

## FEEDER ROAD SELECTION SUMMARY

### A. General

1. In the Kyrgyz Republic, around 60% of the population resides around the rural areas, where most of feeder roads have been deteriorated and require urgent rehabilitation/repair works. Though those roads carry relatively low traffic volumes (on average less than 1,000 motorized vehicles per day), they are vital for local population's livelihoods, for instance, going to economic centers for selling their agricultural/livestock products or social service facilities/utilities and having social networking activities.

2. During the project preparatory stage, ten feeder roads located along the Bishkek–Kara-Balta and Madaniyat–Jalal-Abad sections, were considered for financing based on technical, economical, social, and safeguard findings. The roads will be designed in accordance with the Kyrgyz Republic's technical standards and meet requirements specific to the project including those of the agreed environmental assessment and review framework (EARF) and land acquisition and resettlement assessment and review framework (LARF).

### B. Road Selection Criteria

3. Selection and preparation of the feeder roads under the project will be primarily the MOTC's responsibility. As its advance action, the following criteria are proposed to apply in selecting roads for financing under the project:

#### Technical

(i) Roughness as indicator of the existing road condition.

#### Cost-effectiveness

(ii) Estimated economic internal rate of return (EIRR) each road, calculated in accordance with Highway Development and Management Tool (HDM-4). The EIRR for selected roads should be at least 12%.

#### Poverty and Social

(iii) Current poverty level of the rayon where the road exists.

(iv) Estimated number of beneficiaries per kilometer.

(v) Degree of improvement of people's access to social service facilities (hospitals/health clinic and schools).

(vi) Results of focus group discussions held by the project preparation technical assistance (PPTA) consultant in the *rayons*.

4. At the selection stage, the following will need to be confirmed:

#### Design

(i) The design of the selected roads will meet the national technical standards and be endorsed by MOTC.

#### Operation and Maintenance

(ii) A responsible road maintenance body will be assigned and committed to regular maintenance works after the completion. The government will commit to allocate adequate maintenance finances for the road.

### Safeguards

- (iii) Due diligence to be conducted prior to the selection will confirm that no significant safeguard impact will be involved.
- (iv) Prior to the construction work, the site-specific environment management plan (SSEMP) will be prepared in accordance with the EARF and be endorsed by the government and ADB. The contractor and construction supervision consultant will be required to monitor their compliance with the SSEMP.
- (v) If applicable, prior to the construction work, the resettlement and land acquisition plan (LARP) will be prepared in accordance with the LARF and be endorsed by the government and the ADB. In case that any LAR-related activity is involved, all the procedure to be taken will be documented in the monitoring report and the report will be submitted to ADB.

### **C. Summary of the Proposed Feeder Roads**

5. The project preparation technical assistance (PPTA) consultant assessed the present conditions of the feeder roads and determined works required to make the roads more operational in the long run. The main works to be held are (i) repairing pavement surface, (ii) rehabilitating deteriorated/damaged bridges and drainages, (iii) cleaning and replacement of culverts and (iv) construction of road shoulder. Table 1 lists the proposed feeder roads.

**Table 1: Cost Estimate of the Proposed Feeder Roads**

Section	Rayon	Distance (km)	PPTA Estimate (M\$) <sup>a</sup>
Bishkek–Kara-Balta section			
Gavrilovka– Malovodnoe	Sokuluk	3.6	0.675
Sokuluk–Zarya		33.0	4.919
Sokuluk–Belogorka		23.4	3.867
Belogorka–Berulu		3.0	0.665
Belovodskoe–Tolok	Moscow	33.7	4.275
Poltavka–Kyzyl-Dykan	Jaiyl	21.3	3.241
Kara-Balta–Stepnoe		42.9	6.360
Madaniyat–Jalal-Abad section			
Massy–Kologon	Nooken	10.3	1.643
Bazar Korgon–Arsalanbap	Bazar Korgon	47.6	7.825
Suzak–Kado	Suzak	43.5	7.187

<sup>a</sup> The estimate cost includes (i) tax and duties and (ii) contingencies (10% of civil work cost).  
 Source: PPTA consultant's Feasibility Study Report June 2013

### **D. Preliminary Assessment of the Proposed Feeder Roads**

6. ADB examined the feeder roads with the MOTC and the PPTA consultant. The assessment results are summarized in Table 2.

