooperation Scheme: Technical Cooperation
Division In-Charge: Infrastructure and Peace Building Department, JICA		Total Cost (estimated at completion of the Project): Approximately 214 million Japanese Yen
Period of Cooperation	(R/D): June 2013 – January 2016	Partner Country's Implementing Organizations: Ministry of Transport and Communication (MOTC)
		Supporting Organization in Japan: None

1. Background of the Terminal Evaluation

Kyrgyz Republic (hereinafter referred as “Kyrgyz”) has the road network of about 34,000 km, accounting up to 95% of passengers and freight traffic. Ministry of Transport and Communication (MOTC) is responsible for the operation and management of international, national and load roads of 18,803 km, including around 3,000 bridges and five (5) tunnels located nearby to each other on the Bishkek-Osh international road.

Most of the road network in Kyrgyz was constructed during the Soviet era and after the independence on 25 December 1991, road maintenance activities have not been carried out adequately, due to the fact that many Russian technicians left Kyrgyz and funds provided for road sector were also not adequate for routine maintenance of the road network. The low level of financing for road repair and maintenance has led to an annual loss of approximately 200 km of road surface and the worsening road conditions are hindering smooth trade with neighboring counties as well as the passenger and freight traffic.

In addition, no plan exists for the maintenance management of bridges and tunnels, and there is also no plan established with respect to periodical inspection system of bridges and tunnels. In response to this situation, Japan International Cooperation Agency (JICA) and other development partners have been supporting the road sector of Kyrgyz with a focus on road maintenance. Through these supports, the capacity of MOTC for road maintenance has significantly improved.

In order to further improve maintenance management of road network, Government of Kyrgyz requested a technical cooperation with the Government of Japan. Upon receipt of the request, JICA has implemented “The Project for the Capacity Building of Road Maintenance in the Kyrgyz Republic” (hereinafter referred to as “prior project”) from March 2008 to March 2010 (3 years) as a Technical Cooperation Project.

After the successful implementation of the prior project, the Government of Kyrgyz requested another technical cooperation project entitled “The Project for Capacity Development for Maintenance

Management of Bridges and Tunnels” (hereinafter referred to as the “Project”) to the Government of Japan. Upon receipt of this request, JICA dispatched the Detailed Planning Survey Team from 7 to 24 October 2012 for preparing the Project and the Record of Discussion (R/D) for the Project was signed between MOTC and JICA on 14 February 2013. The Project was launched in June 2013 to be implemented for two and a half years.

2. Project Overview

(1) Overall Goal

Maintenance status of bridges and tunnels is improved in Kyrgyz.

(2) Project Purpose

MOTC’s capacity is improved for maintenance cost estimation of bridges and tunnels on the basis of inspection results.

(3) Outputs

- 1) Demarcation of MOTC HQ, RMD, PLUADs/UADs and DEPs is clearly identified with necessary staffing for the maintenance management of bridges and tunnels.
- 2) A database system to record information on bridges and tunnels is developed and ready for maintenance planning.
- 3) Capacity of DEPs for routine maintenance and capacity of PLUADs/UADs for inspection and condition rating of bridges and tunnels are enhanced.
- 4) Capacity of MOTC’s HQ, RMD, PLUADs/UADs and DEPs for preparing maintenance management plans on bridges and tunnels is enhanced.

(4) Inputs

Japanese Side:

1. Japanese Experts
2. Machinery, Equipment and Materials

Kyrgyz Side:

