

**REPORT AND RECOMMENDATION  
OF THE  
PRESIDENT  
TO THE  
BOARD OF DIRECTORS  
ON A  
PROPOSED LOAN AND  
TECHNICAL ASSISTANCE GRANT  
TO THE  
KYRGYZ REPUBLIC  
FOR THE  
THIRD ROAD REHABILITATION PROJECT**

**September 2001**

## CURRENCY EQUIVALENTS

(as of 17 August 2001)

Currency Unit	–	Som
Som1.00	=	\$0.02
\$ 1.00	=	Som48

## ABBREVIATIONS

ADB	–	Asian Development Bank
AADT	–	average annual daily traffic
CAR	–	Central Asian Republic
CDF	–	comprehensive development framework
DOR	–	Department of Roads
EA	–	executing agency
EIRR	–	economic internal rate of return
FSU	–	former Soviet Union
GDP	–	gross domestic product
GNP	–	gross national product
h	–	hectare
HDM	–	highway design and maintenance model
ICB	–	international competitive bidding
IDB	–	Islamic Development Bank
IEE	–	initial environmental examination
IMF	–	International Monetary Fund
JBIC	–	Japan Bank for International Cooperation
LMU	–	local maintenance unit
MIA	–	Ministry of Internal Affairs
MOF	–	Ministry of Finance
MOTC	–	Ministry of Transport and Communications
NRSC	–	National Road Safety Council
NSPR	–	national strategy for poverty reduction
PA	–	project administration
PIP	–	public investment program
PIR	–	poverty impact ratio
PIU	–	project implementation unit
PMS	–	poverty monitoring survey
PPMS	–	project performance management system
PRA	–	participatory rapid appraisal
PRGF	–	poverty reduction and growth facility
PSC	–	project steering committee
RRMA	–	regional road maintenance agency
RSA	–	Road Safety Act
SIEE	–	summary initial environmental examination
t	–	ton (metric)
TA	–	technical assistance
VOC	–	vehicle operating cost

## NOTES

- (i) The fiscal year (FY) of the Government ends on 31 December.
- (ii) In this report, "\$" refers to US dollars.

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## LOAN AND PROJECT SUMMARY

<b>Borrower</b>	The Kyrgyz Republic
<b>Project Description</b>	<p>The Project, which would comprise the third phase of a rehabilitation program for the Bishkek–Osh road, is located in Jalal–Abad and Osh provinces in the southwestern region of the Kyrgyz Republic. About 73 percent of the people in the project area are estimated to be poor. This level of poverty is higher than that in the country as a whole. The Project will (i) rehabilitate sections of the Bishkek–Osh road; (ii) improve secondary roads in the project area; (iii) provide consulting services for construction supervision, monitoring and evaluation, and implementation of reformed road maintenance practices; and (iv) procure light equipment for road maintenance. The Project will reduce poverty by lowering transport costs for road users and by improving access to markets and employment opportunities. Improving the secondary roads will also improve access to more comprehensive health facilities.</p>
<b>Classification</b>	Poverty: Other Thematic: Economic growth
<b>Environmental Assessment</b>	Category B An initial environmental examination was undertaken, and a summary is a core appendix.
<b>Rationale</b>	<p>The Project will continue the rehabilitation program for the Bishkek–Osh road, which (i) is the most important transport corridor in the country, providing the only internal surface connection between the Kyrgyz Republic's two most important commercial and political centers; and (ii) forms part of an important regional corridor. The Project will rehabilitate the most deteriorated of the remaining sections of the road in Jalal–Abad and Osh provinces, as well as secondary roads providing access to poor villages and rural areas. About 73 percent of the people in the project area are estimated to be poor—a figure substantially higher than the national level—and about 28 percent are estimated to be extremely poor. The Project will reduce poverty in the project area by lowering transport costs for road users and by improving access to markets, employment opportunities, and more comprehensive health facilities for a large number of poor people.</p>
<b>Objectives and Scope</b>	<p>The objective is to reduce poverty and promote sustainable economic growth by reducing the cost of road transport and improving access to markets in the Bishkek–Osh corridor. Specifically, the Project will (i) reduce transport</p>

costs by rehabilitating the most deteriorated of the remaining sections of the road linking Bishkek and Osh; (ii) reduce transport costs and improve access to markets and health facilities by improving secondary roads in the project area; (iii) support regulatory reform in the road sector; and (iv) assist in improving road maintenance practices and ensuring a sustainable and adequate level of financing for road maintenance. The Project comprises (i) rehabilitation of about 120 kilometers of the two-lane national highway from Bishkek to Osh, in particular, km 427–498 in Jalal-Abad province, and the Uzgen–Osh section in Osh province, including provision of safety features; (ii) improvement of about 125 km of secondary roads in Jalal-Abad feeding into the Bishkek–Osh road; (iii) consulting services for construction supervision, monitoring and evaluation, and implementation of reformed road maintenance practices; and (iv) procurement of light, hand-operated equipment and truck-mounted cranes for routine maintenance of selected secondary roads and the Bishkek–Osh road.

#### Cost Estimates

The total cost of the Project is estimated at \$50 million equivalent, including physical contingencies, price escalation, and interest and other charges during construction, but excluding Value Added Tax and other taxes. Of the total cost, \$30.6 million (61.2 percent) is the foreign exchange cost and \$19.4 million equivalent (38.8 percent) is the local currency cost.

#### Financing Plan

(\$ million)				
<b>Source</b>	<b>Foreign Exchange</b>	<b>Local Currency</b>	<b>Total Cost</b>	<b>Percent</b>
Asian Development Bank	30.6	9.4	40.0	80
Government	0.0	10.0	10.0	20
<b>Total</b>	<b>30.6</b>	<b>19.4</b>	<b>50.0</b>	<b>100</b>

#### Loan Amount and Terms

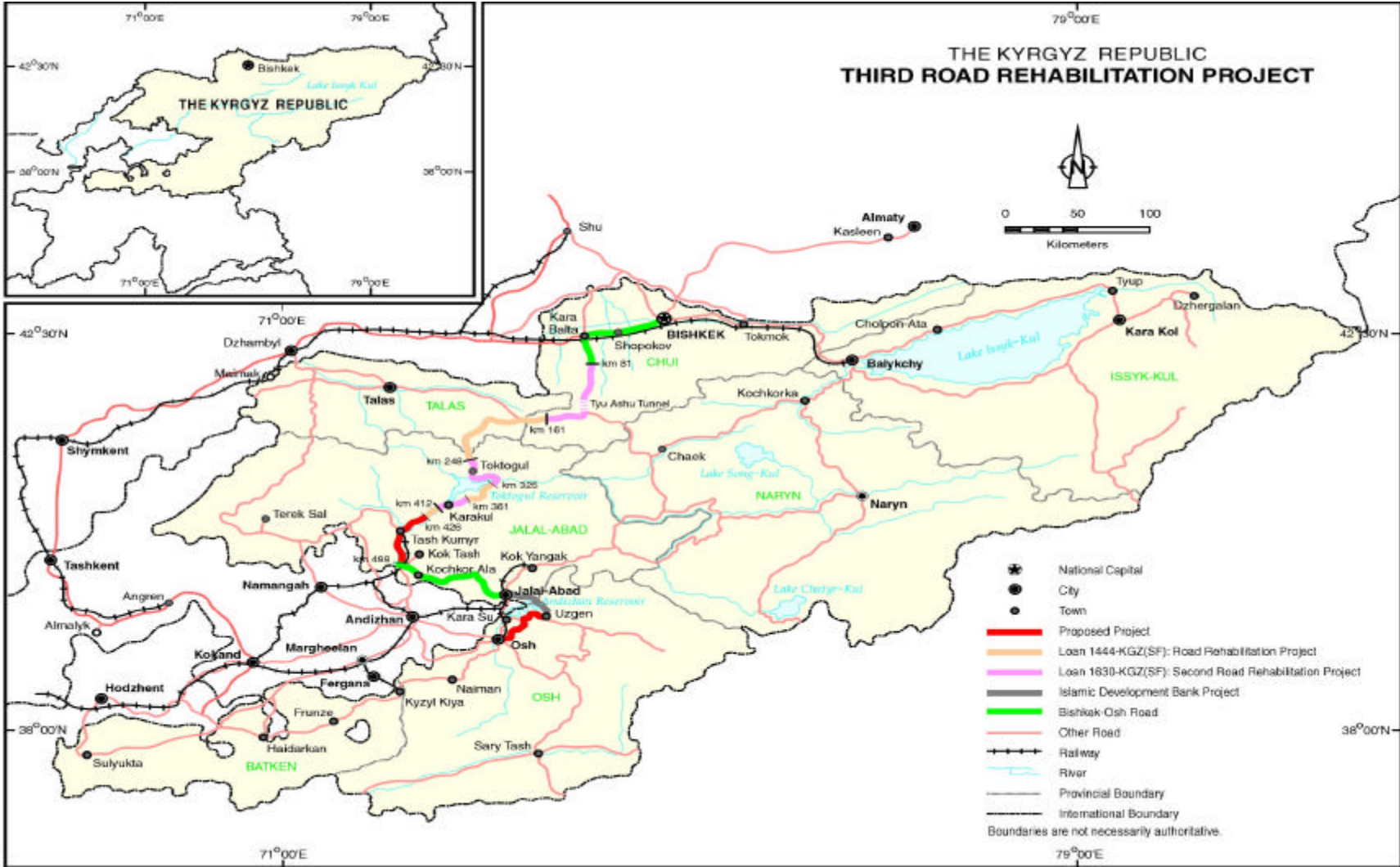
A loan of SDR 31,778,000 (\$40 million equivalent) from the Asian Development Bank's (ADB's) Special Funds resources will be provided in accordance with ADB's standard terms and conditions for loans from its Special Funds resources. The ADB loan will have a maturity of 32 years including a grace period of 8 years and an interest charge of 1.0 percent per annum during the grace period and 1.5 percent during the remaining period.

<b>Period of Utilization</b>	Until 30 April 2005
<b>Executing Agency</b>	Ministry of Transport and Communications (MOTC)
<b>Implementation Arrangements</b>	The project implementation unit presently administering ADB's ongoing road projects will be responsible for implementing the Project, including the rehabilitation of sections of the Bishkek–Osh road and improvement of the secondary roads.
<b>Procurement</b>	All procurement to be financed under the ADB loan will be carried out in accordance with ADB's <i>Guidelines for Procurement</i> . All six contracts for civil works and contracts valued in excess of \$500,000 for goods will be procured through international competitive bidding (ICB). Supply contracts not exceeding \$500,000 will be procured through international shopping (three contracts). Advance procurement action for civil works was approved on 18 May 2001.
<b>Consulting Services</b>	International consulting services totaling 51 person–months will be provided for (person–months in parentheses) construction supervision (47) and project impact monitoring and evaluation (4). The international consultants will also give on–the–job training to the counterpart staff and domestic consultants. In association with the international consultants, domestic consulting services totaling 300 person–months will be provided for construction supervision, contract management, and other technical advisory assistance (270); as well as for assisting the international consultants in monitoring the social and poverty impact of the Project through household surveys and data analysis (30). The consultants to be financed under the loan will be recruited in accordance with ADB's <i>Guidelines on the Use of Consultants</i> and other arrangements satisfactory to ADB for engaging domestic consultants. Advance recruitment action for selecting consultants was approved on 18 May 2001.
<b>Estimated Completion Date</b>	31 October 2004
<b>Project Benefits and Beneficiaries</b>	The principal quantifiable benefits are savings in vehicle operating costs and time, benefits arising from generated traffic, and economic value added. The economic internal rate of return for rehabilitating the Bishkek–Osh road and secondary roads is estimated at 19.3 percent. The Project will also facilitate economic development by improving access and reducing transport costs to the project area's major markets. By improving secondary roads in poor

areas, the Project will also improve access to better health facilities. The main beneficiaries will be households in poor areas; users of freight and passenger transport services, including agricultural producers; and providers of transport services. The Project will generate employment opportunities through the civil works; a large portion of these opportunities is envisioned to go to poor laborers.

**Technical Assistance**

The technical assistance grant for \$650,000, financed from the Japan Special Fund, funded by the Government of Japan, will (i) assist the Government in developing the capacity to maintain secondary roads using community maintenance techniques; and (ii) develop a set of specific measures for regulatory reforms to increase the competitiveness of the markets for transport services.



## I. THE PROPOSAL

1. I submit for your approval the following Report and Recommendation on a proposed loan to the Kyrgyz Republic for the Third Road Rehabilitation Project. The report also describes proposed advisory technical assistance for Institutional Support in the Transport Sector, and if the proposed loan is approved by the Board, I, acting under the authority delegated by the Board, shall approve the technical assistance.

## II. INTRODUCTION

### I.

2. During the Asian Development Bank's (ADB's) 2000 Country Programming Mission, the Government of the Kyrgyz Republic reconfirmed its request for further ADB assistance to develop the country's road sector and to implement the Third Road Rehabilitation Project. The Project will contribute to ADB's efforts to promote regional cooperation. The Government received a project preparatory technical assistance (TA)<sup>1</sup> to update the transport sector profile—including an assessment of the priority needs of the sector—and prepare the feasibility study for the proposed Project. Fact-finding for the Project was undertaken and a tripartite meeting to discuss the findings of the Third Road Rehabilitation TA was held during 27 February–13 March 2001, and loan appraisal was conducted during 24 May–6 June 2001.<sup>2</sup> The Project was formulated from the findings of ADB missions, information provided by the Government, discussions with other funding agencies and road sector representatives, and the findings of the Third Road Rehabilitation TA (footnote 1). If approved, the proposed loan will be ADB's fourth to the transport sector of the Kyrgyz Republic. The project framework is in Appendix 1.

## III. BACKGROUND

### A. The Transport Sector

#### 1. General

3. The transport infrastructure inherited by the Central Asian republics (CARs) was designed to facilitate integration of the republics of the former Soviet Union (FSU) with Russia, rather than to serve the needs of independent countries. As a result, the transport networks of the CARs often do not meet their domestic and international transport requirements. The Kyrgyz Republic is a mountainous, landlocked country, and road transport dominates the country's transport sector. Road transport accounted for about 97 percent of freight tonnage movements and almost all passenger traffic in 1999 (Appendix 2). Railways carry most of the remaining freight, including a substantial part of the cross-border traffic, by means of separate branch lines that link the north of the country to the Kazakh rail system, and the south of the country to the Uzbek system, with no direct connection between the two links. Due to longer average haulage, railways account for about 21 percent of the total freight in terms of ton-kilometers (ton-km). Air transport accounts for less than 1 percent of passenger movements, mainly on routes between Bishkek and Osh. Water transport is confined to a few small vessels on Lake Issyk-Kul.

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<sup>1</sup> TA 3335-KGZ: *Third Road Rehabilitation Project*, for \$600,000, approved on 10 December 1999.

<sup>2</sup> The Missions comprised J. Miller, Mission Leader/Project Economist; F. Agnello, Poverty Reduction Specialist; L. Nazarbekova, Counsel; and K. Saari, Transport Specialist.

4. As with most other republics of the FSU, the economic crisis stemming from the breakup of the FSU resulted in a decline in economic activity and disrupted customary trading patterns. The demand for transport has fallen dramatically since independence. The lowest levels were reached in 1995 when the volumes of freight in ton–km and passenger movements were only 14 percent and 33 percent of their respective 1990 levels, reflecting a sharp decline in real incomes and output. The gross domestic product (GDP) and demand for freight and passenger transport grew substantially in 1996 and 1997; however, GDP growth slowed in 1998 because of (i) the impact of the economic crisis in Russia, (ii) damage to the infrastructure caused by flooding in the Fergana valley, and (iii) a substantial reduction in tourism revenue caused by adverse publicity concerning the cyanide spill at Lake Issyk–Kul. Accordingly, the transport demand for freight tons and ton–km in 1999 was unchanged and lower, respectively, compared with the 1997 levels. Since most of the roads were designed for higher traffic capacities and are underutilized, the existing basic transport infrastructure is adequate for the level of economic activity likely to occur in the medium term. Consequently, the primary concern is not expansion or major upgrading of the transport system, but proper maintenance and rehabilitation to preserve the existing network.

5. The Ministry of Transport and Communications (MOTC) is responsible for policymaking in and regulating, planning, and developing the transport and communications sectors in the Kyrgyz Republic. In conjunction with the policy dialogue under the Second Road Rehabilitation Project<sup>3</sup> and following the passage of Law No. 8 on Transport and issuance of Decree No. 419 in 1998, MOTC was restructured to improve its efficiency (Appendix 3). As part of the restructuring, a Government decree was issued in January 1999 requiring consolidation of the administration of transport–related activities. This resulted in a restructuring of responsibilities among the Ministry of Architecture and Construction, Ministry of Internal Affairs (MIA), and MOTC (para. 21).

6. Railway and air transport are under MOTC's jurisdiction. MOTC exercises both regulatory and operational functions for the railway network, which has a combined length of 424 km. Railways are expected to remain under Government ownership. A joint–stock company, National Aircompany Kyrgyzstan Aba Joldory, serves as the Kyrgyz Republic's national airline and also operates the country's airports. The Government plans to separate operations of the airline and airports in the future. MOTC also exercises general regulatory and monitoring functions for the operations of road transport for freight and passengers.

