

Summary of Terminal Evaluation

I Outline of the Project	
Country: Kyrgyz Republic	Project title: The Project for the Capacity Building of Road Maintenance
Issue/Sector: Transportation	Cooperation scheme: Technical Cooperation Project
Division in charge: Economic Infrastructure Department, JICA	Total cost (estimated at completion of the Project): Approximately 218 million Yen
Period of Cooperation	R/D: From March 15, 2008 to March 14, 2011
	Extension: From March 15, 2011 to September 30, 2011
	Partner Country's Implementing Organization: Supporting Organization in Japan: Katahira & Engineers International Related Cooperation Project: Dispatch of a long-term expert as "Road Administration Advisor", Grant aid of the "Project for the Improvement of the Equipment for Road Maintenance in Naryn"
1-1 Background of the Project	
<p>The transport sector in the Kyrgyz Republic (hereinafter referred to as Kyrgyzstan) depends nearly fully on the road traffic, which accounts for 95% of all transport modes, and it plays a substantial role in connecting major cities in Central and Southwest Asia and providing community roads to the local residents. Currently, the total length of road in Kyrgyzstan is approximately 34,000km, of which the public roads under jurisdiction of the Ministry of Transport and Communications (hereinafter referred to as "MOTC") occupy about 19,000km and the rest is used as agricultural and rural roads. Forty percent (40%) of the public roads are paved. Some part of main roads connecting large cities are not in good condition. It is estimated that some 200km in the country's road network is functionally lost every year due to the lack of maintenance management. Consequently, the nation is in urgent need of improvement of the roads and strengthening of the maintenance management capability.</p> <p>The road inventories, though indispensable for road maintenance management, have scarcely been updated since the collapse of the USSR, and as for the pavement design, the standards used during the USSR era and those issued by the American Association of State Highway and Transportation Officials (AASHTO) are in use in parallel; these aspects apparently have to be improved. In addition to that, due to the lack of maintenance management with the life cycle cost taken into consideration, the efficiency of the work is undermined.</p> <p>In an attempt to address these issues, the Government of Kyrgyzstan requested the Government of Japan to extend technical cooperation assistance to the Project and dispatch a long-term expert as "Road Administration Advisor." In response to this request, JICA conducted a preparatory study from October to November 2007, in order to confirm the appropriateness and relevance of the requested details of the Project, and signed the Minutes of Meeting (M/M) that stipulate that the Project would start in March 2008 with the MOTC acting as the counterpart, based on the discussions held with the parties concerned on the Kyrgyz side regarding a general outline of the Project. Furthermore, the study team signed the Record of Discussion (R/D) on the implementation of the Project in January 2008. The focal points in the agreed M/M are as follows:</p> <ul style="list-style-type: none"> · To create a format for the road inventory, which includes all necessary items in a well-organized manner, and to distribute it across the country. · To analyze the SNIP and other road design standards that are currently used in the country and to develop practical manuals that the MOTC can utilize. · To implement specific techniques for road maintenance management mainly in Kochkor (DEP), where the Government of Japan has extended a grant-aid project for providing major necessary equipment and building. 	
1-2 Project Overview	
(1) Overall Goal	
Road network is properly maintained and economic activities and accessibility to public infrastructure are improved.	
(2) Project Purpose	