1. Counterpart Personnel
2. Facilities for the Implementation of the Project

II. Evaluation Team

Members of Evaluation Team	Japanese Side <ol style="list-style-type: none"> 1) Team Leader: Dr. Nobuyuki TSUNEOKA, Senior Advisor, Infrastructure and Peace Building Department, JICA 2) Cooperation Planning: Mr. Yasuhiro WATANABE, Planning Coordinator, Transport and ICT Group, Team 1, Infrastructure and Peace Building Department, JICA 3) Evaluation Analysis Expert: Dr. Mahmood Ul Zaman KHAN, President,
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	Japan Soft Tech Consultants (JUST Consultants), Japan	
Period of Evaluation	From 10 to 21 August 2015	Type of Evaluation: Terminal Evaluation
III. Results of Evaluation		
<p>1. Achievement</p> <p>The JICA Expert Team reviewed the staffing structure of the RMD under the MOTC and proposed the amendments in the staffing structure of the RMD and helped in the establishment of the Road Asset Management System (RAMS) under the RMD. The main function of RAMS is road asset management and development programming for strategic development of highways. Government Resolution No. 188 (Positions in the Department of Roads of MOTC of the Kyrgyz Republic, September 3, 2010) stipulates the main functions of RMD and PLUAD/UAD as well as DEP. The JICA Expert Team reviewed the functions of RMD, PLUAD/UAD and DEP and identified issues in the existing functions regulated in the Government Resolution and proposed the demarcation of responsibilities on maintenance management of bridges and tunnels in MOTC HQ, RMD, PLUAD/UAD and DEP. The demarcation of responsibilities on maintenance management of bridges and tunnels in MOTC HQ, RMD, PLUAD/UAD and DEP are expected to be approved by MOTC in September or October 2015.</p> <p>The staff of RMD with the assistance of Japanese Experts developed the database system with necessary information (e.g. inspection record, damage record, etc.) for maintenance management of bridges and tunnels. The purpose of the database development is to understand the condition of bridges and tunnels and to make use of information for the preparation of short-term/long-term maintenance and budget plans for bridges and tunnels. A Manual for the Input and Operation of the Database System for Bridges and Tunnels was developed. The manual contains manual for the input of data in the data system and manual for database system operation. 30 master trainers were trained in bridge data collection and input. 11 workshops on data collection and input were held by six master trainers for their responsible sections.</p> <p>The Bridge Maintenance Manual was prepared and expected to be approved by RMD in October 2015. The manual contains manual for routine maintenance of road, manual for inspection, manual for condition rating, manual for repair method, manual for short-term maintenance management, and manual for long-term maintenance management of bridges. The Tunnel Maintenance Manual was prepared and expected to be approved by RMD in October 2015. The manual contains routine maintenance manual for tunnel, manual for inspection and condition rating, manual for repair method, and manual for short-term maintenance management of tunnels. 30 master trainers were selected from RMD and PLUADs/UADs and divided into two categories of MT-S and MT-B in accordance with their knowledge and experience for inspection and condition rating of bridges. Master trainers of MT-S category conducted training for master trainers in MT-B category for inspection and condition rating of bridges. The training was focused on (i) Techniques to conduct primary inspection, (ii) Techniques to make inspection sketches, (iii) Input of inspection data into Excel formats, and (iv) Techniques about three types of detailed inspections using equipments, such as infrared camera, Schmidt hammer and portable drills. Trainings (i) to (iii) are about Planned Inspection A (Visual Inspection) and training (iv) is about Planned Inspection B (Detailed Inspection). Four staff members of BO UAD were trained on inspection and condition rating of five tunnels. 11 workshops on Planned Inspection A (Visual</p>		

Inspection) and condition rating and nine workshops on Planned Inspection B (Detailed Inspection) and condition rating were carried out by master trainers.

The nationwide management criteria for bridges is developed and incorporated in short-term/long-term maintenance management plans of bridges. A short-term maintenance management plan (2015-2017) with cost estimation for bridges was prepared in accordance with the nationwide management criteria for bridges for three (3) years in November 2014 and was certified by RMD in July 2015. Next short-term plan for three (3) years will be prepared by October 2015 and will be certified by RMD. A long-term maintenance management plan (2015-2024) with cost estimation of bridges was prepared in accordance with the nationwide management criteria of bridges for ten (10) years in November 2014 and expected to be certified by RMD in September or October 2015. A short-term maintenance management plan (2014-2016) with cost estimation for tunnels was prepared in accordance with the nationwide management criteria for tunnels for three (3) years in September 2013.

2. Summary of Evaluation Results

(1) Relevance

1) Consistency with the National Road Sector Policy and Development Policy of Kyrgyz

The Project purpose “MOTC’s capacity is improved for maintenance cost estimation of bridges and tunnels on the basis of inspection results” and Overall Goal of the Project “Maintenance status of bridges and tunnels is improved in Kyrgyz” remained relevant with the Road Sector Development Strategy 2015 – 2025 of the Government of Kyrgyz which aims to promote economic development by providing access to markets for goods, labor and social services and sustainability of the road sector. The strategy specifically aims at rehabilitation of international, national and local roads, improvement of the road management system and involvement of private sector in road maintenance. The strategy is expected to be approved in October 2015.

The Project purpose and Overall Goal of the Project are still in consistency with the National Sustainable Development Strategy for the Kyrgyz Republic (2013 – 2017) which described transport sector as very important sector for the sustainable economic growth of the country and placed high priority on the enhancement of economic potential through the construction and rehabilitation of roads.