**Table 2: Summary of Assessment of Feeder Roads (1)**

		Section of Bishkek - Kara-Balta				
From	To	Gavrilovka	Sokuluk	Sokuluk	Belogorka	Belovodskoe
Oblast	Rayon	Malovodnoe	Zarya	Belogorka	Berulu	Tolok
		Chui	Chui	Chui	Chui	Chui
		Sokuluk	Sokuluk	Sokuluk	Sokuluk	Moscow
Distance of proposed section (km)		3.6	33.0	23.4	3.0	33.7
Main works		Rehabilitation work Repairment of drainages Replacement of bus stops	Rehabilitation of the road and bridges Construction of gravel shoulder Repairment of drainages	Rehabilitation of the road Construction of gravel shoulder Cleaning/repairment of drainages	Asphalt pavement Construction of gravel shoulder Installation of drainages Rehabilitation of bridge	Rehabilitation of the road Construction of gravel shoulder Cleaning/repairment of drainages
Category of road after rehabilitation		4 (1-lane 6 m)	4	4	5 (1-lane 4.5 m)	4
Poverty	Population	2,789	13,495	5,518	445	6,766
	Estimated population to be benefited/km	775	409	236	148	201
	No. of villages to be benefitted	1	5	6	1	5
	Major economic activities	Agriculture, Cattle raising, Quarry operation (private entity)	Agriculture, Cattle raising	Agriculture, Cattle raising, Factory (poultry, food processing)	Agriculture, Cattle raising	Agriculture, Cattle raising
	Nearest economic centers (trade, market)	Bishkek	Sokuluk	Sokuluk	Sokuluk	Sokuluk, Kara-Balta
Maintenance	Responsibility of regular maintenance	Rayon	MOTC	MOTC	Rayon/Village	MOTC
	Existing maintenance systems (how often maintenance is carried out, who is engaged (paid or voluntary), how maintenance materials are procured)	Rayon's road maintenance department checks the road surface and conducts mainly patching works on damages spots. The department owns their maintenance equipment.	MOTC regularly checks road surface conditions and has patching works on the hole or damaged sections. The material is procured by MOTC from the quarries nearby Sokuluk, where MOTC has a factory producing asphalt concrete. Maintenance equipment belongs to	MOTC regularly checks road surface conditions and has patching works on the hole or damaged sections. The material is procured by MOTC from its own production plant along the road. Maintenance equipment belongs to MOTC.	Currently gravel pavement. Needs to check maintenance system.	MOTC regularly checks road surface conditions and has patching works on the hole or damaged sections. MOTC procures materials for patching works and own equipment.
	Possibility of femail engagement in regular road maintenance activities	Less likely. Most of the works are done by men with handy equipment, but no official prohibition.	Less likely. Most of the works are done by men with handy equipment, but no official prohibition.	Less likely. Most of the works are done by men with handy equipment, but no official prohibition.	Likely. The new maintenance work system is able to be developed.	Less likely. Most of the works are done by men with handy equipment, but no official prohibition.
	Sustainability of the current system	Should ensure the rayon's continuous budget allocation.	Should ensure the MOTC's allocation of budget and maintenance staff.	Should ensure the MOTC's allocation of budget and maintenance staff.	Should consider with the rayon/village about regular maintenance work procedure for the newly paved area.	Should ensure the MOTC's allocation of budget and maintenance staff.
Technical	Surface conditions	Seriously damaged, particularly around the Malovodnoe village. Heavily loaded trucks from the private quarry often use the road, and that affects the road surface conditions.	Some areas are paved by gravel and rough for driving, and concrete-paved sections have various potholes and cracks.	Potholes and cracks are observed throughout the road, which impedes drives.	Gravel pavement.	Potholes and cracks need to be maintained, which impede drive.
	Connection to the national road	Direct connection	Direct connection	Direct connection	23.4 km far	Direct connection
	Roadside safety facilities to be installed	Center of the village (exists) Only at the connection with the main road One-side	Center of the village (exists) None One-side	Center of the village (exists) Selected area One-side	None Road shoulder will be built.	Center of the village (exists) Selected area One-side
Serviceability	Major transportation facilities	Private car, Minibus, Taxi	Private car, Minibus, Taxi	Private car, Minibus, Taxi	Private car	Private car, Minibus, Taxi
	Estimated AADT (PPTA estimate)	1,700	831	1,809	102	759
	Basic service facilities nearby (total no. along the road)					
	1. Hospital/Health post/Health center	1 (midwife center)	3 (midwife center)	2 (midwife center)	0	3 (midwife center)
2. School (Primary and Secondary)	1	6	6	0	8	

Sources: PPTA consultant's Feasibility Study Report And Asian Development Bank.