Road maintenance capacity (institution, management, technique) is improved.		
(3) Outputs		
1) Revised Road Inventory		
2) Revised Road Design Standard		
3) Enhanced Road Maintenance Management		
(4) Inputs		
Japanese side: Dispatch of Experts: 9 persons (47.77 man/month), Training in Japan: 10 persons, Provision of equipment: 186 thousand US dollars, Local cost expenditure: 216 thousand US dollars		
Kyrgyz side: Counterpart personnel: total about 20 persons, Provision of land and facilities: office space, local cost expenditure, Budget for the pilot project		
II Evaluation Team		
Members of Evaluation Team	1) Leader: Dr. Nobuyuki TSUNEOKA, , Senior Advisor, JICA	
	2) Cooperation Planning: Mr. Yoshinori KITAGUCHI, Transportation and ICT Division 3, Transportation and ICT Group, Economic Infrastructure Department, JICA	
	3) Evaluation Analysis: Mr. Masahiro OSEKO, Consultant, Nevka Co., Ltd.	
Period of Evaluation	From May 27 to June 11, 2011	Type of Evaluation: Terminal Evaluation
III Results of Evaluation		
3-1 Achievement		
(1) Achievement of the Overall Goal		
Achievement: Unable to evaluate at present. The target figure and target year of both of Objectively Verifiable Indicators (hereinafter referred to as OVI) 1 (IRI: International Roughness Index) and OVI 2 (road closure days in winter season) are not specified, and no data of these two OVIs are available. Therefore, both of OVI 1 and OVI 2 are unable to evaluate at present. The current Kyrgyz national policy of "Road Sector Development Strategy for 2007-2010" (hereinafter referred to as "the Strategy") is obsolete and new version is under drafting. The Evaluation Team recommends MOTC to monitor and evaluate the achievement of OVI 1 and OVI 2 by specifying the target figure and target year according to the new version of the Strategy. Meanwhile, it is expected that MOTC keeps collecting data with the assistance of the Road Administration Advisor of JICA.		
(2) Achievement of the Project Purpose		
Achievement: A 1) The Road Maintenance Management Manual is planned to be completed by the end of the Project. The Manual was introduced and disseminated to representatives of all local offices through seminars and training courses. But the Manual and knowledge acquired has been stayed in the hands of the personnel participated in seminars and training courses, not well disseminated to every corner of local offices. 2) The road inventory format is mostly completed and has been distributed to all local offices together with computers and the Internet communication devices. The infrastructure for road inventory has thus built for putting it into practice. 3) With regard to the quality management of pavement, procurement of laboratory equipment has been completed. The laboratory test handbook attached to the Road Design Standard Manual and partial translation of ASSHTO have been completed and ready to use. Training courses have been conducted in order to train MOTC personnel on material test in laboratory and to introduce and disseminate the handbook and manuals inviting representatives from all regions. However, since there is no laboratory in most of their work places, even though they participated in training courses, skills and knowledge learned in the training cannot be practiced. 4) Since ADB was conducting a survey on contract-out and privatization of road maintenance business, avoiding the duplication of works, the Project has abandoned its activities on this issue. For making the decision of abandonment, the Project requested JICA Kyrgyz Office to carry out an extensive survey on the capacity of private construction companies in the country and found that the private sector circumstances were not matured enough to promote outsourcing of road maintenance works. 5) The pavement roughness monitoring system with using simple and inexpensive measuring device namely Vehicle Intelligent Monitoring System (hereinafter referred to as VIMS) has introduced and applied for IRI measurement mainly in model areas of the Project covering about 1,800 km. There are at		

present five (5) personnel in total who can operate VIMS in and out of MOTC. The monitoring system thus has been established.

(3) Achievement of Outputs

1) Output 1: Revised Road Inventory

Achievement: A The development of new format of road inventory has been almost completed. The road inventory using the new format has been prepared in model areas of the Project, while they are now under preparation in non-model areas. The system was developed to indicate pavement deficiencies with IRI, and it is now possible to indicate road maintenance points on the inventory.

2) Output 2: Revised Road Design Standard

Achievement: B Items of manuals for road design standard have been determined. The asphalt pavement manual has been prepared. MOTC staff concerned has understood road and pavement study methods through training courses. And they have been employed in model areas of the Project but not in non-model areas. The laboratory prepared by the Project is now able to conduct material tests, and its staff has been trained to be able to be trainers. While the knowledge and techniques about asphalt mixing have been improved to some extent from nothing, asphalt mix composition design has not been conducted yet. Training on asphalt pavement repair design is planned to be conducted by the end of the Project.