## **2. The Road Sector**

### **a. The Road Network**

7. The road network in the Kyrgyz Republic covers all seven provinces (oblasts), and provides connections to far–flung communities and links to neighboring countries. The Bishkek–Osh road provides links between Tajikistan and Uzbekistan in the south and Kazakhstan and Russia in the north. There are 18,876 km of roads under MOTC jurisdiction: 9,803 km of state roads and 9,073 km of local roads. Roads are divided into five design categories, distinguished mainly by carriageway width. About 15 percent of the roads are in category I (15 meters [m] or wider), category II (9–11.5 m), and category III (7.5 m); 85 percent are in category IV (6 m) and category V (4.5 m). About 40 percent of the roads are sealed, including some with gravel mixed with bitumen binder. Over 50 percent are gravel and less than 10 percent are earth roads. The

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<sup>3</sup> Loan 1630–KGZ(SF): *Second Road Rehabilitation Project*, for \$50 million, approved on 10 September 1998.

coverage of the road network is generally adequate for the developmental needs of the country. Of primary concern is the deteriorating state of the roads at all levels; over 60 percent now require periodic maintenance or rehabilitation.

8. There are 15,000 km of roads outside MOTC's jurisdiction, mainly rural and farm roads. Most were formerly the responsibility of state and collective farms. The responsibility for maintaining rural and farm roads is now with the local district administrations following the progressive breakup of the state and collective farming system.

#### **b. Road Standards and Safety**

9. The FSU's road standards and specifications continue to be used in the Kyrgyz Republic. A number of studies have indicated that the design standards of FSU state roads are generally comparable with those of the United States or Western Europe, but do not always result in optimum road design. Roads constructed during the FSU period were generally designed for axle loads of 6–8 tons (t). Since independence, axle loads of 10–12 t and even higher have become common, which has considerably reduced the residual design life of pavements. Unlike the design standards, the quality of road construction during the FSU was rarely acceptable, mainly because of lack of cost-effective construction techniques, and inadequate independent construction supervision and quality control. Road design and construction standards were reviewed through an ADB-financed TA<sup>4</sup> for three CARs (Kazakhstan, the Kyrgyz Republic, and Uzbekistan) and Mongolia to prepare road design and construction standards that are suitable for market-oriented operations. These standards will be applied to the civil works in the Project.

10. ADB is also significantly involved in improving road safety in the Kyrgyz Republic, through the Second Road Rehabilitation Project (footnote 3) and the Almaty–Bishkek Regional Road Rehabilitation Project.<sup>5</sup> The Second Road Rehabilitation Project prepared a time-bound road safety program to reduce the accident rate. Under the Almaty–Bishkek Project, the Government agreed to establish the National Road Safety Council (NRSC) with a full-time secretariat to coordinate road safety activities and involve the various stakeholders. The Government also agreed to update the Road Safety Act (RSA) for submission to parliament. The RSA will include legislation concerning safe driving, safety audit of road designs, safety education, road safety publicity, vehicle safety standards, road safety research, and emergency assistance to accident victims. An advisory TA attached to the Almaty–Bishkek Project will help the Government to establish the NRSC, update the RSA, prepare a Russian version of the *Road Safety Guidelines* prepared under an earlier TA,<sup>6</sup> and conduct road safety seminars to implement the *Road Safety Guidelines*.

#### **c. Vehicle Traffic and Fleet**

11. The busiest roads on the outskirts of Bishkek typically carry an average annual daily traffic (AADT) of about 10,000 vehicles, while traffic levels on similar roads around Osh reach about 4,500 AADT. Sections of main roads farther away from the larger towns, such as the central sections of the Bishkek–Osh road, now carry about 1,000–1,500 AADT. Cars and vans generally comprise the majority of traffic on these roads. Prior to the economic crisis, traffic

<sup>4</sup> TA 5733–REG: *A Review of Road Design and Construction Standards*, for \$600,000, approved on 3 April 1997.

<sup>5</sup> Loan 1774–KAZ: *Almaty–Bishkek Regional Road Rehabilitation Project*, for \$65 million, approved on 31 October 2000; Loan 1775–KGZ: *Almaty–Bishkek Regional Road Rehabilitation Project*, for \$5 million, approved on 31 October 2000.

<sup>6</sup> TA 5620–REG: *Regional Initiatives in Road Safety*, for \$600,000, approved on 4 January 1995.

volumes on some road sections were three and six times higher in terms of freight and passengers, respectively. Seasonal variations, reflecting both changes in transport demand and weather-related constraints, are significant on roads crossing the central mountainous areas of the country.

12. In 1998, the country's vehicle fleet comprised about 56,500 trucks, 13,200 buses, 197,100 cars, and 39,900 other vehicles. Since 1993, the number of cars has increased substantially, buses have increased by a small amount, and trucks and other vehicles have decreased substantially. The fleet is aging, since few companies have been in a position to buy modern vehicles. Over half the truck fleet has a capacity of less than 7 t, with a predominance of 5-t trucks. Longer distance interurban freight movements are handled mainly by three-axle vehicles and semi-trailers with average payloads in the range of 8–15 t. About 5 percent of the fleet has a capacity of 15 t or more.

13. Vehicle ownership patterns have changed dramatically since independence, when there was almost no private ownership of vehicles. About 95 percent of cars are privately owned. Previously, state organizations owned and operated most trucks and buses. With the introduction of the privatization program and auctions, individuals now own 26 percent of the trucks and 23 percent of the buses. The rest are owned and operated by transport companies. The majority of the fleet is still made up of vehicles manufactured in the FSU. Some trucking companies have procured secondhand trucks of larger capacity and of more modern design, mainly for use on international routes. A significant number of cars, most of them secondhand, are now being imported from Western Europe for private use.

#### **d. Road Transport Industry**

14. Transport companies were controlled by a joint-stock holding company, Kyrgyz Auto Transport until 1994, when Decree No. 61 abolished the company and transferred its functions to MOTC. Of the total 251 transport sector enterprises in the Kyrgyz Republic, 126 have been privatized, primarily through conversion to joint-stock companies. Currently 86 companies provide road transport services, and 74 of them have been privatized. The companies that have not been privatized comprise urban bus enterprises in major cities and some enterprises connected with state security. The transport companies employ about 25,000 people. Most of the freight and passenger transport companies operate at the provincial and district (raion) level, with a small number of national-level operators. As a result of measures that the Government introduced in 1994 to increase competition, most of the national and provincial holding companies and associations (which had continued to exercise control over the operations of individual transport companies) were abolished.

15. Through ownership and regulation the Government continues to have a strong influence in the market for intercity passenger transport. The Government maintains large holdings in the joint-stock companies operating transport services. Buses must travel designated routes and operate out of Government-owned bus stations. Kyrgyz Transport Inspection, created in MOTC in 1994, issues transport licenses and regulates transport services. The Project will address these and other issues affecting competitiveness of the market for passenger transport services through policy dialogue (para. 34).

16. The market for freight transport services is more competitive than that for passenger transport. Freight transport customers are free to negotiate conditions of price and quality of service directly with the operators. Freight forwarders are encouraged to negotiate and arrange intermodal transport services, thus facilitating door-to-door transport arrangements, and to offer

services directly themselves. However, the Government also plays a large role in freight transport, through its holdings in joint-stock companies and through regulation. MOTC is responsible for monitoring and regulation, including licensing, inspection, and safety audits. Competitiveness of the market for freight transport services is also being addressed by the Project through policy dialogue (para. 34).

#### e. Road Sector Revenue and Expenditure

17. The Kyrgyz Republic is recovering from the adverse impact of the 1998 Russian crisis and registered GDP growth of 5 percent in 2000. However, the Government is still facing a difficult fiscal situation and high external debt burden, and the IMF's current PRGF has lapsed. Despite fiscal restraint, the fiscal deficit of 10.2 percent of GDP for 2000 was much higher than the target (para 25).

18. Financing for the road sector suffers from the overall fiscal constraints and is inadequate for the country's needs. In 1999, MOTC estimated the annual requirement for the road sector (including routine and periodic maintenance, administration, and design) at about Som700 million. Total road-sector-related revenues comprised Som492 million; however, only Som343 million was allocated to MOTC, and only Som142 million of that was allocated for road maintenance.

19. With the assistance of an ADB-financed TA for institutional strengthening,<sup>7</sup> the Government passed the Road Fund Act in 1998 and, as specified in the loan covenants for the Second Road Rehabilitation Project, is collecting road user charges prescribed under the act. According to the Road Fund Act, a portion of the road sector revenues should be deposited into a separate road fund account. The specific sources of revenue for the road fund are (i) 50 percent of the excise taxes on fuel, (ii) 100 percent of the 0.8 percent tax on enterprises, (iii) 100 percent of the tax on vehicle owners, (iv) 90 percent of vehicle registration fees, (v) charges for the use of toll roads and tunnels, (vi) charges for oversize and overweight vehicles, (vii) state budget allocations, and (viii) foreign loans and grants. In 1999, collections of revenues designated by statute for deposit in the road fund, excluding state budget allocations and foreign loans and grants, totaled approximately Som415 million. However, due to the severe fiscal problems faced by the Kyrgyz Republic (para. 17), a separate account for the road fund has not been established. Instead the Ministry of Finance (MOF) makes annual allocations for road maintenance and other road sector expenditures based on overall budget considerations. The allocations have been inadequate to meet the sector's needs (para. 18). The Project is addressing the issue of ensuring adequate financing for road maintenance through policy dialogue (paras. 35–36).

#### f. Road Administration

20. **Organizational Structure.** The Automobile Roads Act gives the main responsibility for planning and administering road sector policies, programs, and projects to MOTC. The Department of Roads (DOR) under MOTC is responsible for managing the road sector. MOTC's seven regional road maintenance agencies (RRMAs), one in each province, plus the Bishkek–Osh Road Division are responsible for maintaining the state and local roads under MOTC's jurisdiction. The RRMAs and Bishkek–Osh Road Division are composed of 82 local maintenance units (LMUs) that carry out actual maintenance works. Other important agencies in the road

<sup>7</sup> TA 2587–KGZ: *Institutional Strengthening of the Road Sector*, for \$800,000, approved on 13 June 1996.

sector are (i) KyrgyzIntrans, a holding agency for six freight transport companies and forwarding agencies engaged mainly in international trade; and (ii) technical agencies in various stages of divestment from MOTC's control, including the Road Design Institute (Kyrgyzdortransproect) and a small agency responsible for developing and testing new road construction techniques and equipment (Kyrgyzztranstekhnika).

21. ADB has assisted MOTC in streamlining management of the road sector. In 1998, the Directorate General for Rehabilitation and Maintenance of the Bishkek–Osh road, established through Decree No. 45 of 4 March 1996 under the Office of the Prime Minister, was integrated into DOR. The Government has completed the transfer of responsibilities for developing road design and construction standards from the Ministry of Architecture and Construction to MOTC. On 30 November 1999 MIA and MOTC agreed to jointly administer the functions of road safety and traffic management, while leaving the responsibility for vehicle inspection with MIA.

22. **Planning and Budgeting.** In the past, road expenditure plans and budgets were prepared on the basis of periodic assessments of road conditions, using norms and technical judgment to decide the level of required interventions and their priority. Neither an economic optimization of investments nor a correlation of expenditures to user charges was undertaken. With the drastic reduction in road financing and the restructuring of the road sector institutions, the planning and budgeting system collapsed. To determine the broad expenditure priorities in accordance with road traffic, road conditions, and possible types of intervention, ADB assisted MOTC through the Institutional Strengthening TA (footnote 7) in reviewing the existing planning and budgeting practices for road maintenance and in preparing preliminary estimates of rehabilitation and maintenance needs for the national road network, including the Bishkek–Osh road. The TA on Policy Support in the Transport Sector<sup>8</sup> gave recommendations for improving financial management in MOTC. The Government has agreed to implement the recommendations (para. 80).

23. **Construction and Maintenance.** The Government has made substantial efforts to privatize road construction and maintenance operations. All of the 29 road construction enterprises have been privatized. The uncertainty relating to DOR's road construction program has hindered developing the private road construction industry. However, ADB's ongoing road rehabilitation projects have assisted in developing the privatized road construction enterprises through extensive subcontracting by the civil works contractors.

24. The RRMA's of MOTC have overall responsibility for carrying out road maintenance. At the operational level, the 82 LMUs under the RRMA's maintain 18,876 km of state and local roads under MOTC jurisdiction (para. 7). Local authorities maintain roads not under MOTC jurisdiction (para. 8). The total staff of the RRMA's and LMUs is around 3,000 people. Through its ongoing projects, ADB has been working with MOTC to improve the equipment and methods used for road maintenance. Under the Second Road Rehabilitation Project (footnote 3), a maintenance manual was prepared, and training of maintenance personnel is now under way. Maintenance equipment for the Bishkek–Osh road is being purchased through the cofinanced portion of the first Road Rehabilitation Project.<sup>9</sup> With ADB assistance, MOTC also established the equipment pool, which is now leasing equipment to contractors for road sector activities. In the future, this equipment can be used by contractors to conduct road maintenance. While the Government wants to retain the LMUs as part of MOTC, it has undertaken measures, with ADB assistance, to contract out road maintenance activities. Under the Second Road Rehabilitation

<sup>8</sup> TA 3065–KGZ: *Policy Support in the Transport Sector*, for \$600,000, approved on 10 September 1998.

<sup>9</sup> Loan 1444–KGZ(SF): *Road Rehabilitation Project*, for \$50 million, approved on 13 June 1996.

Project, the Government has invited bids from local contractors to undertake routine maintenance on a section of the Bishkek–Osh road. Under the proposed Project, the contracting out of road maintenance will be expanded (para. 37).

## **B. Government Policies and Plans**

25. Public investment in the transport sector dropped from about 2 percent of the gross national product (GNP) in 1990 to near zero during 1995. As a result, the transport infrastructure has deteriorated to a point where major reconstruction will be required unless adequate funds are allocated for rehabilitation and maintenance. Transport investment needs to increase to about 4 percent of GDP to avoid major reconstruction in the future. In 1998 and 1999, expenditures in the transport sector were, respectively, Som751 million (2.2 percent of GDP), and Som800 million (2.3 percent of GDP), of which Som273 million was for roads. Increased investment in the transport sector is dependent on continued economic growth. However, the Kyrgyz Republic's high external public debt burden, at \$1.24 billion or 95 percent of GDP, poses a substantial threat to economic growth. The IMF and the Government are preparing a detailed strategy to address the debt situation, including the Government reaching agreement with the Paris Club on debt rescheduling.<sup>10</sup> Subject to the Government and IMF reaching agreement on the economic program shortly, a new three-year Poverty Reduction and Growth Facility (PRGF) could be in place before the end of 2001. The new PRGF program is expected to include limits on Public Investment Program (PIP) disbursements and thus external borrowing. Under the lapsed PRGF, the Government and the IMF agreed that PIP disbursements would be limited to 6.0 percent of GDP in 2001 and 5.5 percent in 2002, and would progressively fall to 3.0 percent by 2005. To meet these limits, the Government has prioritized ongoing projects in the PIP; prioritization of future projects is still ongoing. The Government has assured ADB that the PIP gives highest priority to rehabilitation of the Bishkek–Osh road.

26. The Government's transport sector strategy and plans are included in the Transport and Road Sector Policy Statement prepared under the institutional strengthening TA (footnote 7) and issued by MOTC in 1997, and in the PIP being prepared by MOF. The Government's overall policy objectives for the transport sector were developed with ADB assistance and include (i) adequately maintaining transport infrastructure to support the reform of the economy; (ii) privatizing transport operations and promoting competition among operators, while addressing safety and environmental concerns; and (iii) increasing cost recovery from the users of transport infrastructure. To achieve these objectives, the Government's strategy includes (i) increasing the financial provision for rehabilitating and maintaining the road network; (ii) consolidating road sector responsibilities under MOTC; (iii) promoting private sector participation in road maintenance; (iv) completing the privatization of road transport operations and dismantling of licensing controls, which hinder competition; (v) promoting, in collaboration with neighboring countries, rail transport as the most efficient means of transporting bulk loads over long distances; (vi) privatizing lake shipping services; (vii) promoting civil aviation infrastructure and supporting services that encourage foreign and local airline operations; and (viii) increasing road sector revenues through appropriate pricing and taxation.

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<sup>10</sup> The 19 permanent members of the Paris Club comprise governments holding large debt owed by other governments. All Paris Club decisions on debt rescheduling require a consensus among the participating debtor and creditor countries. Debt rescheduling agreements also require debtor countries to implement reforms to prevent future debt repayment difficulties.

### C. External Assistance to the Sector

27. ADB is playing a leading role in providing policy advice, capacity building, and capital financing for the Kyrgyz road sector. ADB's first and second loans of \$50 million each, with cofinancing of about \$28 million and \$41 million, respectively, from the Japan Bank for International Cooperation (JBIC), have helped the Government rehabilitate part of the Bishkek–Osh road (footnotes 3 and 9). In addition, ADB has provided six TA grants totaling \$3.64 million.<sup>11</sup> The World Bank approved a \$22 million loan for the Urban Transport Project in August 2000 to rehabilitate urban roads in Bishkek, Jalal–Abad, and Osh. The Islamic Development Bank (IDB) approved \$9 million in 1998 to rehabilitate the Jalal–Abad–Uzgen section of the Bishkek–Osh road and a short bypass, and grant assistance for a feasibility study of rehabilitating a section of the Bishkek–Naryn–Torugart road. ADB, JBIC, and IDB complement each other in rehabilitating the Bishkek–Osh road, and this cooperation will continue under the Project.

