

Country Name	The Project for the Improvement of the Equipment for Road Maintenance in Naryn
Kyrgyz	

I. Project Outline

Project Cost	E/N Grant Limit: 572 million yen	Contract Amount: 539 million yen
E/N Date	August, 2006	
Completion Date	September, 2007	
Implementing Agency	The Ministry of Transport and Communications (MOTC)	
Related Studies	Basic Design Study: September, 2005 – May, 2006	
Contracted Agencies	Consultant(s)	Katahira & Engineers International
	Contractor(s)	-
	Supplier(s)	ITOCHU Corporation
Related Projects	<p>[Japan's Cooperation]</p> <p>-Technical Cooperation: Project for the Capacity Building of Road Maintenance in the Kyrgyz Republic (2008-2011)</p> <p>-Grant Aid: Project for Reconstruction of Bridges in Chui oblast (2009-2010), Project for Improvement of Equipment for Road Maintenance in Issyk-Kul and Chui Oblasts (2010-2011)</p> <p>[Other Donors' Cooperation]</p> <p>-Central Asia Regional Economic Cooperation (CAREC) Transport Corridor I, Rehabilitation of Bishkek–Torugart Road Project (539km)¹ financed by ADB, Exim Bank of China, and Arab Coordination Group (ACG)²</p>	
Background	<p>Kyrgyz is situated in the north-east of Central Asia. In Kyrgyz, road transport is the predominant mode of transportation, accounting for more than 90% of freight and passenger movements, and is the important economic infrastructure. However, road surfaces were extremely damaged since proper road maintenance/management has not been conducted after Kyrgyz's independence in 1991 because of lack in budget and machines/equipment. In addition, breakdown and decrepitude of machines/equipment caused difficulties in recovering from snow-slide/mud-slide. These situations have hindered transportation of necessary goods as well as people and have become a bottleneck of economic growth of the country.</p>	
Project Objectives	Outcome	To properly maintain trunk road between Bishkek and Torugart in Naryn Region (362km section of BNT Road) by procuring the equipment for road maintenance.
	Outputs(s)	<p>Japanese side</p> <p>-<u>Procurement of equipment</u>: ①62 units of road maintenance equipment such as aggregate plant, trucks with crane, and excavators, ②spare parts of equipment, ③a truck designed to repair equipment</p> <p>-<u>Soft Component</u>: technical guidance regarding management and maintenance of machinery/equipment and roads</p> <p>Kyrgyz side</p> <p>-Acquisition of the land for installation of the asphalt plant and aggregate plant and removal of existing structures and preparation of the ground</p> <p>-Primary work for electric power feeding, water supply and drainage</p>

II. Result of the Evaluation

Summary of the Evaluation
<p>In Kyrgyz, road transport is the predominant mode of transportation. However, due to the extremely damaged road surfaces and breakdown and decrepitude of machines/equipment, transportation of necessary goods as well as damages by heavy snow has become a bottleneck of economic growth of the country. For improving the situation, procuring the equipment for road maintenance was considered essential at the time of ex-ante evaluation.</p> <p>This project has largely achieved the proper maintenance of trunk road between Bishkek and Torugart (BNT Road, which is an international road with the length of 539km) by procuring the equipment for road maintenance, while it should be noted that the originally-planned 362km-long road sections were/ will be rehabilitated by donors and that some equipment has been utilized for the road totaling to 1,992km under BNT UAD³ in response to rising demand). As a result, trunk roads have been improved, and the traffic volume of BNT road have increased. In addition, the knowledge and skills of relevant staff for management and maintenance of machinery/equipment have been improved by technical training offered in the project. As for sustainability, there was no problem observed due to increasing budget for road maintenance, ensuring proper financial resources for the operation and the maintenance of the provided equipment, the desirable implementation structure, and</p>

¹ The full rehabilitation work are planned to be finished in 2015.

² ACG includes following Funds: Islamic Development Bank, Saudi Development Fund, Kuwait Development Fund, OPEC International Development Fund, Abu-Dabi Development Fund.