2) Consistency with the Japanese Policy

“Maintenance Management of Transport Infrastructure and Correction of Regional Disparities” and “Restructuring of Social Infrastructure” are the two priority areas of the Japan’s Country Assistance Policy for Kyrgyz prepared in December 2012. The overall aim of the Japan’s ODA Policy for Kyrgyz is to support the sustainable and balanced economic growth driving the democratic consolidation. Japan’s Country Assistance Policy for Kyrgyz focusing on the development of transport infrastructure for achieving the overall goal of poverty reduction through economic development based on the transition to a market economy.

The Project has been implementing as one of “Program for Promotion of Physical Distribution for Strengthening Export Competitiveness” under Development Issues of “Development of Transport Infrastructure” under Priority Areas “Maintenance Management of Transport Infrastructure and

Correction of Regional Disparities” in Rolling Plan for Kyrgyz prepared in May 2014.

3) Appropriateness of Selection of Target Groups and Consistency with the Needs of the Target Groups

The main target groups of the Project are the staff members of MOTC HQ, RMD, PLUADs/UADs and DEPs. The maintenance management of bridges and tunnels is the main responsibility of the target groups. Furthermore, the capacity building for the staff of the target groups for the effective and efficient maintenance management of bridges and tunnels is an urgent need. Therefore, the selection of the target groups is appropriate and the Project is still in consistency with the needs of the target groups.

4) Comparative Advantage of Technical Assistance Provided by the Japanese Side

JICA has implemented numerous projects in transport sector throughout the world, and has necessary technical competence and experience. The Project aims to achieve its Project purpose “MOTC’s capacity is improved for maintenance cost estimation of bridges and tunnels on the basis of inspection results” by using advanced technical expertise and extensive experience of the Japanese Experts, organizing trainings/workshops for the Counterpart personnel, and provision of necessary equipment and materials. Thus the cooperation by Japan is very relevant to support the capacity development of Counterparts for the effective and efficient maintenance management of bridges and tunnels.

(2) Effectiveness

The logical relationship of Outputs and the Project purpose is relevant. The Project has been on track and the Project purpose is very likely to be achieved at the completion of the Project through the combination of activities of Outputs.

The main contributing factors towards the achievement of all Outputs and Project purpose are the close working relationship between the JICA Experts Team and the Counterparts, Establishment of RAMS under the RMD, and high enthusiasm for the Counterpart personnel for the Project activities.

The main hampering factors are frequent transfers or resignations of Counterpart personnel, particularly the resignation of Project Director and Deputy Director during the implementation of the Project; low experience of Counterparts in maintenance management technologies of bridges and tunnels; and limited human, financial, physical, and material resources of Counterparts.

(3) Efficiency

The inputs are appropriately provided from both Japanese side and Kyrgyz side as planned and all inputs are fully utilized to generate the intended Outputs. The quality, quantity, and timing of inputs are also appropriate.

Project activities are well received by the Counterpart personnel. Several kinds of trainings/seminars workshops for Counterpart personnel during the implementation of the Project are appreciated by the participants. However, the Counterpart personnel faced difficulties in attending all proposed Project activities due to their engagement in their assignments in their respective organizations.

(4) Impact

Through the various Project activities, it can be said that the impact on the Overall Goal of the Project is positive.

The important assumptions for the Outputs and Project purpose in the PDM did not affect the positive impacts of the Project. The proper allocation of human, financial, and physical resources will be required to sustain the positive impacts of the Project after the completion of the Project. Several other development partners, particularly World Bank and Asian Development Bank (ADB) are also involved in strengthening of road sector in Kyrgyz and it is expected that the other development partners will continue to provide required resources, particularly financial resources, for the strengthening of road sector in Kyrgyz.

No negative/indirect/unexpected impact has been reported.

(5) Sustainability

1) Policy Aspects

The rehabilitation of international, national and local roads and improvement of the road management system is one of the major priorities guided by the Road Sector Development Strategy 2015 – 2025 of the Government of Kyrgyz. The National Sustainable Development Strategy for the Kyrgyz Republic (2013 – 2017) described transport sector as very important sector for the sustainable economic growth of the country and high priority has been placed on the enhancement of economic potential through the construction and rehabilitation of roads. It is expected that the strategies and policies in transport sector of the Government of Kyrgyz will remain favorable for the Project effects to be sustained after the completion of the Project.

2) Organizational Aspects

The roles and responsibilities of Counterparts (MOTC HQ, RMD, PLUADs/UADs and DEPs) for the Project implementation were clearly defined and shared among the Counterparts. The staff of Counterparts reported that their capacity for the maintenance management of bridges and tunnels has been strengthened by the Project activities. The Project also fostered the capacity and relationship between relevant stakeholders for future backstopping of managerial and administrative capacity building. It is expected that the Counterparts could pursue relevant activities to keep Project effects after the completion of the Project.