### D. Lessons Learned

28. For the Bishkek–Osh road, ADB has financed two projects that are rehabilitating priority sections of the road and have supported policy reform and institutional strengthening, thereby improving the efficiency and safety of the country's principal road transport corridor. The civil works for the first project began in September 1996, and the project was physically completed in July 2001, or 21 months later than the original project completion date. The overall delay is due to a nine–month delay in procuring and awarding the civil works contract, and to a one–year delay in executing the works. All the loan covenants for the first project have been fully or partly complied with. The civil works for the second project began in March 1999, and overall progress of the ADB–financed civil works is about 60 percent. The original loan closing date has not been extended; however, physical completion may not occur until three months after the original project completion date, due to the delay in the detailed design of the tunnel works. All the loan covenants have been complied with, except for the loan covenant that requires establishing a separate road fund account, which was waived by ADB on 14 July 2001 (para. 35).

29. ADB's experience with the ongoing road rehabilitation projects in the Kyrgyz Republic demonstrates that skills are available to implement technically uncomplicated infrastructure projects supervised by international consultants, and highlights the need for investments to be accompanied by comprehensive support for policy reform, institutional strengthening, and significant consultant assistance. These lessons have been taken into account in designing the proposed Project.

### E. ADB's Operational and Sector Strategy

30. The main objectives of ADB's strategy<sup>12</sup> for the Kyrgyz Republic are to (i) support the Government's reform activities and strengthen its development management by encouraging institutional change, strengthening institutional capacity, and improving the provision of public services; (ii) encourage the creation of a new structure for output and capacity by the private sector through investment and job creation; and (iii) enhance the long–term potential of the country by investing in physical infrastructure and human development as well as selective

<sup>11</sup> TA 2256–KGZ: *Road Rehabilitation Project*, for \$600,000, approved on 21 December 1994; TA 2587–KGZ (footnote 7) TA 2760–KGZ: *Second Road Rehabilitation Project*, for \$600,000, approved on 11 February 1997; TA 3065–KGZ: (footnote 8); TA 3335–KGZ (footnote 1), and TA 3531–KGZ: *Improvement of the Road Sector Efficiency*, for \$440,000, approved on 31 October 2000.

<sup>12</sup> *Country Assistance Plan: Kyrgyz Republic (2001–2003)*, December 2000.

interventions to protect and rehabilitate the environment. To maximize the impact of ADB's limited resources and in consultation with the Government and other aid agencies, ADB's activities are focusing on (i) improved provision of public services, particularly those provided by local governments; (ii) agriculture, including rural finance; (iii) human development; and (iv) infrastructure, especially rehabilitation projects to preserve the economic utility of the past investment in the road sector.

31. ADB's transport sector strategy supports the Government's ongoing economic transition to a market-driven economy by assisting in (i) developing an efficient policy and regulatory framework; (ii) corporatizing/commercializing and, where appropriate, privatizing operations of state-owned enterprises; (iii) promoting competition and private sector participation in the providing and operating of road infrastructure facilities and services; (iv) improving road funding by improving tax and duties collection, developing a user-pays approach to road funding, and removing subsidy-induced distortions in pricing of transport services; (v) rehabilitating and improving operation, maintenance, and safety standards of the road network; (vi) developing human resources; and (vii) improving environmental standards. ADB's involvement in the road sector since 1996 through the first and second road rehabilitation projects has been guided by its sector strategy and has been instrumental in improving the policy and regulatory framework, institutional strengthening of MOTC and other sector institutions, preparing a road maintenance plan, and mobilizing additional resources from other agencies.

## **F. Policy Dialogue**

32. ADB's ongoing projects have helped the Government implement reforms in the areas of policy and regulatory framework, institutional strengthening and capacity development, road sector funding and cost recovery, road maintenance, and road safety. The policy issues discussed and agreed upon with the Government during project processing strengthen and complement the earlier initiatives (Appendix 4). The policy dialogue focused on poverty reduction, competitiveness of markets for transport services, financing of road maintenance, road maintenance practices, and MOTC financial management reform.

### **1. Poverty Reduction**

33. Poverty has been a major issue in the Kyrgyz Republic since independence. The Government is committed to reducing poverty, and the national strategy for poverty reduction is being prepared with ADB assistance. In addition to improving the Bishkek–Osh road, the Project will also improve secondary roads in areas with high poverty levels.<sup>13</sup> MOTC was extensively involved in selecting the secondary roads for the Project. The Government agreed to provide its share of funds for the secondary road component of the Project and to encourage the active participation of the project beneficiaries, e.g., through community-based maintenance of secondary roads.

### **2. Competitiveness of Markets for Transport Services**

34. The Kyrgyz Republic has made substantial progress over the last few years in commercializing transport enterprises; however, the Government still has substantial influence in the markets for transport services, for example, through Government ownership of bus

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<sup>13</sup> The secondary roads included in the Project connect the Bishkek–Osh road with poor villages that are primarily dependent on agriculture. These roads have a mix of earth, gravel, and deteriorated pavement surfaces. In terms of width, they are classified as categories IV and V (para. 7).

stations and licensing and other regulations (paras. 14–16). Increased competitiveness of the markets for transport services is necessary to improve transport services for all inhabitants of the project area and ensure that the reductions in transport costs are passed on to transport users. The Government has agreed that the TA associated with the Project will include a component to analyze the markets for transport services and give recommendations to improve the competitiveness of the markets so as to maximize the poverty reduction impact of the Project. The TA will also study the impact of the measures to increase competitiveness on the poorest part of the population, and any additional measures to ensure that the poorest are not negatively affected by regulatory changes or other proposed measures. The Government agreed to implement the regulatory changes recommended by the TA, and which are acceptable to ADB, for improving the competitiveness of the markets for transport services to ensure that the project benefits are passed on to the poor (para. 80).

### 3. Financing of Road Maintenance

35. The Second Road Rehabilitation Project included loan covenants related to the operation of the road fund, which were designed to ensure adequate and sustainable financing of road maintenance. The Government has made significant progress on this issue, i.e., collecting road user charges specified in the Road Fund Act and hiring independent auditors to audit collection of these revenues. However, the covenant requiring establishment of a separate, dedicated account for the road fund has not been complied with. While the Government is aware of the importance of this issue, it is presently unable to comply with the covenant. Establishing dedicated accounts outside the Government's consolidated budget will not be prudent in light of the Government's current fiscal difficulties (para. 17). In view of this, a separate dedicated road fund account is considered premature and accordingly ADB waived this covenant. The collection of road user charges in accordance with the Road Fund Act will continue.

36. To provide for adequate financing of road maintenance, the Government has agreed to loan covenants mandating specific budget allocations for maintaining (i) the Bishkek–Osh road, and (ii) all other roads under the jurisdiction of MOTC.<sup>14</sup> These covenants indicate the Government's commitment to provide adequate financing for road maintenance. MOF will establish a separate budget item for maintaining the Bishkek–Osh road and will allocate funding for maintaining the Bishkek–Osh road and other roads under MOTC administration in the amounts shown in Table 1. The amounts are sufficient for conducting routine maintenance on the rehabilitated sections of the Bishkek–Osh road and other MOTC roads and represent substantial increases over current levels. MOF will adjust these allocations to compensate for the effects of inflation and depreciation of the som against the dollar. Independent auditors will audit the expenditures for road maintenance annually.

**Table 1: Allocations for Maintenance**  
(Som million)

Roads	2000	2001	2002	2003	2004	2005
1. Bishkek–Osh Road	21	35	40	60	80	100
2. Roads under MOTC Administration (excluding Bishkek–Osh Road)	118	162	178	196	216	237

<sup>14</sup> The roads not covered by these allocations are primarily rural roads outside MOTC's jurisdiction (para. 8).

#### **4. Road Maintenance Practices**

37. Under the Second Road Rehabilitation Project, MOTC prepared and began implementing the road maintenance system for the Bishkek–Osh road, invited bids from local contractors to undertake routine road maintenance on a section of the Bishkek–Osh road, and established the equipment pool (para. 24). The Government recognizes the need to give high priority to road maintenance and has agreed to expand road maintenance capacity building. Under the proposed Project, MOTC will invite bids from contractors, regardless of ownership, for routine maintenance on all sections of the Bishkek–Osh road for which the construction contractor's warranty period has expired. Policy dialogue under the ongoing projects has focused on maintaining national roads. The proposed Project will improve secondary roads along with sections of the Bishkek–Osh road, and will extend improved road maintenance practices to secondary roads as well. The advisory TA will develop a system for maintaining secondary roads based on collaboration between the LMUs and local communities, which will help ensure that the poverty–reduction benefits of improving secondary roads will be sustained. MOTC has agreed to ensure the maintenance of secondary roads rehabilitated under the Project by preparing the LMUs assigned to the Project's secondary roads to operate the new maintenance system, including procuring appropriate maintenance equipment and enacting or modifying any necessary regulations (para. 80).

#### **5. MOTC Financial Management Reform**

38. ADB's ongoing projects have assisted the Government in making substantial progress in restructuring MOTC to improve its efficiency in managing the transport sector. However, there remains additional scope for institutional reform to further improve efficiency. The current organizational structure of financial management in MOTC is designed for historical functions of oversight, rather than the needs of management in a market environment. MOTC's current financial management structure was studied under the TA for Policy Support in the Transport Sector (footnote 8). Recommendations for improvement include appointing a chief financial officer to head MOTC's financial management and planning functions, integrating the financial planning and management functions of MOTC and the RRMA's, and starting implementation of international accounting standards. MOTC has agreed to implement these changes, which will integrate and ensure the consistency of its financial reporting; improve the effectiveness of financial management; and increase the usefulness of financial reporting for planning, budgeting, and other management decision making (para. 80).

### **IV. THE PROPOSED PROJECT**

#### **A. Rationale**

39. The Kyrgyz Republic has two main centers of population, trade, and industrial activity: Bishkek, the capital, in the north of the country, and Osh, in the southwest, at the eastern end of the Fergana valley. The Bishkek–Osh road provides the only internal surface connection between these two national centers. The road passes through four of the country's seven regions and serves over two million people, almost half the country's population. The Bishkek–Osh road is vital for integrating the Kyrgyz economy, providing markets for agricultural produce from Osh and Jalal–Abad provinces, and strengthening social and cultural links among the Kyrgyz Republic's population groups. In addition to being the most important domestic transport corridor, the road is also important from a regional perspective: it comprises part of the transnational route linking Tajikistan and the agriculturally productive Fergana valley in Uzbekistan to Almaty and

Russia. In addition, the northernmost section forms part of the Almaty–Bishkek–Tashkent road, which is also an important regional transport corridor.

40. ADB has been involved in the Kyrgyz road sector since 1996. The Project would be the third phase of a rehabilitation program for the Bishkek–Osh road,<sup>15</sup> which has a total length of about 650 km. The two ongoing projects are rehabilitating the central, mountainous sections of the road (from km 81 to km 426), which are in the most advanced state of deterioration and have the worst safety conditions. The proposed Project will rehabilitate the most deteriorated of the remaining sections of the road in the project area in Jalal–Abad and Osh provinces, as well as secondary roads.

41. The Kyrgyz Republic is one of the poorest of the CARs. About 52 percent of the population are estimated to be living in poverty (unable to afford a minimum consumption basket), and about 18 percent are estimated to be living in extreme poverty (unable to obtain a minimum diet). About 73 percent of people in the project area are estimated to be poor, and about 28 percent are estimated to be extremely poor. The Project will reduce poverty by lowering transport costs for road users and by improving market access for farmers in Jalal–Abad, who no longer have access to their traditional markets in Uzbekistan. In addition, improving the secondary roads will improve access to markets, employment opportunities, and more comprehensive health facilities for a large number of people. The Project will also generate employment for local poor people during the rehabilitation works.

## **B. Objectives and Scope**

### **1. Objectives**

42. The Project aims to reduce poverty and promote sustainable economic growth by reducing the cost of road transport and improving access to markets in the Bishkek–Osh corridor. The Project will rehabilitate the most deteriorated of the remaining sections of the road linking Bishkek and Osh and will improve market access for agricultural producers in Jalal–Abad province. The Project will support reforms in the road sector to improve road maintenance and to provide a sustainable source and adequate level of financing for road maintenance.

### **2. Scope**

43. The Project comprises

- (i) rehabilitation of about 120 km of the 650 km two–lane national highway from Bishkek to Osh, in particular, km 427–498 in Jalal–Abad province (72 km) and the Uzgen–Osh section in Osh province (48 km), including safety features;
- (ii) improvement of about 125 km of secondary roads in Jalal–Abad (Tash Kumyr–Kara Djigadz and Bazar Korgon–Arslanbob–Kyzyl Ungkur) feeding into the Bishkek–Osh road;

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<sup>15</sup> The Road Rehabilitation Project (footnote 9) assisted the Government in rehabilitating 135 km of key sections of the Bishkek–Osh road. JBIC provided parallel cofinancing of \$28 million for civil works, consulting services, and maintenance equipment. The Second Road Rehabilitation Project (footnote 3) assisted the Government in rehabilitating another 208 km of the Bishkek–Osh road. JBIC again provided parallel cofinancing of \$40.8 million for civil works and consulting services.

- (iii) consulting services for construction supervision, monitoring and evaluation, and implementation of reforms in road maintenance practices; and
- (iv) procurement of light, hand-operated equipment and truck-mounted cranes for routine maintenance of the selected secondary roads and the Bishkek–Osh road.

44. In addition, an accompanying advisory TA will develop a system for maintaining secondary roads through the collaboration of the LMUs and local communities and will recommend measures to improve the competitiveness of markets for transport services (paras. 68–70).

### **C. Technical Justification**

45. The existing Bishkek–Osh road was designed and constructed mostly during the 1960s according to FSU standards; however, construction of the road did not strictly follow the design and the quality was substandard. As a result, the road suffers from frost damage, and the asphalt pavement has worn out. The road has further deteriorated with the collapse of the FSU and subsequent disintegration of the road maintenance organizations. Safety conditions on the road are poor. The road passes through many villages in which there are no pedestrian walkways or facilities for nonmotorized and light vehicles.

46. The sections of the Bishkek–Osh road to be included in the Project consist of two lanes and are the most deteriorated of the sections not covered by other projects. The first 30 km of the km 427–498 section pass through steep slopes along the Naryn River and are prone to landslides, flash floods, and severe erosion. Many existing culverts on this section are too small to ensure sufficient drainage and become clogged during heavy rains. The works for the first 30 km of the km 427–498 section include rehabilitating the pavement structures (base course and pavement), improving the drainage structures, repairing damaged culverts and bridges, and constructing protective structures against rockfalls, landslides, and erosion. The works on the rest of the km 427–498 section consist of rehabilitating the pavement and repairing drainage structures. On the Uzgen–Osh section, similar pavement rehabilitation and drainage repair works will be implemented. In addition, pedestrian walkways will be added and traffic safety installations will be improved.

47. The present traffic levels on the sections of the Bishkek–Osh road to be rehabilitated under the Project vary from a low of about 1,300 vehicles per day in the km 427–498 section to a high of about 4,600 vehicles per day in the Uzgen–Osh section. Traffic levels for heavy vehicles range from a low of about 470 trucks per day in the km 427–498 section to a high of about 670 trucks per day in the Uzgen–Osh section. Traffic forecasts by vehicle type have been prepared for the 2002–2024 period for the sections of the Bishkek–Osh road to be rehabilitated (Appendix 5). The forecasts are based on expected growth in GDP and population and the elasticity of demand for freight and passenger traffic. Some additional traffic is expected to be generated as a result of lower transport costs arising from the Project. The projected average annual growth rates for passenger traffic are 6.8 percent during 2001–2005, 7.0 percent during 2006–2010, and 6.5 percent for the remaining project period. Freight traffic is expected to grow at rates of 6.8 percent during 2001–2005, 6.5 percent during 2006–2010, and 6.0 percent during the remaining project period.

48. The two secondary roads included in the Project are in poor condition and will be rehabilitated to different standards appropriate to each section. On the Tash Kumyr–Kara Djigadz road (53 km), the first 15 km will be rehabilitated by repairing the existing bituminous

pavement. The works on the km 16–53 section of this road will comprise building a proper embankment and constructing a bituminous gravel pavement. The Bazar Korgon–Arslanbob road (52 km) and its branch to Kyzyl Ungkur (20 km) will be rehabilitated by repairing the bituminous pavement of the first 10 km and laying a gravel surface on the remainder of the road to Arslanbob, with improvements to the earth road and bridge on the branch to Kyzyl Ungkur. In addition, damaged culverts and bridges along the length of this road will be repaired or rebuilt.

#### D. Cost Estimates

49. The total project cost is estimated at \$50 million equivalent (including physical contingencies, price escalation, interest and other charges during construction, but excluding the VAT and other taxes, of which \$30.6 million (61.2 percent) is the foreign exchange cost. The local currency costs are estimated at \$19.4 million equivalent, or 38.8 percent of the total cost. The cost estimates are summarized in Table 2, with details in Appendix 6.