³ Russian-language acronym for a road management department. BNT UAD is responsible for maintenance of total 1,922km length of roads including the 539km-long BNT Road and 1,453km length of national/ local roads.

proper operation and maintenance of the provided equipment.

For relevance, this project has been highly relevant with Kyrgyz's development policy, development needs as well as Japan's ODA policy at the time of both ex-ante and ex-post evaluation. For efficiency, both the project cost and the project period were within the plan.

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

1 Relevance

This project has been highly relevant with Kyrgyz's development policy "narrowing the gap between the capital and rural areas" as set in National Poverty Reduction Strategy approved in 2003, and as set in "Country Development Strategy (CDS) 2012-2014" and "Road Sector Development Strategy (RSDS) 2007-2010", development needs (repair/rehabilitation of heavily deteriorated BNT road which serves for international trades and improvement of road maintenance equipment) as well as Japan's ODA policy at the time of both ex-ante and ex-post evaluation.

Therefore, relevance of this project is high.

2 Effectiveness/Impact ⁴

This project has largely achieved its objectives of proper maintenance of roads under the jurisdiction of Bishkek-Naryn-Torugart (BNT) UAD of MOTC with use of the procured equipment by Road Maintenance Units (DEPs) and Asphalt Plants (AP) of BNT UAD, although the achievement also owes to other donors' cooperation. The equipment that was procured specifically for asphalt repaving has not been used for the repaving on the target sections (45km in length), as the rehabilitation/repaving of BNT road including the target section has progressed with assistance from donors (Indicator 1). Accordingly, the equipment for repaving was designated to address the demand for rehabilitation/repaving of any roads under BNT UAD, including 1,453km-long national/local roads: such demand for maintenance of national/local roads⁵ has become evident following the progress of rehabilitation of international roads by donors.

The procured maintenance equipment other than those for repaving (i.e., pothole patching, repair of damages caused by disasters, and snow removal) was used for 539km-long BNT road (including the 362km section as well as the 45km target section that was rehabilitated by other donors) and the above-mentioned national/ local roads.

Most of the major equipment is frequently used to maintain both the BNT Road and other roads before and/or after the other donors' rehabilitation. For instance, concrete cutters and compressors for pothole patching respectively by DEPs 41 and 955 (km147-km367 section of BNT Road are covered) are utilized from May to October; snow removing trucks, used by DEPs 41 and 957 (km265-km539 section of BNT Road are covered) are utilized during winter; the wheel loader, used for the removal and transportation of crushed stones by DEP41 and AP, for 20-21 days/month and 10-12 days/month respectively. In addition, besides the rehabilitation by donors, 6km-long section of BNT Road as well as total 19.6km-long sections of other roads were repaved with the provided equipment.

As for effects of the project, compared to before the project, the road conditions were improved and thus contributed to the improvement of traffic. The results of interviews with the road users in and around BNT Road imply that after the project, there might have been less cases of road blockage by snow. Furthermore, travel time has been shortened and safety of the roads has been much enhanced. Also, traffic flow grew significantly and, traffic volume increased by more than 2.5 times (2005-2011, Indicator 2). The conditions of the road surface is currently kept very good (Indicator 3). Even though some effects can be attributed to the rehabilitation works by other donors, such effects and regular maintenance of the rehabilitated roads cannot be continued without the provided equipment.

Regarding the technical aspect, the trainers for instructing how to use asphalt plant were cultivated through the training in the project. In addition, a technical cooperation project by JICA from 2008 to 2011 helped DEP staff to use the provided equipment properly. On the other hands, the project didn't make any negative impacts in terms of the natural environment.

Therefore, effectiveness/impact of this project is high.

Quantitative effects

Indicator (Unit)	baseline value (2005)	target value (2011)	actual value (2011) (target year)
Indicator 1: Repaving of asphalt paved roads using the equipment developed under this project	-	Kuvaky pass 26km Dolon pass 19km	The originally-planned 45km road sections were/ will be rehabilitated by donors.
Indicator 2: Average vehicles per day of BNT 217km, 348km, 354km, 500km	1,265 (2008)	-	3,209 The locations mentioned in the left column have been rehabilitated by donors.
Indicator 3: Average IRI of BNT roads ^a (for reference)	-	-	2.4 mm/m ^b

Sources: Questionnaire survey and Interview survey with MOTC, BNT UAD, DEP 955, DEP 41, DEP 957 and AP

Site survey of roads under the jurisdiction of BNT UAD and the offices of DEP 955, DEP 41, DEP 957 and AP

Notes: ^a International Roughness Index, which shows smooth road surface conditions.⁶ The figures are not available before 2012. The figure is as of 2012. ^b The average of IRI both lines of BNT Road (0-539km).