3) Output 3: Enhanced Road Maintenance Management

Achievement: B The Road Maintenance Management Manual is under the finalization process and planned to be completed by the end of the Project. The Project plans to conduct seminars for introduction and dissemination of the Manual. Construction site management has been improved through OJT in pilot project and the Construction Management Seminar. Road maintenance plan has not been prepared in MOTC, because it is difficult to specify the volume of construction work identifying new-born repair places such as holes and cracks. As stated above in 3-1 (2), avoiding the duplication of works with ADB and finding the scarcity of private construction companies through JICA's survey, the Project has abandoned its activities concerning outsourcing of road maintenance works.

3-2 Summary of Evaluation Results

(1) Relevance: Very High

Objectives of the Project have been highly consistent with targets aimed at both of the national development policies of Kyrgyzstan such as the "Country Development Strategy 2007–2010" and Japanese ODA policies such as the "Country Assistance Program for the Kyrgyz Republic (04.2009)" that have placed high priority on the enhancement of economic potential through the construction and rehabilitation of roads. Regarding the consistency with the needs of target group, since the main roads in the country form a part of the Asian Highway, the international requirement for the improvement of road maintenance is significantly high.

(2) Effectiveness: High

Due to the political turmoil in April 2010 following the former President' policy for reform of government organizations issued in October 2009, the Project was forced to suspend its activities for about four (4) months. Under these circumstances, the Project has been facing the difficulties which have negatively affected the smooth implementation of the Project. However, expected outputs of the Project such as the road inventory format, manuals for road design standards, road maintenance management manuals and the pavement monitoring and evaluation method are to be completed by the end of the Project. The capacity of MOTC staff has been improved through the process of these system development works. The Project Purpose thus has been mostly achieved but only dissemination of these newly developed systems to every corner of the target group has not been realized.

(3) Efficiency: High

The Project has been implemented efficiently in terms of cost and time through the programme approach in collaboration with other Japanese cooperation projects such as the grant aid of the "Project for the Improvement of the Equipment for Road Maintenance in Naryn" and the dispatch of a

long-term expert as the “Road Administration Advisor.” The introduction of newly developed road roughness measuring method namely VIMS has been functioning for a contribution to low-cost and easy-handling road monitoring. The quality, quantity and delivering timing of inputs (human resources, equipment and facilities, training courses and others) from both sides of the countries were considered to be appropriate.

(4) Impact: Very High

1) Achievement of Overall Goal

As stated above in 3-1 (1), the achievement of Overall Goal is unable to be evaluated at present.

2) Other Impacts

- Recognizing the importance of bridge maintenance and winter season road maintenance, the Japanese Experts suggested preparation of those technical manuals and developed them together with MOTC staff. This has extended the scope of work concerning road maintenance perceived by the MOTC staff.
- The World Bank has started its planning work for the project of road asset management using the data and system developed by the Project with a particular focus on the road inventory including road roughness measurement method.

(5) Sustainability: Fair

1) Political aspect:

As stated above in 3-2 (1), the “Country Development Strategy 2007–2010” places high priority on the road maintenance management. According to the interview with MOTC counterparts, new road sector development strategy, which is under drafting at present, is supposed to be mostly unchanged from the former strategy. Therefore, it is expected that the policy of the government of Kyrgyzstan will keep supporting the development of road maintenance management of MOTC.

2) Organizational aspect:

Due to an unbalanced age structure of MOTC engineers, the massive reduction of skillful engineers is expected in a mid-term range for five to ten year.

3) Financial aspect:

While the budget of MOTC has been increasing until 2008, it has been decreasing since 2009. The budget of MOTC is currently in short supply for its full operation and it could undermine the sustainability of financial aspect of the Project.

4) Technical aspect:

The project has aimed at preparing the foundation of management system with the development of manuals, methods and capacity of MOTC staff. Therefore, the improvement of practical operations of maintenance work at site is beyond the scope of the Project. Hence, the further efforts and inputs of resources would be required for the application of the system developed by the Project to the actual operation nationwide.