**Table 2: Cost Estimates**  
(\$ million)

Item	Foreign Exchange	Local Currency	Total Cost
<b>A. Base Cost</b>			
1. Civil Works			
a. Bishkek–Osh Road Rehabilitation	22.1	10.7	32.8
b. Secondary Road Improvement	1.3	5.1	6.4
2. Equipment	1.3	0.0	1.3
3. Consulting Services <sup>a</sup>	1.3	1.1	2.4
<b>Subtotal (A)</b>	<b>26.0</b>	<b>16.9</b>	<b>42.9</b>
<b>B. Contingencies</b>			
1. Physical Contingency	2.6	1.7	4.3
2. Price Contingency	1.2	0.8	2.0
<b>Subtotal (B)</b>	<b>3.8</b>	<b>2.5</b>	<b>6.3</b>
<b>C. Interest During Construction</b>	<b>0.8</b>	<b>0.0</b>	<b>0.8</b>
<b>Total</b>	<b>30.6</b>	<b>19.4</b>	<b>50.0</b>
Percentage of Total Project Cost	61.2	38.8	100.0

Notes: (i) Base cost reflects 2001 prices and excludes taxes.  
(ii) Physical contingency is at 10 percent of base costs.  
(iii) Price contingency calculated at 2.4 percent per annum.

<sup>a</sup>Details in Appendix 6

#### E. Financing Plan

50. The Government has requested ADB to provide a loan from its Special Funds resources in an amount equivalent to \$40 million to finance the entire foreign exchange cost and \$9.4 million equivalent of the local currency cost. ADB financing of a portion of the local currency cost is justified due to the Government's budget constraints, the heavy external debt burden, and the country's severe poverty. The Project will have a strong pro-poor growth impact. In view of these reasons, provision of local cost financing for this Project is reasonable. The ADB loan will represent 80 percent of the total cost of the Project including contingencies and interest charge on the loan during construction. The terms and conditions of the loan will be ADB's standard terms and conditions for loans from its Special Funds resources. The ADB loan will have a maturity of 32 years including a grace period of 8 years and an interest charge of 1.0 percent per annum during the grace period and 1.5 percent during the remaining period. The Government will finance the remaining local currency cost. The Borrower will be the Kyrgyz

Republic. The Government has given its assurance that adequate local counterpart funds will be made available from the State budget or other sources as necessary to enable the Project to be implemented in a timely manner. In case of escalation of prices or required quantities covered by contingencies, the increase will be shared by the Government and ADB according to the financing percentages of the overall project cost, with ADB's share in the total cost limited to the maximum loan amount. The proposed financing plan is summarized in Table 3 with details in Appendix 6.

**Table 3: Financing Plan**  
(\$ million)

<b>Source</b>	<b>Foreign Exchange</b>	<b>Local Currency</b>	<b>Total Cost</b>	<b>Percent</b>
Asian Development Bank	30.6	9.4	40.0	80
Government	0.0	10.0	10.0	20
<b>Total</b>	<b>30.6</b>	<b>19.4</b>	<b>50.0</b>	<b>100</b>

## **F. The Executing Agency**

51. MOTC will be the Executing Agency for the Project and will be responsible for overall project management, including planning, managing, supervising, and coordinating implementation.

## **G. Implementation Arrangements**

### **1. Organization and Management**

52. The project steering committee (PSC) overseeing the work for the two ongoing projects will also oversee the work for the proposed Project. The PSC will (i) oversee and coordinate all project activities, including liaison among the consultants and the agencies involved in project implementation and sector reforms, as agreed upon during policy dialogue with ADB; (ii) review the status of the implementation of project components; (iii) monitor the progress achieved and resolve difficulties encountered; and (iv) serve as a forum for discussions on, and review of, the Project's impact on poverty reduction and economic development. The PSC is chaired by the minister of MOTC. Its members include the project manager and representatives from the Prime Minister's Office, MOF, and MOTC. The PSC will meet at least four times a year, and more often if required.

53. The project implementation unit (PIU) presently administering ADB's ongoing road projects will also be responsible for implementing the proposed Project. As both the first and second projects should be completed by the end of 2002, the PIU will have sufficient capacity to implement the proposed Project. The PIU, assisted by the international and domestic consultants to be recruited for construction supervision, will undertake day-to-day supervision of project implementation and provide the necessary liaison among MOTC, contractors, suppliers, and ADB. In particular, the PIU will be responsible for procuring goods and services, recruiting consultants, making disbursements, and reporting.

### **2. Implementation Schedule**

54. The Project will be implemented in a little more than three years. Advance procurement activities are expected to begin in September 2001, and construction completed by 31 October 2004. The secondary road improvement component will be implemented over a period of 1.5

years during the last two years of the Project. The proposed implementation schedule is in Appendix 7. This schedule is considered attainable as only a small section of the project road is in mountainous terrain and subject to severe winter weather limitations.

### **3. Procurement**

55. All procurement to be financed under the ADB loan will be carried out in accordance with ADB's *Guidelines for Procurement*. All contracts for civil works and contracts valued in excess of \$500,000 for goods will be procured through international competitive bidding (ICB). Supply contracts not exceeding \$500,000 will be procured through international shopping. Civil works for rehabilitating the Bishkek–Osh road and the secondary roads will be packaged into three contracts each. All six civil works contracts will follow ICB procedures to encourage the participation of international competitors and joint ventures by international and domestic contractors. Supply contracts for the equipment will be grouped into three packages based on the technical requirements. These packages will be finalized during project implementation. The tentative contract packages are listed in Appendix 8.

### **4. Consulting Services**

56. International consulting services totaling 51 person–months will be provided for (person–months are in parentheses) construction supervision (47) and project impact monitoring and evaluation (4). The international consultants will give on–the–job training to the counterpart staff and domestic consultants. In association with the international consultant inputs, domestic consulting services (300) will be provided for construction supervision, contract management, and other technical advisory assistance (270); as well as for assisting the international consultants in monitoring the social and poverty impact of the Project through household survey and data analysis (30). The consultants will be recruited in accordance with ADB's *Guidelines on the Use of Consultants* and other arrangements satisfactory to ADB for engaging domestic consultants. The terms of reference for consulting services are in Appendix 9.

### **5. Advance Procurement and Recruitment Action**

57. During project processing, the Government requested ADB approval for advance action in view of the high priority the Government accords to the Project and to minimize implementation delays and ensure timely project completion. Advance procurement and recruitment action was approved on 18 May 2001 and covers (i) prequalification of contractors, tendering, and bid evaluation for the civil works contract packages; and (ii) recruitment of international consultants to help implement the Project. However, it does not include the signing of contracts. The advance action will be undertaken in accordance with ADB's *Guidelines for Procurement* and *Guidelines on the Use of Consultants*. The Government has been advised that approval of the advance action does not commit ADB to finance the Project.

### **6. Midterm Review**

58. ADB and the Government will carry out a midterm review of project implementation in 2003. The objectives will be to (i) evaluate the Government's progress in implementing policy reforms; (ii) examine project implementation and determine whether any adjustments to the scope and implementation arrangements are warranted; (iii) determine compliance with relevant standards; (iv) address any potential procurement, financing, and scheduling issues; and (v) examine compliance with the loan covenants.

## **7. Reports, Accounts, and Audit**

59. MOTC will prepare and submit to ADB quarterly progress reports on project implementation. MOTC will maintain separate accounts for all project components financed by ADB and the Government and have them audited by an independent auditor, acceptable to ADB, with adequate knowledge of and experience with international accounting practices. The audited project accounts and the auditor's reports will be submitted to ADB within nine months after the end of each financial year. The Government has been informed of ADB's requirement of timely submission of audited project accounts and financial statements, including the suspension of disbursements in case of noncompliance. The auditing services may be financed through the loan proceeds as part of project management costs (Appendix 6). To facilitate postevaluation of the Project, the Government has agreed to submit a project completion report to ADB, within three months of physical completion of the Project.

## **8. Monitoring and Evaluation**

60. A set of indicators for monitoring and evaluating project performance in relation to its goals and purposes, with emphasis on poverty reduction, has been agreed upon with MOTC (Appendix 10). At the start of project implementation, MOTC will establish baseline values for social, environmental, and poverty reduction impact indicators. Monitoring indicators will be measured at the necessary frequency during project implementation. Comments and findings regarding these project indicators will be incorporated in every other quarterly report to ADB. In addition to indicators for monitoring implementation, indicators for project evaluation will be measured at project completion and three years after completion. Where relevant, indicators will be disaggregated by gender. Participatory surveys will take place, and the results will be compared with the baseline. A final report will evaluate the changes that occurred in the three preceding years. To facilitate assessment of the socioeconomic and environmental impact of the Project, an international consultant will be recruited to monitor and evaluate all relevant project impacts. The consultant will also work with MOTC to ensure the continued monitoring of the first and second projects.

## **9. Anticorruption Measures**

61. The Mission explained ADB's anticorruption policy to the officials of the Government. The Government is committed to creating and sustaining a corruption-free environment, and has agreed to abide by the relevant provisions of ADB's anticorruption policy in preparing all documents and contracts during the bidding process and during project implementation.

## **10. Capacity Building and Human Resource Development**

62. The Project will build capacity and develop human resources within MOTC in the area of maintenance of secondary roads. Under the advisory TA, consultants will develop a system for maintaining secondary roads and will conduct workshops on the system. Subsequently, the supervision consultants will give training and other assistance to the LMUs and local communities to help implement the system.

## H. Environmental and Social Measures

### 1. Environmental Aspects

63. The Project is in environmental category B. An initial environmental examination (IEE) was carried out under the project preparatory TA in accordance with ADB's *Environmental Assessment Requirements* and *Environmental Guidelines for Selected Infrastructure Development Projects*. The IEE indicated that the Project will have no significant adverse environmental impact and that an environmental impact assessment is not necessary because the Project involves mainly rehabilitation of roads on the existing alignment (except for minor realignments to improve road safety) and requires no land acquisition. The Summary IEE (SIEE) has been prepared (Appendix 11). The Project will not have any significant negative impact on the two protected nature areas located in the project area. Appropriate mitigation measures have been incorporated in the project design including adequate drainage facilities, erosion prevention measures, and traffic management facilities. The consultants for construction supervision will assist MOTC to supervise and monitor the (i) selection and restoration of borrow areas and quarries, (ii) extraction of water for construction, (iii) waste management, (iv) control of hazardous and toxic materials, and (v) prevention of impairment of downstream water quality. All the environmental mitigation measures recommended in the IEE will be implemented. The relevant mitigation costs are reflected in the project costs. The Government has agreed that the Project will be implemented following the environmental laws of the Kyrgyz Republic and ADB's environmental guidelines, as specified in the loan covenants (para. 80).

### 2. Social Issues

64. The sections of the Bishkek–Osh road to be rehabilitated are located in two provinces (Jalal–Abad and Osh) and directly affect six districts (Ak–Syi, Nooken, Bazar Korgon, Suzak, Uzgen, and Kara–Suu) and four cities (Jalal–Abad, Tash Kumyr, Mayлуу–Suu, and Osh). The districts and cities have a population of approximately 1.3 million inhabitants, of which about 73 percent are living in poverty. This figure is much higher than the national level of 52 percent. The unemployment rate is also high, and the annual per capita income is approximately \$102 equivalent, substantially lower than the national average of \$124 equivalent. Farming and livestock raising account for about one half of employment and about 40 percent of the country's GDP. The project area accounts for about 33 percent of the country's agricultural output and about 29 percent of the industrial output.

65. A social impact assessment was prepared, and a summary is attached as Appendix 12. The Project will exclude bypasses or realignments (except for minor realignments to improve road safety, which will not entail resettlement) or development of new alignments in previously undisturbed areas. No land will be acquired. No people will be involuntarily relocated; therefore, no resettlement action plan is needed. Ethnic minorities will not be severely or adversely affected by the Project because of their separate cultural identity. The overall impact of the project will be essentially gender neutral. Although women in construction works account for a very small percentage of the overall labor employment, they will be given equal opportunity and pay for construction and operation work during project implementation in accordance with ADB's Policy on Gender and Development.

66. From the conclusions of the social impact assessment, a number of measures were identified to maximize the social benefits of the Project. These specific measures have been incorporated in the project design: (i) enhancing roadside social infrastructure, including

rehabilitation of existing bus shelters and roadside amenities that come under MOTC's jurisdiction; (ii) constructing pedestrian walkways and improving traffic safety installations in villages through which the Bishkek–Osh road passes; and (iii) implementing precautionary measures against socially transmitted diseases. The rehabilitation works will also generate an estimated 903 person–years of direct employment, including 624 person–years (69 percent) for unskilled labor. It is expected that local residents will provide all the unskilled labor and part of the skilled labor required. The Project will also stimulate the local construction materials industry through purchase of locally produced construction materials.

67. Project impacts, particularly those relating to poverty reduction, social development, and gender issues, will be monitored during and after project implementation. The monitoring system will specifically focus on the social and poverty impact of road rehabilitation and improvement of the secondary roads, and will provide quantitative and qualitative analyses of the income levels of the poor and the distribution of project benefits to them. The monitoring system will be implemented through social and household surveys, public consultation, and participation of the project beneficiaries. A set of baseline indicators for monitoring the project impacts has been agreed upon with MOTC (para. 60).

### **I. Technical Assistance**

68. The Government has requested ADB to provide an advisory TA focusing on institutional capacity building to maintain secondary roads and for policy support focusing on the transport services markets. The TA attached to the Project will (i) assist the Government in developing the capacity for maintaining secondary roads using community maintenance techniques; and (ii) develop a set of specific measures for regulatory reforms to increase the competitiveness of the markets for transport services. These measures will be based on the findings of the Policy Support for the Transport Sector TA (footnote 8) and will be consistent with the national strategy for poverty reduction.

69. The TA will require 17 person–months of international and 40 person–months of domestic consulting services with expertise in road maintenance engineering, financing, and training; and also in economics of transport markets and transport sector policy reform. The total cost of the TA is estimated at \$770,000 equivalent including a foreign exchange cost of \$505,500 and a local currency cost of \$264,500 equivalent. The Government has requested ADB to provide \$650,000 equivalent to cover the entire foreign exchange cost and local currency cost of \$144,500 equivalent. The Government will finance the balance of the local currency cost of \$120,000 equivalent. The TA will be financed by ADB on a grant basis from the Japan Special Fund, funded by the Government of Japan. The terms of reference for the consultants and the cost estimates are in Appendix 13.

70. MOTC will be the Executing Agency for the TA, and will be responsible for the day–to–day implementation activities including liaison and coordination with other concerned Government departments or agencies. The TA will be implemented in nine months starting from July 2002. The consultants will be recruited in accordance with ADB's *Guidelines on the Use of Consultants* and other arrangements satisfactory to ADB for engaging domestic consultants.

## V. PROJECT JUSTIFICATION

### A. Economic Analysis

71. Economic analysis for the project road sections was carried out by comparing with- and without-project scenarios (Appendix 14). The principal sources of economic benefits for the Project are the savings in vehicle operating costs (VOCs), time savings, benefits arising from generated traffic, and economic value added. VOC savings account for the bulk of total benefits and arise from the improved road surface resulting from the civil works carried out under the Project. The VOCs are calculated for each vehicle type comprising traffic on the road sections. The Project will also improve safety conditions and induce economic development by improving access to and lowering the costs of transport to the principal domestic markets for agricultural and industrial goods produced in the project area. By improving secondary roads, the Project will improve the access of the poor to markets and health services. Improved access to markets will generate economic value added in the form of increased agricultural production in the areas along the secondary roads. The economic internal rate of return (EIRR) for the Project is estimated at 19.3 percent and the net present value at \$28.2 million. The Project will also benefit road users in other countries of the region, for example, through reduced transport costs for shipments of fresh produce from Uzbekistan to Russia. Since these benefits do not accrue to the Kyrgyz Republic, they are not included in the EIRR. Sensitivity analysis was carried out to test the effects of negative changes in the key parameters that determine the costs and benefits of the Project. The analysis indicates that costs would have to increase by 77 percent or benefits decrease by 43.5 percent to bring the EIRR down to the cutoff level of 12 percent. Given MOTC's experience with similar projects and the relatively straightforward nature of the rehabilitation works, such changes are unlikely to occur.

### B. Impact on Poverty

72. A poverty impact assessment comprising a detailed analysis of the poverty situation in the project area and the project impact on poverty was prepared (Appendix 15). Using participatory rapid appraisal techniques, surveys of passengers, drivers of freight and passenger vehicles, households, and local officials were conducted in the six districts of the project area. Agriculture is the primary economic activity although there is some concentrated industrial activity, primarily hydroelectric power stations and minerals extraction and processing. Agriculture, including harvesting of natural resources, is also the primary economic activity along the secondary roads included in the Project, with some tourism and mining activity in specific locations.

73. Both provinces comprising the project area have levels of per capita income lower than the national average. Poverty incidence in Jalal-Abad is substantially above the national average, while in Osh it is about the same as the national average. Poverty incidence in the six districts ranges from 46 percent to 95 percent, with poverty in five of the six above the national level of 52 percent. Poverty incidence in the four cities in the project area ranges from 38 percent to 85 percent; with two above and two below the national level. Overall, about 73 percent (almost 1.0 million) of the approximately 1.3 million inhabitants in the project area are living in poverty. This percentage is substantially higher than the national average of 52. Approximately 28 percent of the project area inhabitants are classified as extremely poor, compared with 18 percent nationally. Surveys show that 73 percent of the passengers using the project sections of the Bishkek-Osh road are poor.