**Table 2: Summary of Assessment of Feeder Roads (2)**

		Bishkek - Kara Balta Section		Madaniyat - Jalalabad Section		
From	To	Poltavka	Kara - Balta	Massy	Bazar Korgon	Suzak
		Kyzyl-Dykan	Stepnoe	Kologon	Arslanbap	Kado
Oblast		Chui	Chui	Jalal-Abad	Jalal-Abad	Jalal-Abad
Rayon		Jaiyl	Jaiyl	Nooken	Bazar Korgon	Suzak
Distance of proposed section (km)		21.3	42.9	10.3	47.6	43.5
Main works		Rehabilitation of the road Construction/repairment of drainages	Rehabilitation of the road and bridges Repairment of drainages	Rehabilitation of the road Construction of gravel shoulder Repairment/replacement of drainages Construction of embankment against floods	Rehabilitation of the road and bridge Construction of gravel shoulder Repairment of drainages Construction of embankment against floods	Rehabilitation of the road and bridge Construction of gravel shoulder Repairment of drainages Construction of embankment against floods
Category of road after rehabilitation		4	4	4	4	4
Poverty	Population	4,376	3,514	4,679	27,272	21,688
	Estimated population to be benefited/km	205	82	454	573	499
	No. of villages to be benefitted	5	4	5	8	10
	Major economic activities	Agriculture, Cattle raising, Factory (Sugar production)	Agriculture, Cattle raising	Agriculture, Cattle raising	Agriculture, Cattle raising	Agriculture, Cattle raising, Factory (brick)
	Nearest economic centers (trade, market)	Sokuluk, Kara-Balta	Kara-Balta	Massy, Bazar Korgon	Bazar Korgon	Jalal-Abad
Maintenance	Responsibility of regular maintenance	MOTC	MOTC	MOTC	MOTC	MOTC
	Existing maintenance systems (how often maintenance is carried out, who is engaged (paid or voluntary), how maintenance materials are procured)	MOTC regularly checks road surface conditions and has patching works on the hole or damaged sections. MOTC procures materials for patching works and own equipment.	MOTC regularly checks road surface conditions and has patching works on the hole or damaged sections. MOTC procures materials for patching works and own equipment. The section connects the Kazakhstan border, and big freight trucks are often observed.	MOTC regularly checks road surface conditions and has patching works on the hole or damaged sections. MOTC procures materials for patching works and own equipment.	MOTC regularly checks road surface conditions and has patching works on the hole or damaged sections. MOTC procures materials for patching works and own equipment.	MOTC regularly checks road surface conditions and has patching works on the hole or damaged sections. MOTC procures materials for patching works and own equipment.
	Possibility of femail engagement in regular road maintenance activities	Less likely. Most of the works are done by men with handy equipment, but no official prohibition.	Less likely. Most of the works are done by men with handy equipment, but no official prohibition.	Less likely. Most of the works are done by men with handy equipment, but no official prohibition.	Less likely. Most of the works are done by men with handy equipment, but no official prohibition.	Less likely. Most of the works are done by men with handy equipment, but no official prohibition.
	Sustainability of the current system	Should ensure the MOTC's allocation of budget and maintenance staff.	Should ensure the MOTC's allocation of budget and maintenance staff.	Should ensure the MOTC's allocation of budget and maintenance staff.	Should ensure the MOTC's allocation of budget and maintenance staff.	Should ensure the MOTC's allocation of budget and maintenance staff.
Technical	Surface conditions	Potholes and cracks need to be maintained. Some areas are paved with gravel.	Potholes and cracks need to be maintained. Some areas are paved with gravel.	Potholes and cracks need to be maintained (especially populated areas).	Some areas are damaged seriously by floods and protection facilities (embankment or guard rails) are needed. As for other sections, potholed and cracks need to be maintained.	Potholes and cracks need to be maintained. Some areas are narrow and paved with gravel.
	Connection to the national road	Direct connection	Direct connection	Direct connection	Direct connection	Direct connection
	Roadside safety facilities to be installed					
	1. Roadside lighting 2. Guard-rails 3. Pedestrian lanes	Center of the village (exists) None One-side	Center of the village (exists) Selected area One-side	Center of the village/town (exists) Selected area One-side	Center of the village (exists) Selected area One-side	Center of the village (exists) Selected area One-side
Serviceability	Major transportation facilities	Private car, Minibus, Taxi	Bus, Minibus, Taxi, Private car	Private car, Minibus, Taxi	Private car, Minibus, Taxi	Private car, Minibus, Taxi
	Estimated AADT (PPTA estimate)	998	1,267	287	1,247	530
	Basic service facilities nearby (total no. along the road) 1. Hospital/Health post/Health center	3 (midwife center)	2 (hospital and midwife center)	1 (family physician)	8 (2 rayon's hospitales, 3 midwife centers and 3 family physicians)	9 (7 midwife centers and 2 family physicians)
	2. School (Primary and Secondary)	3	14	4 (incl. disabled students)	12	12

Sources: Asian Development Bank.

## **E. Preliminary Prioritization of the Feeder Roads**

7. The proposed feeder roads will be prioritized on the proposed criteria as below, and selected in consideration with the available budget:

- (i) Number of expected beneficiaries per km;
- (ii) Poverty incident ratio road condition (IRI);
- (iii) Economic viability (EIRR (%));
- (iv) Expected improvement of access to social services, highest number of social services along the road; and
- (v) Responses obtained during focus group discussions held by the PPTA consultant.

8. There is no significant safeguard-related impact is expected, due to the limited works. Hence, environmental and resettlement issues are not considered in the scoring at present. However, at detailed design stages, due diligence will be conducted.