3-3 Factors promoted realization of effects

(1) Factors concerning to Planning

- The scope of the Project was planned properly without any excess and/or deficiency covering all the necessary aspects of the PDCA (Plan-Do-Check-Action) cycle of the road maintenance management.
- Meeting system in the Project was well organized with a project team member weekly meeting, a counterparts meeting, an EC (Executive Committee) meeting and a pilot project weekly meeting, and they have been regularly conducted. This is noteworthy as a proper project management aware of the importance of communication management in a project.

(2) Factors concerning to Implementation Process

- Expecting the capacity development, MOTC staff has played the major roles in the implementation of all activities in the Project under the guidance and assistance of the Experts.
- The programme approach composed of the Road Administration Advisor, the grant aid project and the technical cooperation project (the Project) has worked significantly effective. In this approach, the Road Administration Advisor has coordinated a variety of activities of road administration including construction, rehabilitation, restoration and maintenance. The

grant aid project has provided facilities and equipment for them. And the Project has structured the system of road maintenance management with the coordination of the Advisor using facilities and equipment provided by the grant aid project.

- When it was found that ADB was conducting a survey on contract-out of road maintenance, the Project had promptly made a decision to abandon its activities on the same topic avoiding the duplication. And on that occasion, in order to make a solid basis for the decision, the Project had requested JICA Office to carry out an extensive company survey and found the scarcity of capable companies in the country. This can be highly evaluated as a good practice of project management demonstrating a flexible decision making with substantial back-up evidence.
- MOTC's high commitment to the Project deserves special mentioning. It has been demonstrated in the assignment of the Minister as the chairman of JCC (Joint Coordination Committee), construction of a laboratory for the pilot project under the financial constraints, and keeping core members of counterparts unchanging in the movement of reorganization of MOTC.

3-4 Factors that impeded realization of effects

(1) Factors concerning to Planning

- The Project has provided laboratory equipment for quality control of asphalt pavement and trained laboratory staff in charge. However the role of the laboratory and how to use the laboratory has not been clearly positioned in the current institutional/organizational structure of MOTC. Hence its activity has not been widely recognized among MOTC including local offices, which has resulted in little assignment of the work and low morale of the staff.

(2) Factors concerning to the Implementation Process

- The Project was forced to suspend its activities for about four (4) months due to the political turmoil in April 2010. Governmental organizations including MOTC have been reorganized after that, and it is still affecting the proper operation of public services and the activities of the Project.

3-5 Conclusion

The Project has aimed at the formulation of road maintenance management system, and the capacity development of MOTC through its process. Under the guidance and assistance of the Japanese Experts, MOTC staff has played the major roles in developing the road inventory format, manuals for road design standards and the road maintenance management manual, and they have been disseminated to all local offices through seminars and training courses. The standards and manuals, though, have been acquired only by the limited number of local staff who participated in the seminars and training courses. The evaluation team therefore has reached the conclusion that the Project mostly but not fully achieved the Project Purpose. Challenges which MOTC is facing now are to disseminate and implement the system structured by the Project under the constraints of human, equipment and financial resources.

3-6 Recommendations

Recommendations to the Project are as follows:

- (1) The Project is expected to complete the remaining activities such as finalization of the road inventory format, seminars and training courses using the road design guidelines, concluding of the road maintenance management manuals and local training courses using those guidelines and manuals by the end of the Project; and
- (2) The Project is expected to make further efforts to disseminate its results.

Recommendations to MOTC are as follows:

- (1) MOTC is expected to apply and operate the system developed by the Project extending to its jurisdiction.
- (2) All local offices are supposed to complete data entry to the road inventory by the end of the Project. MOTC is expected to support local offices and confirm their data entry results. The road inventory would help road administrators track road condition, plan repair and restoration work, estimate maintenance work and cost, and segment roads for more accurate management.

It is expected that MOTC will introduce such a management cycle for better road maintenance by the use of the road inventory.