3) Financial Aspects

It is noted that the financial resources of the Counterparts are not very sound. In order to keep continuing the Project activities after the completion of the Project, the Counterparts have to make serious efforts to secure proper funding from the concerned authorities. Therefore, financial aspects are a matter of concerns for the sustainability of Project effects after the completion of the Project.

4) Technical Aspects

To ensure the technical sustainability of the Project, it would be necessary to continue the technical assistance by the RMD, particularly organization of different kinds of trainings and periodical

updating of different products, such as database system for maintenance management of bridges and tunnels, nationwide management criteria for bridges and tunnels, short-term/long terms maintenance management plans for bridges and tunnels, several kind of manuals for maintenance management of bridges and tunnels, etc. prepared by the Project.

The Counterparts have deepened their understanding for the Project purpose and Overall Goal through various Project activities. Most of staff of the Counterparts expressed that the technical transfer has been conducted very effectively and efficiently through various Project activities.

3. Conclusion

Based on review of relevant documents of the Project, such as Minutes of Meetings (M/M), Detailed Design (D/D) Report, R/D, PDM, PO, Project Progress Reports, etc.; questionnaire to the JICA Experts Team, Counterparts and the development partners; a series of meetings and discussions with Counterparts, other development partners, and Japanese Experts; site visits as well as results of discussion among members of the Evaluation Team, the Evaluation Team concluded that the Project performance is satisfactory.

4. Recommendations and Lessons Learned

(1) Recommendations

In order to achieve the Overall Goal of “Maintenance status of bridges and tunnels is improved in Kyrgyz” and to further improve the sustainability of the positive impacts of the Project after the completion of the Project, the Evaluation Team prepared the following recommendations for the JICA Expert Team and for the Counterparts.

Recommendations for the JICA Expert Team

1) Finalization of Products Prepared by the Project Before the Completion of the Project

The JICA Expert Team should finalize and get approval for all products, such as database system for maintenance management of bridges and tunnels, nationwide management criteria for bridges and tunnels, short-term/long terms maintenance management plans for bridges and tunnels, several kind of manuals for maintenance management of bridges and tunnels, etc. prepared by the Project before the completion of the Project.

2) Sharing Products of the Project with Other Development Partners for Further Improvement

The JICA Expert Team should share various products prepared by the Project with other development partners to get their opinions and cooperation for further improvement.

3) Improvement of Communication with the new established RAMS

The JICA Expert Team should further improve the communication with the RAMS which was established on 11th March 2015 and important section for the sustainability, because it will be one of the sections which take responsibilities for maintenance management of bridges and tunnels. The newly established RAMS hasn't have enough time to be trained compared with other Counterparts, therefore, the JICA Expert Team need to train and communicate with RAMS by the period of the Project.

4) Supporting internal technical transfer plan by Counterparts

The JICA Expert Team should propose the internal technical transfer plan from master trainers to other staff. The seminars or workshops are recommended to be implemented by master trainers some times a year.

5) Considering the indicators of Overall goal for clearer evaluation in the future

The indicator of Overall goal is “A bridge and a tunnel chosen by maintenance management plan based on the nationwide management criteria which is prepared in the project are repaired / replaced.” Other indicators should be considered to add so as to monitor and evaluate more clearly the Overall goal. For example, the continuously updated data of routine maintenance could be the indicator to evaluate the maintenance status of bridges and tunnels.

6) Prompt Actions for the Realization of Recommendation, Monitoring and Follow-Up Activities

The JICA Expert Team should help the Counterparts to take prompt actions for the realization of each recommendation, monitor the progress for each recommendation, and conduct necessary follow-up activities for the realization of each recommendation.

Recommendations for the Counterparts

1) Formulation of Monitoring and Evaluation System for the Maintenance Management of Bridges and Tunnels

The Project has transferred the knowledge and skills for the maintenance management of bridges and tunnels. However, it is strongly recommend that the MOTC should formulate an effective and efficient monitoring and evaluation system for the maintenance management of bridges and tunnels.

2) Strong Commitment to the Maintenance Management of Bridges and Tunnels

Methodology and knowledge on maintenance management for bridges and tunnels was transferred through various Project activities. It is strongly recommended that the MOTC should show a strong commitment to the maintenance management of bridges and tunnels according to the short-term and long-term maintenance management plans of bridges and tunnels prepared by the Project. Particularly, the MOTC should give top priority for the implementation of short-term maintenance management plan of bridges which is focusing on replacement of very dangerous bridges to ensure traffic safety.