74. The Project will reduce poverty by rehabilitating the Bishkek–Osh road, improving secondary roads, and introducing policy and regulatory reforms. VOCs contribute to the high transport fares charged on the Bishkek–Osh road and the project secondary roads. The largest source of direct economic benefits will be the reduced VOCs on the Bishkek–Osh road. The advisory TA accompanying the Project will develop recommendations for regulatory reforms to increase competitiveness of the markets for transport services and ensure that the VOC reductions will be substantially passed on to the road users. The Government has agreed to implement the TA recommendations (para. 80).

75. The Project will improve secondary roads providing access from the Bishkek–Osh road to adjacent areas with high incidence of poverty. Two secondary roads with a total length of 125 km will be improved: (i) the Tash Kumyr–Kara Djigadz road, and (ii) the Bazar Korgon–Arslanbob road and its branch to Kyzyl Ungkur. The secondary roads were carefully selected from an initial group of approximately 2,000 km through an evaluation process involving extensive consultation with a wide range of stakeholders during site visits. The criteria for selecting the secondary roads included (i) population density and number of settlements served by the roads, (ii) poverty incidence, (iii) economic potential, (iv) potential improvement of access to social services and employment opportunities, (v) traffic volume, and (vi) environmental impact. Improving these secondary roads will improve the poor inhabitants' access to markets for their agricultural produce, employment opportunities, and more comprehensive health facilities. Improved access to markets is particularly important as it will enable farmers to increase agricultural production for sale in markets that require travel on the project roads.

76. The project design has specific measures to maximize the poverty reduction impact. To ensure that the reduced VOC savings are passed on to the poor, the Project will increase the competitiveness of markets for transport services by implementing regulatory reforms to be identified under the advisory TA. The TA will also recommend measures to ensure that these reforms do not adversely affect the poorest segment of the population. The Project will support local procurement of goods and services as well as local employment generation for skilled and unskilled labor, and will ensure that local employees receive wages above the poverty level. The Project will also have a direct impact on the poor through employment generation. The rehabilitation works will generate substantial employment for local labor services during the implementation period (para. 66). The Project will also stimulate the local construction materials industry by locally procuring construction materials for the civil works.

77. The Project benefits were analyzed to determine the poverty reduction impact. The poverty impact ratio for the quantifiable benefits of the rehabilitated Bishkek–Osh road and secondary roads was calculated at 53 percent. However, due to the non-specific nature of the beneficiaries and the inability to guarantee that the Project's benefits will be passed on to the poor, the Project's poverty classification is other with a thematic priority of economic growth.

### **C. Project Risks**

78. The risks to achieving the road rehabilitation targets include (i) delay in implementation, (ii) inadequate capacity for implementation such as weak technical and managerial expertise, (iii) poor construction quality, (iv) safety risks during and after project implementation, and (v) inadequate provision of counterpart funds. The Project has been formulated to reduce these potential risks through use of advance procurement and recruitment action, preparation of detailed design prior to project inception, use of ICB procedures for all contract packages, monitoring and testing by the international supervision consultants, and policy dialogue to ensure the provision of the budget allocations required for project implementation. The

Government has agreed that MOTC and MIA will take all necessary measures to ensure the safety of project workers and road users, including implementation of proper traffic management procedures, and will implement in a timely manner all agreed-upon recommendations for maintaining safety made by the contractor, supervision consultant, and ADB (para. 80).

79. The poverty reduction aspects of the Project are also subject to risks: (i) savings in transport costs may not be passed on to the transport users, especially the poor; (ii) access to transport services in poor areas may not improve; (iii) local labor may not be employed to the extent anticipated; and (iv) the secondary roads may not be properly maintained. The project design includes measures to address these potential risks. The advisory TA will recommend specific measures to improve the competitiveness of markets for transport services to ensure that savings in transport costs are passed on to the users. The loan covenants require that these measures be implemented. The TA recommendations will also include measures to stimulate increased frequency of transport services to poor areas, especially those along the secondary roads. The consulting services under the Project will monitor the use of local labor by contractors to ensure that it is used to the extent possible. The advisory TA will prepare a road maintenance system based on collaboration between the LMUs and local communities. The loan covenants will require implementation of this system on the secondary roads rehabilitated by the Project.

## VI. ASSURANCES

### II.

80. The Government has given the following assurances, in addition to the standard assurances, which have been incorporated in the legal documents:

- (i) **Project counterpart funding.** The Government will provide all funds and resources necessary for rehabilitating, operating and maintaining, and managing the Bishkek–Osh road and the secondary roads included in the Project. Before 31 December of each year of implementation, the Government will submit to ADB a copy of the PIP for the succeeding year to confirm that these funds and resources will be available on a timely basis so that the Project can be completed according to schedule. The Government will cause MOF to take all necessary measures to ensure that MOTC can successfully implement the rehabilitation of the project roads, and operate and maintain them after completion.
- (ii) **Project implementation unit.** The Borrower will ensure that the PIU for the ongoing ADB road rehabilitation projects in the Kyrgyz Republic will be responsible for the day-to-day implementation of the Project and provide the necessary contact between MOTC, the contractors, the suppliers, and ADB. The PIU will be headed by a project manager appointed by MOTC and approved by ADB and will remain adequately staffed at all times throughout the implementation period.
- (iii) **Construction quality.** MOTC will ensure that (a) the project roads are rehabilitated in accordance with the technical specifications; and (b) construction supervision, quality control, and contract management are in accordance with internationally accepted standards.
- (iv) **Financing the maintenance of the road network.** MOF will establish, no later than the date of loan effectiveness, a special account for road fund revenues within the treasury. MOF will also establish a separate budget item for

maintaining the Bishkek–Osh Road and will allocate Som35 million in 2001, Som40 million in 2002, and increase allocations by Som20 million per year to reach Som100 million by 2005. For all other roads under MOTC administration, MOF will allocate Som162 million in 2001 and increase allocations by 10 percent per year to reach Som237 million in 2005. MOF will adjust these allocations to compensate for the effects of inflation and depreciation of the som against the dollar. The Government will (a) ensure that details of actual road maintenance expenditures are included in every other quarterly progress report to be submitted by MOTC to ADB; (b) have the road maintenance expenditures as well as the road fund special account audited annually by independent auditors in accordance with appropriate auditing standards; and (c) submit such audited reports to ADB within nine months from the end of the fiscal year.

- (v) **Bishkek–Osh road maintenance practices.** By project completion, MOTC will invite bids from contractors, regardless of ownership, for routine maintenance on all sections of the Bishkek–Osh road, including sections rehabilitated under other projects, for which the warranty periods have expired.
- (vi) **Secondary road maintenance practices.** Within three months of submission of the final report of the advisory TA, MOTC will prepare and submit to ADB a detailed action plan for implementing the secondary road maintenance system (featuring collaboration between the LMUs and local communities) developed under the advisory TA. The maintenance system for secondary roads will be ready for operation by the LMUs assigned to these roads by the time civil works for these roads are completed. The Government will ensure active participation of the project beneficiaries in maintaining the rehabilitated secondary roads by providing necessary resources and equipment and enacting or modifying any necessary regulations. The supervision consultants will prepare the list of equipment to be procured by the Government for maintaining the Bishkek–Osh road and secondary roads, and MOTC will submit it to ADB for approval by June 2003. MOTC will thus ensure that the secondary roads rehabilitated under the Project will be maintained as specified—using the collaborative system—after the warranty period expires.
- (vii) **Competitiveness of the markets for transport services.** To improve the competitiveness of the markets for transport services and to ensure that the project benefits are passed on to the poor, the Government will implement the regulatory changes agreed upon with ADB and recommended by the advisory TA associated with the Project. Within three months from the submission of the final TA report, the Government will prepare and submit to ADB a detailed action plan for implementing the recommendations to ensure implementation of a substantial part of the recommendations by June 2004 and completion of implementation by the end of 2004.
- (viii) **MOTC financial organization reforms.** MOTC will (a) appoint a chief financial officer for MOTC to direct financial management and planning functions by 1 January 2002, (b) integrate the financial planning and management functions of MOTC and the RRMAs by 1 January 2002, and (c) begin implementing international accounting standards (of the International Accounting Standards Committee or equivalent acceptable to ADB) in MOTC, its branches, and entities involved in project implementation by 1 January 2004.

- (ix) **Road safety.** To ensure a safe road network in the project area, MOTC will install appropriate road safety facilities during project implementation and after completion: pavement markings, warning signs, traffic signs and signals, communications facilities, hazard barriers, and traffic management and monitoring facilities. The Government will cause MOTC and the State Automobile Inspection of MIA to take all necessary measures, including implementation of proper traffic management procedures, during project implementation to ensure the safety of project workers and road users. The Government will ensure that recommendations for maintaining road safety made by the contractor, the supervision consultant or ADB, and agreed upon by the Government and ADB, will be implemented in accordance with the agreed timeframe.
- (x) **Environment.** The Government will ensure that the road rehabilitation and maintenance works are carried out in accordance with the environmental laws and regulations of the Kyrgyz Republic and ADB's environmental procedures and guidelines, in particular, *Environmental Guidelines for Selected Infrastructure Development Projects*. The Government will ensure that adequate environmental mitigation measures are implemented by requiring that all contracts related to the rehabilitation of the Bishkek–Osh road and the secondary roads contain adequate provisions requiring the contractor to (a) take appropriate erosion control measures; (b) minimize any adverse impact due to altered embankments, borrow pits, and other activities as set out in the SIEE; (c) adopt appropriate safety measures to minimize risks of landslides, soil subsidence, and related occurrences; and (d) keep construction materials and facilities, such as asphalt and hot–mix plants, at least 500 m away from schools, hospitals, and other sensitive facilities. The Government will ensure that (a) MOTC and the Ministry of Ecology and Emergency Situations jointly inspect on a regular basis the environmental aspects of the Project, including erosion control, and include the results of the inspections in the project quarterly reports submitted by MOTC to ADB; and (b) the contractors implement the mitigation measures in accordance with the SIEE.
- (xi) **Poverty reduction.** The Government will encourage the use of local labor in project works and procurement of local materials, and will ensure that local laborers employed under the Project receive wages above the poverty line.
- (xii) **Gender and development.** MOTC will follow ADB's Policy on Gender and Development during project implementation and will adopt measures necessary to encourage women to participate in project implementation activities. MOTC will monitor effects on women through the monitoring and evaluation system, in consultation with local governments and local women's associations.
- (xiii) **Health risks.** MOTC, together with the appropriate authorities, will ensure that contractors disseminate to those employed during project implementation information in the Russian language on the risks of socially transmitted diseases. MOTC will also ensure that similar information in the Russian language is disseminated to transport operators using the project facilities.
- (xiv) **Monitoring and evaluation.** MOTC, with the assistance of the international consultants, will monitor and evaluate project impacts to ensure that the project

facilities are managed effectively, and that the benefits are maximized. MOTC will collect the data agreed upon with ADB at the start of rehabilitation, at project completion, one year from project completion, and three years after project completion.

## **VII. RECOMMENDATION**

81. I am satisfied that the proposed loan would comply with the Articles of Agreement of ADB and acting in the absence of the President, under the provisions of Article 35.1 of the Articles of Agreement of ADB, I recommend that the Board approve the loan in various currencies equivalent to Special Drawing Rights 31,778,000 to the Kyrgyz Republic for the Third Road Rehabilitation Project, with a term of 32 years, including a grace period of 8 years, and with an interest charge at the rate of 1.0 percent per annum during the grace period and 1.5 percent per annum thereafter, and such other terms and conditions as are substantially in accordance with those set forth in the draft Loan Agreement presented to the Board.

MYOUNG-HO SHIN  
Vice President

7 September 2001

## APPENDIXES

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## PROJECT FRAMEWORK

Design Summary	Performance Indicators/Targets	Monitoring Mechanism	Risks and Assumptions
<b>A. Goals</b>			
Reduce poverty and promote sustainable economic growth in the Kyrgyz Republic	<ul style="list-style-type: none"> <li>• Changes in the economic structure</li> <li>• Per capita income of provinces</li> <li>• Rural incomes and unemployment rate at levels of districts, townships, and households</li> <li>• Number of poor persons in the project area and their expenditures</li> <li>• Freight and passenger flows and access to social services in the project area at district level</li> <li>• Purchase of local materials</li> </ul>	<ul style="list-style-type: none"> <li>• Annual economic reports at provincial, district, and township levels through national and local statistics bureaus; national and local statistics yearbooks</li> <li>• Social and household surveys using participatory rapid appraisal (PRA) methods</li> <li>• Project performance management system (PPMS) evaluation</li> </ul>	<ul style="list-style-type: none"> <li>• Continued economic and policy reforms, and improvement of governance</li> <li>• Continued liberalization of Government influence in markets for transport services</li> <li>• Adequate counterpart funds for the Project</li> <li>• Complementary investments for agricultural inputs and credits, and social development</li> </ul>
<b>B. Purpose</b>			
Improve efficiency in the transport sector through			
<ul style="list-style-type: none"> <li>• Reduced transport costs on the Bishkek-Osh road and secondary roads</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced vehicle operating costs and reduced freight and passenger service charges (in real terms) in the project area</li> </ul>	<ul style="list-style-type: none"> <li>• Survey and investigation by the Government of the costs and service charges</li> </ul>	<ul style="list-style-type: none"> <li>• Continued market-oriented reforms</li> <li>• Improved governance and regulatory management of transport services and markets</li> </ul>
<ul style="list-style-type: none"> <li>• improved access to markets, employment opportunities, and social services</li> </ul>	<ul style="list-style-type: none"> <li>• Increased average annual daily traffic from the current level to forecast traffic levels</li> <li>• Reduced delivery time for agricultural produce to markets within and beyond the project area</li> </ul>	<ul style="list-style-type: none"> <li>• Traffic counts and origin-destination surveys</li> <li>• Survey of time used by small trucks on the main and secondary roads</li> </ul>	<ul style="list-style-type: none"> <li>• Continued economic growth</li> <li>• Proper maintenance of main and secondary roads and condition of transport fleet</li> </ul>

Design Summary	Performance Indicators/Targets	Monitoring Mechanism	Risks and Assumptions
<ul style="list-style-type: none"> <li>strengthened institutional capacity for road sector management</li> </ul>	<ul style="list-style-type: none"> <li>Increased volume of marketed agricultural products</li> <li>Increased use of motor vehicles by the poor and rural communities</li> <li>Improved physical access to health services</li> <li>Generated employment in the service sector</li> <li>Increased labor mobility</li> <li>Liberalization of market for transport services to increase competitiveness</li> <li>Implementation of recommendations for improving financial organization structure of Ministry of Transportation and Communications (MOTC)</li> </ul>	<ul style="list-style-type: none"> <li>Market survey of farm-gate and market volumes and prices, monitoring of agriculture production processes</li> <li>Survey and trade statistics</li> <li>Vehicle registration and traffic counts in the project area</li> <li>PRA social and household survey, project administration (PA) missions, and PPMS monitoring and evaluation</li> <li>Local statistics bureaus</li> <li>Review of the regulatory policies and market and tariff structure</li> <li>Review of organizational structure and financial practices</li> </ul>	<ul style="list-style-type: none"> <li>Government's complementary investments in agriculture sector</li> <li>Continued economic growth</li> <li>Continued Government efforts to improve health services</li> <li>Government's commitment to adopt international standards and practices</li> </ul>
<b>C. Components/ Outputs</b>			
<b>1. Civil Works and Equipment</b>			
<ul style="list-style-type: none"> <li>Rehabilitation of 120 kilometers (km) of the Bishkek-Osh road</li> </ul>	<ul style="list-style-type: none"> <li>Rehabilitation completed by October 2004</li> <li>Structural repairs completed in accordance with technical specifications and requirements of the engineering design by October 2004</li> </ul>	<ul style="list-style-type: none"> <li>Project completion report (PCR)</li> <li>Supervision of rehabilitation of structures</li> <li>PA missions</li> </ul>	<ul style="list-style-type: none"> <li>Asian Development Bank approves a loan of \$40 million equivalent by the end of October 2001</li> <li>Timely and adequate provision of Government's counterpart funds</li> <li>Due diligent performance of MOTC, contractors, and consultants</li> </ul>

Design Summary	Performance Indicators/Targets	Monitoring Mechanism	Risks and Assumptions
<ul style="list-style-type: none"> <li>Improvement of about 125 km of secondary roads</li> <li>Procurement and installation of light equipment for road maintenance</li> </ul>	<ul style="list-style-type: none"> <li>Implementation of rehabilitation strategies in accordance with the minimum Highway Design and Maintenance Model (HDM) screening requirements by the end of October 2004</li> <li>Improvement completed by October 2004</li> <li>Structural improvement and improved surfacing based on actual needs</li> <li>Technical specifications for various equipment</li> <li>Procurement and installation</li> <li>Performance evaluation of the equipment procured</li> </ul>	<ul style="list-style-type: none"> <li>HDM screening sample test and future maintenance planning</li> <li>Postevaluation of the actual intervals between periodic maintenance</li> <li>The PA mission</li> <li>Engineering survey</li> <li>Social survey</li> <li>Progress reports, PA missions, and PCR</li> <li>Inspection reports and certification of the supervision consultants</li> </ul>	<ul style="list-style-type: none"> <li>Effective routine maintenance meeting the minimum requirements</li> <li>Proper use of funds for secondary road improvement and active participation of project beneficiaries</li> <li>Government's procedures and policies on equipment importation</li> <li>Coordination with other countries for timely transshipment of equipment</li> </ul>
<p><b>2. Institutional Strengthening</b></p>	<ul style="list-style-type: none"> <li>Performance of supervision activities</li> <li>On-the-job training of domestic consultants</li> <li>Outline design of the social survey and PPMS implementation</li> <li>Assessment of social and environmental impact of the Project</li> <li>Redefined terms of reference for planning and managing maintenance for secondary roads</li> <li>Increased budget allocation for road maintenance</li> <li>Implementation of maintenance system for secondary roads</li> </ul>	<ul style="list-style-type: none"> <li>Progress reports of consulting services and withdrawal applications</li> <li>Reports on PPMS monitoring and evaluation</li> <li>Progress reports, PA missions, and PCR</li> <li>Progress reports, PA missions, and PCR</li> <li>Policy dialogue</li> <li>Tripartite review and final technical assistance report</li> </ul>	<ul style="list-style-type: none"> <li>Due diligent performance of the consultants</li> <li>Government's willingness to accept international standards and practices</li> </ul>