- (3) There is a laboratory for pavement quality control in MOTC, the laboratory of which equipment has been installed by the Project. However, the employment of the laboratory staff is on a temporally basis and their status is unstable. Since this causes uncertainty about the sustainability of the Project, it is expected that MOTC should deal with this issue.
- (4) The laboratory has been able to work for securing quality of asphalt produced by the nearby plant. It is also capable of doing quality control of asphalt pavement constructed by MOTC and/or contractors. However its activity has not been widely recognized among MOTC including local offices, which has resulted in little assignment in spite of its ability. MOTC should put their function into a right place of its procurement process and clarify the role and responsibility of the laboratory. MOTC is also expected to make an institutional/organizational arrangement of authorizing the institute in order for more use by local offices and contractors nationwide. In addition, MOTC has to provide necessary resources for proper maintenance of the equipment of the laboratory.
- (5) Recognizing the importance of bridge maintenance and winter season road maintenance, the Project has just taken the first step of the preparation of those manuals and guidelines. It is expected that MOTC should take over and complete those activities.
- (6) MOTC is expected to address issues caused by unbalanced age structure of its engineers referring to the human resource development plan prepared by the Project.
- (7) MOTC is expected to secure financial resources to cover proper maintenance work.

Recommendations to JICA

- (1) JICA should help MOTC promote the system developed by the Project.
- (2) MOTC will apply the road maintenance management system developed by the Project to an actual operation as stated above. The Road Administration Advisor should help MOTC settle its road maintenance activities into the entire picture of road administration along with the new construction and rehabilitation of roads.
- (3) It is also expected that the Road Administration Advisor should assist MOTC conduct an extensive road roughness measurement for entire length of major roads in the country using the method introduced by the Project.
- (4) JICA is expected to make further assistance in putting the maintenance of equipment provided by the Project into proper practice.

3-7 Lessons Learned

- (1) A successful project must have its own clear scope. Focusing on such a scope and achieving its purpose are utmost important. However in some cases it might create inflexible circumstances resulting in a limited success. The Project has been inviting and using outside resources such as the road administration advisor and equipment provided by other grant aid projects as well as local contributions. Since road maintenance is a multi-component and multi-player activity, one of the factors of the Project's success is that the Project has been taking this kind of program-type approach. This approach has been producing collaborated spillover effects and more fruitful results.
- (2) The Project has introduced a road inventory system and provided manuals/guidelines for design, construction and maintenance. MOTC is going to employ those system and manuals for a better provision of road maintenance and management. Introduction of those system and manuals is also expected to initiate reviewing their way of work and daily business. It is important to assign clear authorities among MOTC and local offices with a necessary restructuring of its current organizational function. The road inventory requires DEP (Road Maintenance Office) to collect and input data, PLUAD (Regional Road Maintenance Unit) to confirm accurate process of each DEP, and MOTC to establish data base over the country. Efforts in further effective use of the road inventory are expected to realize development of a better provision of road maintenance and management and to lead to better way of work and daily business.
- (3) The Project has provided equipment for quality control of asphalt pavement for a PLUAD (Regional Road Maintenance Unit) and trained laboratory staff in charge. However the role of

the laboratory and how to use the laboratory has not been clearly positioned in the current institutional/organizational structure of MOTC. Hence its activity has not been widely recognized among MOTC including local offices, which has resulted in little assignment of the work and low morale of the staff. To improve such situations development of a better provision of road maintenance and management is an urgent necessity.

- (4) Participation of local offices in road maintenance work is a must. In this sense the Project has not only organized seminars for local offices staff but also trained their staff directly by a visit to regional offices. MOTC counterparts of the Project have kept a close contact with regional staff. Those arrangements have contributed significantly to a smooth implementation of the Project.
- (5) It is important to provide a system and technical documents in accordance with needs and technical level of the counterparts. It is also important how to improve the current situation. The program-type approach which has been taken by the Project has been useful for covering a variety of counterparts' needs and improving their way of work and daily business as well as an appropriate provision of road maintenance and management.