The Routine Maintenance Manual for Tunnels prepared by the Project has not been fully utilized for the routine maintenance of all five tunnels because of the frequent replacement of concerned staff in DEPs responsible for the routine maintenance management of five tunnels. It is strongly recommended that concerned staff of DEPs should conduct routine maintenance of all five tunnels in accordance with the Routine Maintenance Manual for Tunnels prepared by the Project.

3) Improvement of Products Prepared by the Project

The Project has prepared several products and these products should be utilized and improved time to time in accordance with the collected data for the effective and efficient maintenance management of bridges and tunnels.

4) Institutional Strengthening and Networking of the Counterparts

The MOTC HQ, RMD, PLUADs/UADs and DEPs should continue to enhance their technical and organizational capabilities in order to ensure the effective and efficient maintenance management of bridges and tunnels. It is recommended that the master trainers should be distributed in appropriate sections for smooth implementation of technical transfer to other staffs. It is also recommended that the MOTC HQ, RMD, PLUADs/UADs and DEPs should establish an effective and efficient network to share the information in time for smooth implementation of maintenance management of bridges and tunnels.

5) Enhancement of Partnership with other Development Partners

MOTC should share various products prepared by the Project with other development partners and further enhance the partnership with other development partners for effective and efficient maintenance management of bridges and tunnels.

6) Secure Necessary Resources to Keep Positive Impacts of the Project After Completion of the Project

It is strongly recommended that the Counterparts should secure required financial and human resources to sustain the positive impacts of the Project.

7) Prompt Actions for the Realization of Recommendation, Monitoring and Follow-Up Activities

It is strongly recommended that the Counterparts shall take prompt actions for the realization of each recommendation, monitor the progress for each recommendation, and conduct necessary follow-up activities for the realization of each recommendation.

(2) Lessons Learned

The Evaluation Team has drawn the following lessons learned. JICA should consider Project achievements and lessons learned into future formulation and implementation of similar technical cooperation projects.

1) Multi-Faceted Coordination Approach

A successful project must have its own clear scope. Focusing on such a scope and achieving its purpose are utmost important. At the same time, the Project should have any flexibility of inviting and using outside resources such as the road administration advisor and equipment provided by other Japan grant aid projects as well as local and donors' contributions. Since maintenance and management of bridges and tunnels is a multi-component and multi-player activity, one of the factors of the Project's success is that the Project has taken this kind of multi-faceted coordination approach. This approach has been producing collaborated spillover effects and more fruitful results.

2) Introduction of Bridge and Tunnel Data Inventory Systems and their Manuals/Guidelines versus Assignment of Clear Authorities

The Project has introduced bridge and tunnel data inventory systems together with their manuals/guidelines. MOTC has been employing those systems and manuals for a better provision of maintenance and management of bridges and tunnels. Introduction of those systems and manuals has also helped initiate reviewing their way of work and daily business. Efforts in effective use of those

systems and manuals also lead to assignment of clear authorities among RMD and PLUADs/UADs/DEPs with a necessary restructuring of its current organizational function and vice versa.

3) Formulation of Quality Control System for the Maintenance Management of Bridges and Tunnels

Small initial defects will have a large impact on the durability of a bridge or tunnel that will cause an increase of maintenance management cost. In this Project, initial defects are one of the causes of the damage of bridges and tunnels. Therefore, it is strongly recommended that the formulation of the effective and efficient quality control system for the maintenance management of bridges and tunnels. The following steps are recommended for formulating the quality control system for the maintenance management of bridges and tunnels.

- Periodically review the maintenance management criteria for bridges and tunnels to improve and decrease initial defects in bridges or tunnels.
- Develop the quality control standards prior to the repair, reconstruction or construction of bridges or tunnels.

4) Provision of Systems and Manuals for Variety of Counterparts' Needs

It is important to provide systems and manuals in accordance with needs and technical level of the counterparts. It is also important how to improve the current situation. The multi-faceted coordination is useful for covering a variety of counterparts' needs and improving their way of work and daily business as well as an appropriate provision of maintenance and management of bridges and tunnels.

5) Motivation and Ownership Enhanced by the Adaptation of Japanese Technologies

The training in Japan and introduction of Japanese technology helped C/P to raise the motivation and ownership. BO UAD made some facilities by themselves for traffic safety in tunnels after the introduction of Japanese technology. Such a locally adapted technology might be an incentive of C/P since it matches their need.