⁴ The indicators for evaluating quantitative effects of this project weren't clearly described in the ex-ante evaluation report. Therefore the survey mission set up the draft indicators and tried to collect the quantitative data including the data (baseline value) at the time of ex-ante evaluation. However the mission could not get enough data because MOTC hasn't collected and arranged data from 2005 to this year. For the reason, the survey mission set up new indicators (indicators1-3) based on the data which the survey mission could get.

⁵ The road network in Naryn consists of international roads, national roads and local roads.

⁶ Road surface condition is considered to be good when IRI is low. Repair works are needed in Japanese expressway is more than 3.5mm/m.



Repairing potholes of BNT road (June 5, 2012)



After the repair of BNT road (June 8, 2012)



Aggregate Plant in AP



Snow Removing Machine

3 Efficiency

The outputs of the project were produced as planned, and both the project cost and the project period were within the plan (ratio against the plan: 94%, 87%). Therefore, efficiency of this project is high.

4 Sustainability

The equipment provided by the project are maintained by MOTC, BNT UAD and the six DEPs and AP (asphalt plant) under BNT UAD, and when the provided equipment are broken, BNT UAD and the DEPs repair them. Rehabilitations and repairs of road pavement have been implemented under direct management of MOTC, Regional Road Agencies (PLUAD)/UAD and DEPs. There is no problem in the technical aspect because BNT UAD and DEPs have properly repaired the provided machines. It was pointed out during the interviews with DEPs that some training provided by this project was not sufficient (therefore repair of equipment sometimes took time)⁷ and that the project did not prepare manuals written in Russian, but they have not affected O&M of the equipment seriously. Actually-spent budget of BNT UAD increased from 34 million som in 2005 to 152 million som in 2011 despite the limited resources for road maintenance, and financial resources for the operation and maintenance of the provided equipment are secured. BNT UAD and DEPs implement repairs properly, although it is difficult to purchase parts made in Japan in Kyrgyz and MOTC uses parts made in China. Although some machines are not located where the Project prescribed but located in BNT UAD in Bishkek and distributed on rotational basis to DEPs, they also have been properly maintained so far.

In this way, while a few concerns were observed, this project has no problem in structural, technical and financial aspects, and the current status of operation and maintenance of the implementing agency. Therefore, sustainability of the project effect is high.

III. Recommendations & Lessons Learned

Recommendations for Implementing agency

-MOTC should collect and analyze data for road maintenance for evaluating works implemented by MOTC and explaining to the government and the public the importance of road maintenance (e.g. detailed data of closures caused by snow, time to remove snow, etc.).

Lessons learned for JICA

-It is effective to implement a technical cooperation project at the same time as project for improvement of road maintenance equipment. The engineers learned how to improve asphalt with the Stabilizer provided by this project.

-The outputs of the project were produced as planned. However MOTC, BNT UAD and DEPs reported that the O&M of the procured equipment would have been easier if the project had specified measures to ensure O&M more clearly. Therefore, a future project to procure equipment could include specific O&M items such as the followings in the list of the outputs:

- Implementation of the training about how to repair equipment
- Hand out manuals in local languages

-Indicators should be set up and be collected the data of the ex-ante evaluation in BD. In addition, BD mission should instruct implementing agency to collect the data needed for indicators after ex-ante evaluation.

⁷ Although an equipment record/log for O&M was prepared with the support of the project, the contents of the training in the project were mainly about how to use equipment and not about how to repair them in the case of the breakdown. For that reason, the DEPs ask BNT UAD in Bishkek to send skillful master for repair or send equipment to Bishkek for repair.