Design Summary	Performance Indicators/Targets	Monitoring Mechanism	Risks and Assumptions
<ul style="list-style-type: none"> <li>Development of recommendations for increasing competitiveness of the markets for transport services</li> </ul>	<ul style="list-style-type: none"> <li>Implementation of recommendations for increasing competitiveness of the markets for transport services</li> </ul>	<ul style="list-style-type: none"> <li>Progress reports, PA missions, and PCR</li> <li>Policy dialogue</li> <li>Tripartite review and final technical assistance report</li> </ul>	<ul style="list-style-type: none"> <li>Continued efforts of the Government to improve governance and public administration</li> <li>Consistency of the Government's policy reform initiatives</li> </ul>
<b>D. Activities</b>			
1. Provide adequate counterpart funds for project implementation in a timely manner	<ul style="list-style-type: none"> <li>Adequate fund allocation from the Government budget for the Project</li> </ul>	<ul style="list-style-type: none"> <li>Government's public investment program, budget allocation, project progress reports, and PA missions</li> </ul>	<ul style="list-style-type: none"> <li>Improved performance of economy and improved Government fiscal situation; priority given to road rehabilitation</li> </ul>
2. Recruit consultants for construction supervision and training	<ul style="list-style-type: none"> <li>Consultants to be recruited by February 2002</li> <li>Terms of reference for consulting services</li> </ul>	<ul style="list-style-type: none"> <li>Contract documents</li> </ul>	<ul style="list-style-type: none"> <li>Timely signing and effectiveness of the Loan Agreement</li> </ul>
3. Carry out survey and design	<ul style="list-style-type: none"> <li>Survey and detailed design completed by November 2001</li> </ul>	<ul style="list-style-type: none"> <li>Completed design documents</li> </ul>	<ul style="list-style-type: none"> <li>No major risks foreseen</li> </ul>
4. Tender civil works	<ul style="list-style-type: none"> <li>Civil works contracts awarded by February 2002</li> </ul>	<ul style="list-style-type: none"> <li>Progress reports and PA missions</li> </ul>	<ul style="list-style-type: none"> <li>Effective coordination and phasing of project activities</li> </ul>
5. Implement the Project	<ul style="list-style-type: none"> <li>Rehabilitation completed by October 2004 and PCR scheduled for October 2005</li> </ul>	<ul style="list-style-type: none"> <li>Progress reports, PA missions, and PCR</li> </ul>	<ul style="list-style-type: none"> <li>Effective coordination and phasing of project activities</li> </ul>
6. Train staff	<ul style="list-style-type: none"> <li>Staff trained in secondary roads maintenance based on collaboration with local communities</li> </ul>	<ul style="list-style-type: none"> <li>Progress reports, PA missions, midterm review, and PCR; training reports</li> </ul>	<ul style="list-style-type: none"> <li>Due diligent performance of contractors and consultants</li> </ul>

Design Summary	Performance Indicators/Targets	Monitoring Mechanism	Risks and Assumptions
7. Provide TA for capacity building and policy reform in the road system	<ul style="list-style-type: none"> <li>• Consultants to be recruited by May 2002</li> <li>• TA to be completed by March 2003</li> <li>• Submission of capacity building strategy and related training program</li> </ul>	<ul style="list-style-type: none"> <li>• The consultant's inception, interim, and draft final reports</li> <li>• Review and approval of training reports</li> </ul>	<ul style="list-style-type: none"> <li>• Continued Government commitment to road sector reform and improvement of public administration</li> <li>• Cooperation and coordination between MOTC and consultant</li> </ul>
8. Incorporate appropriate environmental mitigation measures in project design	<ul style="list-style-type: none"> <li>• Recommendations of mitigation measures by the initial environmental examination report</li> </ul>	<ul style="list-style-type: none"> <li>• Environmental monitoring reports, PA missions, and PCR</li> </ul>	<ul style="list-style-type: none"> <li>• Adequate institutional capacity for environmental monitoring</li> </ul>

### TRANSPORT SECTOR TRENDS

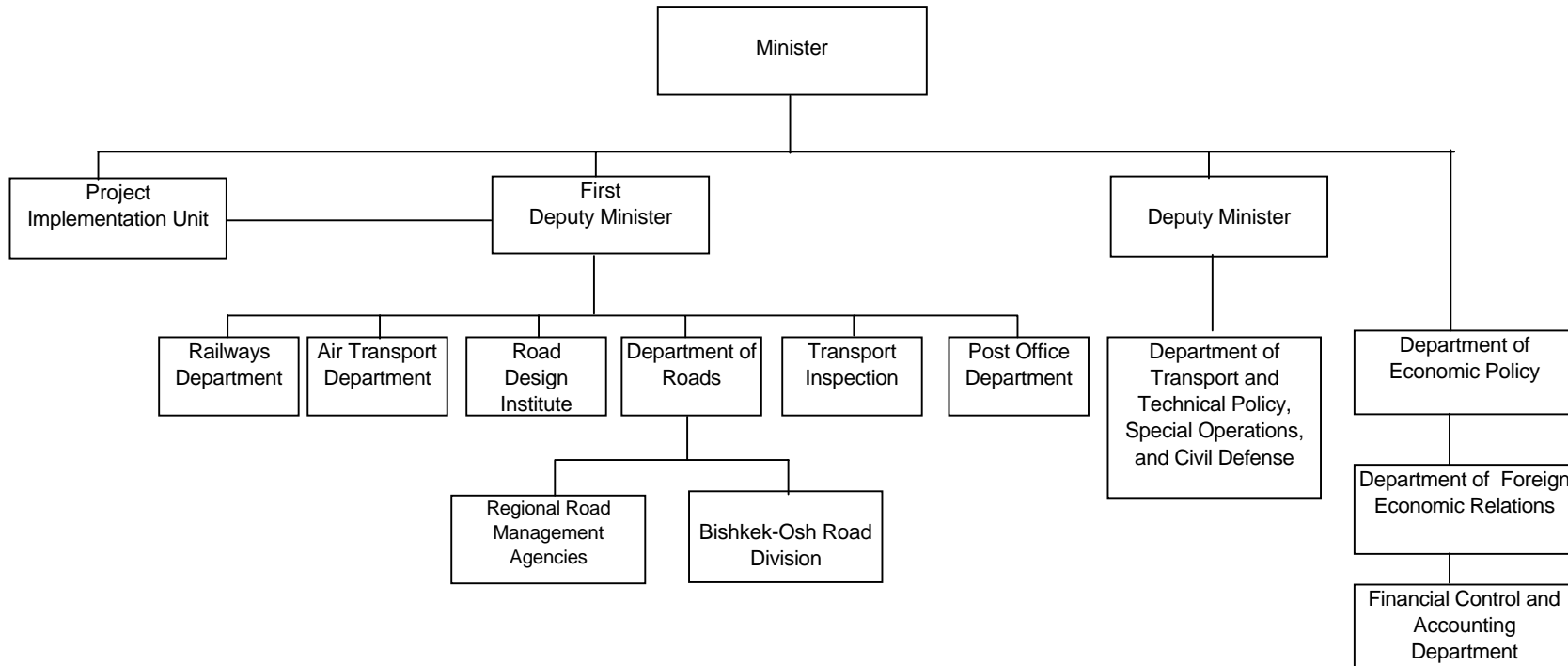
Item	1990	1991	1994	1995	1996	1997	1998	1999
<b>A. Freight Traffic</b>								
<b>1. Demand (million tons)</b>								
a. Road	330.0	359.0	39.9	27.2	27.3	34.4	34.2	35.0
b. Railway	8.0	6.5	2.0	0.9	1.3	1.5	1.4	1.1
c. Waterway	0.7	0.6	0.1	-	-	-	-	-
d. Civil Aviation	-	-	-	-	-	-	-	-
<b>Subtotal</b>	<b>338.7</b>	<b>366.1</b>	<b>42.0</b>	<b>28.1</b>	<b>28.6</b>	<b>35.9</b>	<b>35.6</b>	<b>36.1</b>
Percent								
a. Road	97.4	98.1	95.1	96.8	95.5	95.8	96.1	97.0
b. Railway	2.4	1.8	4.8	3.2	4.5	4.2	3.9	3.0
c. Waterway	0.2	0.2	0.1	-	-	-	-	-
d. Civil Aviation	-	-	-	-	-	-	-	-
<b>2. Demand (million ton-kilometers)</b>								
a. Road	5,631	5,936	787	709	865	1,253	1,015	1,220
b. Railway	2,620	2,415	575	403	481	472	466	354
c. Waterway	114	98	9	6	6	2	6	9
d. Civil Aviation	372	364	64	94	102	97	87	68
<b>Subtotal</b>	<b>8,737</b>	<b>8,813</b>	<b>1,435</b>	<b>1,212</b>	<b>1,454</b>	<b>1,824</b>	<b>1,574</b>	<b>1,651</b>
Percent								
a. Road	64.5	67.4	55.9	58.4	59.5	68.7	64.5	73.9
b. Railway	30.0	27.4	44.0	33.3	33.1	25.9	29.6	21.4
c. Waterway	1.3	1.1	0.6	0.5	0.4	0.1	0.4	0.5
d. Civil Aviation	4.3	4.1	4.5	7.8	7.0	5.3	5.5	4.1
<b>B. Passenger Traffic</b>								
<b>1. Demand (million passengers)</b>								
a. Road	653.4	606.6	267.1	212.3	255.6	306.6	366.4	354.0
b. Railway	1.4	1.4	2.2	0.8	1.0	1.0	0.6	0.4
c. Civil Aviation	1.8	1.7	0.4	0.5	0.6	0.5	0.4	0.3
<b>Subtotal</b>	<b>656.6</b>	<b>609.7</b>	<b>269.7</b>	<b>213.6</b>	<b>257.2</b>	<b>308.1</b>	<b>367.5</b>	<b>354.8</b>
Percent								
a. Road	99.5	99.5	99.0	99.4	99.4	99.5	99.7	99.8
b. Railway	0.2	0.2	0.8	0.4	0.4	0.3	0.2	0.1
c. Civil Aviation	0.3	0.3	0.1	0.2	0.2	0.2	0.1	0.1
<b>2. Demand (million passenger-kilometers)</b>								
a. Road	5,501	5,530	2,051	2,336	2,675	3,029	3,699	3,917
b. Railway	205	200	192	87	90	93	59	31
c. Civil Aviation	3,818	3,765	606	856	868	685	604	532
<b>Subtotal</b>	<b>9,524</b>	<b>9,495</b>	<b>2,849</b>	<b>3,279</b>	<b>3,633</b>	<b>3,807</b>	<b>4,362</b>	<b>4,480</b>
Percent								
a. Road	57.8	58.2	72.0	71.2	73.6	79.6	84.8	87.4
b. Railway	2.2	2.1	6.7	2.7	2.5	2.4	1.4	0.7
c. Civil Aviation	40.1	39.7	21.3	26.1	23.9	18.0	13.8	11.9

— = negligible

Source: Ministry of Transport and Communications.

# ORGANIZATION CHART OF THE MINISTRY OF TRANSPORT AND COMMUNICATIONS

## (Major Departments)



## ROAD SECTOR REFORM PROGRAM

Reform Agenda	First and Second Road Rehabilitation Projects	Almaty-Bishkek Regional Road Rehabilitation Project	The Project
1. Policy and Regulatory Framework	<ul style="list-style-type: none"> <li>• Transport and Road Sector Policy Statement (adopted on 15 October 1997)<sup>a</sup></li> <li>• Revised Automobile Roads Act (enacted on 2 June 1998)<sup>b</sup></li> </ul>		<ul style="list-style-type: none"> <li>• Implement the regulatory changes for increasing competitiveness of markets for transport services recommended by the advisory technical assistance.</li> </ul>
2. Institutional Reform and Capacity Development	<ul style="list-style-type: none"> <li>• Transport institutional restructuring (within the Ministry of Transport and Communications (MOTC), and by transferring road-related works from other ministries)<sup>b</sup></li> <li>• Advisory assistance on transport policy issues<sup>b</sup></li> <li>• Road sector structure, functions and objectives, and planning, management and monitoring systems<sup>b</sup></li> <li>• Tendering and bidding procedures<sup>b</sup></li> <li>• Financial management and control systems<sup>b</sup></li> <li>• Training road sector staff and private contractors in contract management and implementation<sup>b</sup></li> <li>• Human resource development plan<sup>a</sup></li> </ul>		<ul style="list-style-type: none"> <li>• Implement the recommendations for improving the financial organization structure of the MOTC developed by TA 3065-KGZ: Policy Support in the Transport Sector. These reforms include appointing a chief financial officer for MOTC, integrating the financial planning of MOTC and the regional road maintenance agencies, and beginning implementation of international accounting standards.</li> </ul>
3. Road Fund and Cost Recovery	<ul style="list-style-type: none"> <li>• Cost recovery study<sup>a</sup></li> <li>• Road Fund Act (enacted on 2 June 1998)<sup>b</sup></li> <li>• Introduction of user-pays principle into the road fund<sup>b</sup></li> </ul>		

Reform Agenda	First and Second Road Rehabilitation Projects	Almaty-Bishkek Regional Road Rehabilitation Project	The Project
4. Road Safety	<ul style="list-style-type: none"> <li>• Road accident data collection and processing<sup>b</sup></li> <li>• Road safety action plan<sup>b</sup></li> <li>• Road safety education<sup>b</sup></li> </ul>	<ul style="list-style-type: none"> <li>• National road safety board will be established.</li> <li>• Road safety act will be enacted.</li> <li>• Axle load and vehicle size regulations will be adopted.</li> <li>• Road safety initiatives through road maintenance contract will be implemented.</li> </ul>	
5. Road Maintenance	<ul style="list-style-type: none"> <li>• Equipment pool system and maintenance by contract procedures<sup>b</sup></li> <li>• Maintenance training<sup>b</sup></li> <li>• Maintenance funds allocation from road fund; if not adequate, from budget<sup>b</sup></li> <li>• Road maintenance by contract (Bishkek-Osh road)<sup>b</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Road maintenance by contract awarded on a competitive bidding basis</li> </ul>	<ul style="list-style-type: none"> <li>• Establish a separate budget item for the maintenance of the Bishkek-Osh road and allocate Som35 million in 2001 increasing to Som100 million in 2005. For all other roads under MOTC administration, the Ministry of Finance will allocate Som162 million in 2001 increasing to Som237 million in 2005.</li> <li>• Invite bids from private contractors for routine maintenance on all sections of the Bishkek-Osh road for which the warranty period has expired.</li> <li>• Prepare the road maintenance system for secondary roads developed under the advisory technical assistance.</li> </ul>
6. Regional Transport Issues		<ul style="list-style-type: none"> <li>• Cross-border agreement will be implemented and customs and transport regulations, procedures, and documentation will be revised.</li> <li>• Vehicle weight and dimension limits will be revised.</li> <li>• Road design and construction standards will be adopted.</li> </ul>	

<sup>a</sup> Loan 1444-KGZ(SF): *Road Rehabilitation Project*, for \$50 million, approved on 13 June 1996.

<sup>b</sup> Loan 1630-KGZ(SF): *Second Road Rehabilitation Project*, for \$50 million, approved on 10 September 1998.

## TRAFFIC FORECAST

1. Estimates of current traffic levels are based on data from the Ministry of Transport and Communications and on the consultant's moving-observer counts during the project preparatory technical assistance.<sup>1</sup> Average annual daily traffic (AADT) is estimated at about 1,300 vehicles per day on the km 427–498 section and about 4,600 on the Uzgen–Osh section. Traffic comprises seven vehicle types: cars, pickups, buses, and four types of trucks. Cars are the majority accounting for 50 percent on the km 427–498 section and 69 percent on the Uzgen–Osh section.

2. Traffic forecasts by vehicle type were prepared for the project road sections for 2001–2024 (Table A5). The forecasts are based on expected growth in gross domestic product (GDP) and population, and on income elasticities of demand for freight and passenger traffic. The population is expected to increase at an average annual rate of 1.7 percent per year during the project period. GDP is forecast to grow at annual rates of 4.5 percent through 2005, and 5.0 percent thereafter. The values of income elasticity of demand used for passenger traffic are 1.5 during 2001–2005, 1.4 during 2006–2010, and 1.3 for the remaining project period. For freight traffic, the values used are 1.5 during 2001–2005, 1.3 during 2006–2010, and 1.2 during the remaining project period.

3. The average annual growth rates for passenger traffic are 6.8 percent during 2001–2005, 7.0 percent during 2006–2010, and 6.5 percent for the remaining project period. For freight traffic, the average annual growth rates are 6.8 percent during 2001–2005, 6.5 percent during 2006–2010, and 6.0 percent for the remaining project period. Traffic levels on the km 427–498 section are forecast to increase to an AADT of about 5,300 in 2024, while AADT on the Uzgen–Osh section will increase to almost 21,000 by 2024. Generated traffic resulting from lower transport costs comprises approximately 10 percent of total traffic. International transit traffic is forecast to comprise approximately 5 percent of total traffic.

**Table A5: Traffic Forecast for the Project**  
(Average Annual Daily Traffic)

Road Section and Year	Car	Pickup	Bus	Light Truck	Medium Truck	Heavy Truck	Articulated Truck	Total
<b>Km 427-498</b>								
2001	663	146	47	20	60	312	80	1,328
2005	644	201	85	30	80	414	103	1,557
2010	926	288	123	30	111	579	145	2,202
2015	1,290	400	170	40	150	785	197	3,032
2020	1,788	554	233	54	203	1,062	266	4,160
2024	2,316	716	301	68	258	1,348	338	5,345
<b>Uzgen-Osh</b>								
2001	3,169	509	277	46	139	333	153	4,626
2005	3,968	649	380	76	188	447	195	5,903
2010	5,692	931	544	76	263	626	272	8,404
2015	7,917	1,294	756	103	357	848	368	11,643
2020	10,964	1,793	1,046	139	482	1,146	498	16,068
2024	14,195	2,321	1,353	177	612	1,455	634	20,747

<sup>1</sup> TA 3335-KGZ: *Third Road Rehabilitation Project*, for \$600,000, approved on 10 December 1999.

**COST ESTIMATES AND FINANCING PLAN**  
(\$ million)

Item	Cost Estimates			Financing Plan					
	Foreign Exchange	Local Currency	Total Cost	Asian Development Bank			Government		
				Foreign Exchange	Local Currency	Total Cost	Foreign Exchange	Local Currency	Total Cost
<b>A. Base Cost<sup>a</sup></b>									
1. Civil Works <sup>b</sup>									
a. Bishkek-Osh Road Rehabilitation	22.1	10.7	32.8	22.1	3.1	25.2	0.0	7.6	7.6
b. Rural Road Improvement	1.3	5.1	6.4	1.3	3.8	5.1	0.0	1.3	1.3
2. Maintenance Equipment	1.3	0.0	1.3	1.3	0.0	1.3	0.0	0.0	0.0
3. Consulting Services									
a. Construction Supervision	1.1	0.5	1.6	1.1	0.5	1.6	0.0	0.0	0.0
b. Monitoring and Evaluation	0.1	0.1	0.2	0.1	0.1	0.2	0.0	0.0	0.0
c. Road Maintenance Implementation	0.1	0.1	0.2	0.1	0.1	0.2	0.0	0.0	0.0
d. Project Management	0.0	0.4	0.4	0.0	0.4	0.4	0.0	0.0	0.0
<b>Subtotal (A)</b>	<b>26.0</b>	<b>16.9</b>	<b>42.9</b>	<b>26.0</b>	<b>8.0</b>	<b>34.0</b>	<b>0.0</b>	<b>8.9</b>	<b>8.9</b>
<b>B. Contingencies</b>									
1. Physical Contingency <sup>c</sup>	2.6	1.7	4.3	2.6	0.8	3.4	0.0	0.9	0.9
2. Price Contingency <sup>d</sup>	1.2	0.8	2.0	1.2	0.6	1.8	0.0	0.2	0.2
<b>Subtotal (B)</b>	<b>3.8</b>	<b>2.5</b>	<b>6.3</b>	<b>3.8</b>	<b>1.4</b>	<b>5.2</b>	<b>0.0</b>	<b>1.1</b>	<b>1.1</b>
<b>C. Interest During Construction</b>	<b>0.8</b>	<b>0.0</b>	<b>0.8</b>	<b>0.8</b>	<b>0.0</b>	<b>0.8</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Total</b>	<b>30.6</b>	<b>19.4</b>	<b>50.0</b>	<b>30.6</b>	<b>9.4</b>	<b>40.0</b>	<b>0.0</b>	<b>10.0</b>	<b>10.0</b>

<sup>a</sup>Base costs are in 2001 prices and exclude taxes.

<sup>b</sup>Includes costs of environmental mitigation measures of about \$0.08 million.

<sup>c</sup>Physical contingency is 10 percent of base costs.

<sup>d</sup>At 2.4 percent per annum.

Source: ADB estimates.



**CONTRACT PACKAGES**

<b>Contract and Description</b>	<b>Number of Contracts</b>	<b>Estimated Contract Value (\$ million)</b>	<b>Procurement Method</b>
<b>A. Civil Works</b>			
1. Rehabilitation of road section 427-498, 72 km	2	19.8	ICB
2. Rehabilitation of Uzgen–Osh section, 48 km	1	13.0	ICB
3. Rehabilitation of Tash Kumyr–Kara Djigadz road (part 1= 28 km)	1	2.6	ICB
4. Rehabilitation of Tash Kumyr–Kara Djigadz road (part 2=25 km)	1	2.4	ICB
5. Rehabilitation of Bazar Korgon–Arslanbob road with a branch to Kyzyl Ungkur, 72 km	1	1.4	ICB
<b>Total</b>	<b>6</b>	<b>39.2</b>	
<b>B. Maintenance Equipment</b>			
Lightweight and hand-operated equipment for routine maintenance of the secondary roads and the Bishkek–Osh road	3	1.3	IS
<b>C. Consulting Services</b>			
Consulting services for construction supervision, monitoring and evaluation, road maintenance implementation, and project management	1	2.4	ICR

ICB = international competitive bidding, ICR = international competitive recruitment, IS = international shopping.  
Source: ADB estimates.

## **OUTLINE TERMS OF REFERENCE FOR CONSULTING SERVICES FOR PROJECT IMPLEMENTATION**

### **A. Introduction**

1. The civil works contract will have contract periods of about 32 months. The works will involve rehabilitation of two-lane national roads and one- or two-lane secondary roads in level and mountainous terrain. The works will be carried out following the standards and specifications prepared under the Asian Development Bank's (ADB's) technical assistance on road design and construction standards<sup>1</sup> and other standards and specifications mentioned in the detailed design documents. The terms of reference indicate the work to be undertaken and the staffing resources to be provided by the consultant to be appointed by the Executing Agency (EA)—the Ministry of Transportation and Communications (MOTC)—to supervise the civil works.

### **B. Construction Supervision**

#### **1. Objectives**

2. The main objective is to ensure that the Project is completed within the agreed-upon time for construction, at the agreed-upon cost, and in accordance with standards set out in the contract document and satisfactory to the Government and ADB. Supervision of all construction works will be thorough to ensure that they are carried out in full compliance with the engineering design, technical specifications, summary initial environmental examination and summary social impact assessment recommendations, and other contract documentation. An additional objective is to promote technology transfer by requiring the consultant to employ suitably qualified domestic professionals, appoint personnel from the Kyrgyz Republic as counterparts to be incorporated into the consultant's site supervision team, give appropriate formal and on-the-job training to site staff, and monitor the training programs to be developed and implemented by the civil works contractors. A third objective is to provide effective liaison between the Project, concerned Government and local organizations, and ADB.

#### **2. Scope of the Services**

3. Construction supervision will require 47 person-months of international and 270 person-months of domestic consulting services. The services will include

- (i) reviewing the designs prepared by the consultants to identify inconsistencies and make appropriate corrections, if necessary;
- (ii) administering the civil works contracts as engineer, as defined in the contract document;
- (iii) supervising day-to-day works on-site by providing suitably qualified and experienced site supervision staff;
- (iv) ensuring compliance with the environmental and social impact mitigation requirements of the civil works contracts, including those related to socially transmitted diseases;
- (v) preparing regular progress and other reports;

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<sup>1</sup> TA 5733-REG: *A Review of Road Design and Construction Standards*, for \$600,000, approved on 3 April 1997.

- (vi) assisting MOTC in preparing loan withdrawal applications for submission to ADB; and
- (vii) assisting MOTC in selecting the contractors.

4. Specific services will be to

- (i) ensure that the notice to commence the works has been issued;
- (ii) ensure that the contractor has arranged proper insurance cover;
- (iii) ensure that the contractor has provided a performance bond;
- (iv) certify advance payments in accordance with the contracts;
- (v) receive and assess the contractor's implementation program;
- (vi) ensure that the contractor has possession of the site;
- (vii) provide the contractor with all necessary survey data and reference for setting out the works;
- (viii) liaise with the appropriate authorities to ensure that all the affected utility services are promptly relocated;
- (ix) check on the contractor's setting out and ensuring that the works are carried out in accordance with drawings and other design details;
- (x) provide direct day-to-day control of the site materials testing laboratory and its activities;
- (xi) ensure that the works are executed in accordance with all the provisions of the contract, for example, those concerning standards of workmanship, safety provisions, and protection of the environment;
- (xii) measure the works, agreeing and certifying to interim and final payment certificates for submission to the employer, and assisting the employer in preparing loan withdrawal documentation for submission to ADB;
- (xiii) administer, assess, and, where appropriate, make recommendations on applications for extension of time, claims for additional payment, and contractual disputes;
- (xiv) issue site instructions, variation orders, provisional sum orders, and day works orders as appropriate;
- (xv) maintain for each contract regular estimates of the cost to completion and time to completion;
- (xvi) ensure that as-built drawings are prepared;
- (xvii) prepare monthly progress reports, in a form agreed upon with MOTC and ADB, and submit these within 10 days of the end of the month to which they refer;
- (xviii) maintain full and detailed permanent site records, which will include site correspondence, survey data, quality acceptance data, site diaries, measurement and certification, minutes of meetings, and records of all other contractually relevant matters;
- (xix) administer the completion of the contract, including all activities in relation to the issue of the taking over certificate and defects liability certificate;
- (xx) throughout the services, maintain close liaison with MOTC and other relevant agencies, including the police and other Government and regional authorities;
- (xxi) prepare a final report—a compilation and condensation of the data presented in regular monthly progress reports, together with copies of as-built drawings—within two months of the issue of the defects liability certificate;
- (xxii) give on-the-job training to MOTC's staff and the staff of domestic consultants in carrying out construction supervision including contract administration, quality control, environmental and social monitoring and evaluation, and other relevant

- activities. On-the-job training will specifically cover the operation of the environmental monitoring and reporting system;
- (xxiii) carry out benefit monitoring and evaluation by compiling and analyzing appropriate border-crossing traffic, axle load, and other socioeconomic data. Socioeconomic indicators to be monitored will include passenger fares and freight rates, traffic levels and accidents, agricultural and industrial goods transported on the road, vehicle operation and maintenance costs, and number and type of jobs created in the construction and maintenance activities. The data provided will be disaggregated by gender and collected during project implementation and after completion;
  - (xxiv) undertake environmental monitoring as detailed in the summary initial environmental examination (SIEE) report, and incorporate the findings and supporting data in the project completion report; and
  - (xxv) ensure that measures are taken to reduce the risk of socially transmitted diseases, including HIV-AIDS,<sup>2</sup> in cooperation with the Ministry of Health and its district offices. The consultants and the civil works contractors will organize training and disseminate publicity materials to road construction workers and users.

### **C. Consulting Services on Monitoring and Evaluation**

5. International and domestic consultants will be recruited to undertake monitoring and evaluation of project performance and its impacts on social and economic development in the project area using ADB's project performance management system (PPMS). Four person-months of international and 30 person-months of domestic consulting services will be required.

6. The international consultants will help MOTC and the Implementing Agencies set up and use PPMS that focuses on assessing the socioeconomic impacts of the Project. Within the framework, the consultants will assist and advise MOTC on (i) developing performance indicators and project targets, in cooperation with the regional and district governments; (ii) establishing a set of baseline data against which the project impacts will be reassessed at the completion of the rehabilitation and annually during three years after completion; (iii) assessing the socioeconomic impacts of the Project on potential beneficiaries through selective household surveys and participatory research methods; (iv) assessing environmental sustainability of the Project; (v) conducting training in operational social research methods and building MOTC capacity in performing management and impact assessment; and (vi) informing the public about the works and the grievance relief mechanism set up by the consultants. The domestic consultants will assist the international consultants in the household surveys and in carrying out participatory research. Four surveys will be carried out (baseline survey at the beginning of the contract, two follow-up surveys one and three years later, and final survey after project completion). The results will be reported through quarterly progress reports. The consultants will also work with MOTC in continuing monitoring of the first and second road rehabilitation projects.

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<sup>2</sup> Human immunodeficiency virus-acquired immunodeficiency syndrome.

**D. Road Maintenance**

7. The consultants will liaise with the advisory technical assistance (TA) consultants preparing the maintenance manual for secondary roads, and will review drafts of the manual and provide comments.

8. Based on the initial training given and the maintenance manual prepared by the advisory TA, the supervision consultants will, in cooperation with the road maintenance units, form road maintenance organizations in the local communities of the project area for maintaining the secondary roads.

9. The consultants will train the local organizations and supervise the maintenance works on the secondary roads done by the road maintenance units and the local road maintenance organizations.

**E. Project Management**

10. The consultants are also expected to meet the expenses of project management on a reimbursable basis (for which no proposal needs to be submitted).

**F. Records and Reports**

11. The international consultants will provide all required services to enable MOTC to comply with obligations under the Loan Agreement:

- (i) Prepare or help MOTC prepare quarterly progress reports and financial status reports, and a final report on the Project.
- (ii) Prepare interim and final payment certificates.
- (iii) Provide MOTC with such technical and engineering assistance as may be required.
- (iv) Keep accurate and detailed records of all works done in the construction phase of the Project and report such in the required progress reports.
- (v) Keep records of all payments approved and report such in the regular progress reports.
- (vi) Ensure that progress reports contain complete information concerning (a) description of implementation activities, (b) progress charts, and (c) expenditure records.
- (vii) Assist MOTC in preparing reports on the monitoring of project performance, socioeconomic impacts of the Project, and environmental impacts as required by the terms of reference.

12. The progress reports of consulting services will be compared with the work program and progress schedule as originally agreed upon. The team leader of the international consultant will sign the progress reports and the final report and submit them to MOTC (5 copies) and ADB (2 copies).

**G. Support Services to the Consultant**

13. MOTC will make the following assistance available to the international consultant, either directly or through the contractor:

- (i) administrative assistance in obtaining visas, customs clearances, and any other administrative formalities and permits required by the international consultant to perform their duties;
- (ii) all relevant reports and studies relating to the assignment;
- (iii) appropriate and suitably qualified counterpart staff;
- (iv) suitable furnished office accommodation on site and in Osh;
- (v) secretarial and clerical support, including translators and interpreters; and
- (vi) local transportation with drivers.

14. The number of counterpart staff to be assigned and the number of vehicles to be provided will be agreed to by MOTC and the international consultant before the works start.

**PROPOSED INDICATORS FOR MONITORING AND EVALUATION**

<b>Goal and Objectives of the Project</b>	<b>Issues</b>	<b>Indicators</b>	<b>Baseline</b>	<b>Frequency</b>
<p><b>Goal:</b> Reduce poverty and promote economic development in the project area and the Kyrgyz Republic</p> <p><b>Purpose:</b> to improve efficiency in the transport sector through</p>	<ul style="list-style-type: none"> <li>Economic development</li> <li>Poverty</li> <li>Structure of the economy</li> </ul>	<ul style="list-style-type: none"> <li>Per capita income, by district</li> <li>Unemployment rate, by district</li> <li>Poverty level in the project area and in the Kyrgyz Republic</li> </ul>	<ul style="list-style-type: none"> <li>To be established at start of construction</li> </ul>	<ul style="list-style-type: none"> <li>At start of construction</li> <li>At project completion</li> <li>Annually, during three years after completion</li> </ul>
<ul style="list-style-type: none"> <li>Reduced transport costs on the Bishkek-Osh road and secondary roads</li> </ul>	<ul style="list-style-type: none"> <li>Transport costs</li> </ul>	<ul style="list-style-type: none"> <li>Passenger fares and freight tariffs for routes involving key origins and/or destinations in the project area</li> <li>Vehicle operating costs (VOCs) by type of vehicle</li> <li>International roughness index on project road</li> <li>Travel time between key destinations</li> </ul>	<ul style="list-style-type: none"> <li>To be established at start of construction</li> </ul>	<ul style="list-style-type: none"> <li>At start of construction</li> <li>At project completion</li> <li>Annually, during three years after completion</li> </ul>
<ul style="list-style-type: none"> <li>Improved access to markets, employment opportunities, and social services</li> </ul>	<ul style="list-style-type: none"> <li>Access in project area</li> <li>Traffic levels</li> <li>Vehicle ownership</li> <li>Local financial resources for social sector</li> <li>Economic activities</li> <li>Labor mobility</li> </ul>	<ul style="list-style-type: none"> <li>Frequency of passenger and freight transport services in project area</li> <li>Frequency of trips to markets and health facilities outside resident communities</li> <li>Traffic volume per vehicle type on project roads</li> <li>Number and type of vehicles owned in selected poor communities in the project area</li> <li>Financial resources from the local budget earmarked for social services</li> <li>Number of people employed in roadside businesses and tourism along the Project's secondary roads</li> <li>Unemployment rate, by district, in the project area</li> </ul>	<ul style="list-style-type: none"> <li>To be established at start of construction</li> </ul>	<ul style="list-style-type: none"> <li>At start of construction</li> <li>At project completion</li> <li>Annually, during three years after completion</li> </ul>

Goal and Objectives of the Project	Issues	Indicators	Baseline	Frequency
<ul style="list-style-type: none"> <li>Strengthened institutional capacity for road sector management</li> </ul>	<ul style="list-style-type: none"> <li>Implementation of technical assistance to study and make recommendations for improving competitiveness of markets for transport services</li> </ul>	<ul style="list-style-type: none"> <li>Completion of technical assistance (TA)</li> <li>Implementation of recommendations from TA</li> <li>Frequency of passenger and freight transport services in project area, passenger fares and freight tariffs for routes involving key origins and/or destinations in the project area</li> <li>Conditions on transport means in the project area, e.g., degree of overcrowding and overloading</li> </ul>	<ul style="list-style-type: none"> <li>To be established at start of TA</li> </ul>	<ul style="list-style-type: none"> <li>At start of construction</li> <li>One year after completion of TA</li> <li>At project completion</li> <li>Annually, during three years after completion</li> </ul>
<ul style="list-style-type: none"> <li>Others: mitigate negative social and environmental impacts during project construction</li> </ul>	<ul style="list-style-type: none"> <li>Establish and implement system for secondary roads maintenance based on collaboration between local maintenance units and local communities</li> </ul>	<ul style="list-style-type: none"> <li>Completion of TA</li> <li>Implementation of maintenance system designed by technical assistance</li> <li>Maintenance of project secondary roads in good condition</li> </ul>	<ul style="list-style-type: none"> <li>To be established at start of construction</li> </ul>	<ul style="list-style-type: none"> <li>At project completion</li> <li>Annually, during three years after completion</li> </ul>
<ul style="list-style-type: none"> <li>Others: mitigate negative social and environmental impacts during project construction</li> </ul>	<ul style="list-style-type: none"> <li>Employment of local labor and women for construction of project roads</li> </ul>	<ul style="list-style-type: none"> <li>Local labor force employed on project road construction</li> <li>Number of unskilled laborers</li> <li>Percentage of local laborers and women in labor force</li> <li>Wage level of local labor employed in road construction</li> </ul>	<ul style="list-style-type: none"> <li>Wage rate above poverty level</li> </ul>	<ul style="list-style-type: none"> <li>During construction, every 6 months</li> </ul>
<ul style="list-style-type: none"> <li>Others: mitigate negative social and environmental impacts during project construction</li> </ul>	<ul style="list-style-type: none"> <li>Procurement of local goods and services</li> </ul>	<ul style="list-style-type: none"> <li>Percentage of locally procured goods and services</li> </ul>	<ul style="list-style-type: none"> <li>Environmental conditions at start of construction</li> </ul>	<ul style="list-style-type: none"> <li>Environmental conditions at start of construction</li> </ul>
<ul style="list-style-type: none"> <li>Others: mitigate negative social and environmental impacts during project construction</li> </ul>	<ul style="list-style-type: none"> <li>Distribution to local communities of information on construction works and on grievance alleviation procedures for environmental issues</li> </ul>	<ul style="list-style-type: none"> <li>Frequency of complaints by the public on environmental issues</li> </ul>	<ul style="list-style-type: none"> <li>Environmental conditions at start of construction</li> </ul>	<ul style="list-style-type: none"> <li>Environmental conditions at start of construction</li> </ul>

## SUMMARY INITIAL ENVIRONMENTAL EXAMINATION

### A. Introduction

1. This summary initial environmental examination (SIEE) report is based primarily on the information in the initial environmental examination (IEE). The IEE was prepared under the project preparatory technical assistance (TA) TA 3335–KGZ<sup>1</sup> in accordance with the Asian Development Bank's (ADB's) *Environmental Assessment Requirements* and *Environmental Guidelines for Selected Infrastructure Development Projects*. The IEE was prepared in four steps: (i) secondary data and reports on relevant previous projects were analyzed, and discussions were held with the representatives of the local environmental authorities, road maintenance units, and road design organizations; (ii) field investigations were conducted to collect data for the Project; (iii) the data were reviewed and possible environmental impacts were analyzed; and (iv) mitigation measures were designed to minimize adverse effects during and after construction. Additional information was obtained through a series of meetings with domestic specialists, local authorities and road maintenance units, and site inspection during the fact-finding mission.

### B. Description of the Project

2. The Project will rehabilitate about 120 kilometers (km) of the Bishkek–Osh road and 125 km of secondary roads feeding into the Bishkek–Osh road. The first 30 km of the km 427–498 section pass through steep slopes along the Naryn River and are prone to landslides, flash floods, and severe erosion. Many of the existing culverts on this section are too small to ensure sufficient drainage and become clogged during heavy rains. The works for the first 30 km of the km 427–498 section include rehabilitating the pavement structures (base course and pavement), improving the drainage structures, repairing damaged culverts and bridges, and constructing protective structures against rockfalls, landslides, and erosion. The works on the rest of the section consist of rehabilitating the pavement and repairing drainage structures. On the Uzgen–Osh section, similar pavement rehabilitation and drainage repair works will be constructed. In addition, as the Uzgen–Osh section passes through villages, pedestrian walkways will be added and traffic safety installations will be improved.

3. The two secondary roads will be rehabilitated to different standards appropriate to each road section. On the Tash Kumyr–Kara Djigadz road, the existing bituminous pavement of the first 15 km will be repaired. The works on the km 15–53 section of this road will comprise building a proper embankment and constructing a bituminous gravel pavement. The Bazar Korgon–Arslanbob road (52 km) and its branch to Kyzyl Ungkur (20 km) will be rehabilitated by repairing the bituminous pavement of the first 10 km and laying a gravel surface on the remainder of the road to Arslanbob, with improvements to the earth road and bridge on the branch to Kyzyl Ungkur. In addition, damaged culverts and bridges along this road will be repaired or rebuilt.

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<sup>1</sup> TA 3335–KGZ: *Third Road Rehabilitation Project*, for \$600,000, approved on 10 December 1999.

## **C. Description of the Environment**

### **1. Project Area**

4. The Kyrgyz Republic is extremely mountainous and contains some of the highest and most dramatic parts of the Tien Shan and Pamir Alay Ranges. Its average elevation is approximately 2,750 meters (m). The project area covers km 427–498 and the section Uzgen–Osh of the Bishkek–Osh road with the Tash Kumyr–Kara Djigadz and Bazar Korgon–Arslanbob secondary roads. From km 427 to km 457, the road follows the Naryn River that descends from the Toktogul reservoir toward the Fergana valley. Up to km 436 the road is carved in the steep and high slope above the reservoir near Tash Kumyr. In that section the road is subject to rock and mud slides and prone to erosion. Due to inadequate drainage structures (too small culverts), the road embankment has been eroded up to km 457. The rest of the road runs over the rolling foothills surrounding the Fergana valley. The secondary roads lead from Tash Kumyr and Bazar Korgon to the mountain villages Kara Djigadz and Arslanbob, which are popular recreational areas during the summer months. Tash Kumyr is a mining town with a coal mine, which is presently working at only minimum capacity. Investigations are under way to find deposits of gold and other precious metals.

5. Soil erosion is a major environmental concern throughout the country due to seismic activity, steep slopes, fragile soils, and human activities. Soil disturbance activities must also take into account the fact that old biologically active disposal sites used for anthrax–infected animals may be unearthed during construction. Approximately 700 such sites are registered and most are believed to be adjacent to the international trade roads, including the Bishkek–Osh road.

6. The potentially affected environment is defined as an area approximately 10 km on either side of the project roads, with appropriate adjustments for intervening mountainous conditions, international boundaries, and similar constraints, and with due consideration of potential environmental effects at greater distances (downstream hydrological effects, for example). Pursuant to the ADB guidelines, the potentially affected environment is described in terms of its physical, biological, and human resources; economic development; and quality of life characteristics.

### **2. Protected Nature Areas**

7. The two protected nature areas in the project area are the Sary Chelek Strict Nature Preserve and the Dashman Forest Protected Area. They are in the area defined by the secondary roads, but remain some distance from the sections of the Bishkek–Osh road being rehabilitated. The protected areas are under the administrative oversight of the Department of Protected Areas within the Ministry of Ecology and Emergency Situations, although the Department is reported to have little actual authority over the areas compared to the regional authorities through which the budgets are channeled.

8. The Sary Chelek Strict Nature Preserve is in the most highly protected class of protected nature areas in the Kyrgyz Republic. Sary Chelek is 60 km from Tash Kumyr (and the Bishkek–Osh road sections being rehabilitated) and 30 km from the closest point of the Tash Kumyr–Kara Djigadz secondary road. The preserve covers 23,868 hectares (ha), of which a section of 18,080 ha is considered core area, and consists primarily of alpine forest. Some endangered species of flora and fauna are reported to inhabit the preserve. While there is not much tourism in the preserve at present, in the 1980s as many as 10,000 tourists visited Sary Chelek

annually. The village of Arkyt is located within the boundaries, and the population of 850 carry out economic activities such as grazing their animals within the preserve.

9. The Dashman Forest Protected Area is in the least protected class of protected nature areas in the country, specifically, a protected area in which limited economic activity is permitted. The Dashman forest is about 35 km from the sections of the Bishkek–Osh road being rehabilitated and 3 km from the Arslanbob end of the Bazar Korgan–Arslanbob–Kyzyl Ungkur secondary road. The only road connection to the forest from that point is almost completely eroded. The Dashman forest covers 3,095 ha and comprises primarily a walnut forest (70 percent) with apple (20 percent) and other trees. Sustainable economic activities are allowed within the forest, including raising of sunflowers by 185 landless people from nearby villages who lease the land. More than 500 people from nearby villages have smallholdings within the forest and are allowed to collect walnuts during one month every year. Very few tourists visit the forest.

#### **D. Screening of Potential Environmental Impacts and Mitigation Measures**

##### **1. Environmental Problems Due to Project Location**

10. No impacts on archaeological and historic resources; no significant adverse impacts on settlement patterns, provinces, and communities; and no significant adverse impacts to aquatic or terrestrial ecosystems are anticipated. Little or no agricultural displacement will occur. Access to markets will be enhanced. Construction materials except special ones such as cable strands, admixtures, etc., will be obtained in and around the project area. Embankment soil, fine aggregates, coarse aggregates, and cement sources are available in or near the project area. The Project will have an impact on the mineral and building material resources of the area by increasing the rate at which these resources are consumed, but is unlikely to cause or contribute significantly to their depletion. The area's potential for economic development will be enhanced. No adverse socioeconomic impacts on employment and income trends, or on ethnic minorities within the area are foreseen. The Project is expected to enhance commercial activities adjacent to the existing roadways.

##### **2. Environmental Impact on Protected Nature Areas**

11. The Project is not expected to have any direct impact on either the Sary Chelek Strict Nature Preserve or the Dashman Forest Protected Area, although some indirect impacts are expected. The rehabilitation of the Tash Kumyr–Kara Djigadz secondary road may lead to increased tourism in the Sary Chelek Preserve; however, any increases are expected to be minor as approximately 30 km of unimproved road lies between the secondary road and the preserve. Any increases in tourism are expected to be within the environmental management capacity of the preserve's administration, as the tourism levels would still remain well below those during the 1980s. The risk of increased exploitation is expected to be minor as well, due to the 30 km of unimproved road, and to be within the management capacity of the preserve's administration.

12. As for the Dashman Forest Protected Area, the rehabilitation of the Bazar Korgan–Arslanbob–Kyzyl Ungkur secondary road raises issues of increased tourism, additional exploitation of timber, and conversion to other uses. Any increase in tourism is expected to be very small, as the forest has never been a major tourist destination and the road linking the secondary road to the forest is in a very bad condition. There may be some risk of additional exploitation of timber; however, the very poor condition of the road link from the end of the

project road to the forest may be a deterrent. The Government is aware of this issue, and in recognition of the exploitation in Dashman and other areas, the Kyrgyz Republic's parliament enacted in December 2000 a resolution proposing the suspension of walnut timber extraction until effective measures can be taken to control exports. The pressure to convert forestlands to other uses, e.g., agriculture, is also an issue at Dashman; however, the Project is not expected to increase this pressure and may in fact alleviate it by improving access to other economic opportunities.

### **3. Environmental Problems Associated with Construction**

13. Detours and traffic inconveniences will occur during construction. After construction, the primary transport impact of the Project will be to improve the performance of the transport sector and greatly facilitate the flow of traffic, goods, and travelers. Care will be taken during construction to minimize traffic disruptions. No mitigating actions related to transport, other than those actions already incorporated in the Project, are considered warranted.

14. Topographic and soil impacts could occur due to altered road embankments, borrow pit excavations, and quarry operations. No significant cut-and-fill operations are anticipated. No long-term impacts to the area's soils due to increased pollutant levels are anticipated. No significant changes in hydrological characteristics are likely and no significant adverse impacts to surface hydrology, wetlands, groundwater characteristics, or flood/inundation characteristics are anticipated. Air quality impacts could occur in both the construction and operational phases, but no significant violations of standards are anticipated in light of the contractual provisions noted in para. 26.

15. The feasibility study recommends that contracts include provisions to mitigate adverse impacts due to altered road embankments, borrow pits, and provisions for quarry operations. The Project will install drainage facilities of adequate size to accommodate foreseeable flood levels and will stabilize downstream slopes with concrete, or rock gabions, or walls to prevent erosion. Contracts will require asphalt and hot-mix plants to be located at least 500 m away from the nearest sensitive receptor (e.g., schools and hospitals). Operators will be required to install emission controls. Blasting will be carried out using carefully designed charges, and dust-generating items will be conveyed under cover. Road surfaces, excavation areas, and construction sites will be sprayed with water to control dust. Trucks carrying earth, sand, or stone will be covered with tarps to prevent spilling. Contracts will require preconstruction and routine air quality monitoring.

16. Worker camps could constitute a temporary land use change and raise issues related to the maintenance of healthy living conditions and control of off-site impacts, hazardous traffic flows at construction sites, disposal of human and construction waste, and similar issues.

17. The feasibility study recommends that contracts require construction operators to attend to the health and safety of their workers, maintain and clean up campsites, and respect the rights of local landowners. For land located outside the right-of-way (ROW), written agreements with local landowners for temporary property use will specify that sites will be restored to an acceptable level within a predetermined period.

18. Human health risks associated with road projects typically involve issues such as transmission of diseases along previously undeveloped corridors. In this instance, however, the Project involves only existing ROWs and will not open any additional corridors. Contamination

of local water supplies, air and noise pollution, and issues related to road safety and accidents are often associated with road projects. The improved road conditions could lead to increased speeds and more severe accidents.

19. The proposed contract specifications will prevent contamination of local water supplies and will control air and noise pollution. Road safety will be enhanced as a result of the road improvements, improved signage, and other features incorporated in the Project. The possibility of higher accident rates will require greater enforcement of traffic controls and placement of appropriate devices such as speed bumps and traffic lights.

20. Temporary noise impacts in the immediate vicinity may occur due to construction. Impacts to sensitive receptors during the operational phase of the Project are expected to be minimal. Noise impacts during the construction phase will be mitigated through the use of source controls, site controls, time and activity constraints, community awareness initiatives, and related activities.

#### **4. Environmental Problems Due to Project Operations**

21. The Project will have no direct impact on area water supply systems, raw water supplies, area sewerage systems, energy systems, or waste disposal. Coordination with concerned officials and agencies is required. The Project will enhance access to recreational areas within the potentially affected areas, but will have no adverse impacts on such resources.

#### **E. Institutional Requirements and Environmental Monitoring Program**

22. The Ministry of Transportation and Communications (MOTC) will ensure that environmental procedures are incorporated at each stage of the work, specifically:

- (i) preparation of tender documents and contracts,
- (ii) bid reviews and awards,
- (iii) supervision of preconstruction baseline monitoring, and
- (iv) construction supervision.

23. MOTC will also be responsible for ensuring that the following laws of the Kyrgyz Republic are complied with:

- (i) Law on Environmental Protection,
- (ii) Law on Environmental Expertise (Environmental Assessment),
- (iii) Law on Specially Protected Nature Territories,
- (iv) Law on Animal World,
- (v) Law on Atmosphere Protection,
- (vi) Forest Code,
- (vii) Law on Highways, and
- (viii) Law on Protection and Usage of Historical and Cultural Heritage.

24. The feasibility study includes a recommendation for an environment/social officer for each rehabilitation package to ensure that environmental contract provisions are enforced.

25. The environmental monitoring program incorporated in the project recommendations includes routine site inspection and reporting related to soil and erosion control, embankment and erosion protection, borrow pit restoration, and water quality monitoring (including baseline

and routine periodic water quality monitoring).

## **F. Findings and recommendations**

### **1. Recommended Contract Provisions**

26. It is recommended that specific environmental provisions related to the following topics be included in the contract documents:

- (i) embankments and erosion prevention measures;
- (ii) borrow pit restoration;
- (iii) mining/quarry activities;
- (iv) siting of construction camps and related facilities;
- (v) siting of asphalt plants;
- (vi) baseline and routine periodic air quality monitoring;
- (vii) other air quality provisions: open burning is prohibited; use of solvents and volatile materials will be approved by the project's construction supervision consultants (CSC); blasting will be carried out using controlled charges; dust-generating items will be conveyed under cover; road surfaces, excavation and construction sites will be sprayed with water to control dust if deemed advisable by the CSC; and trucks carrying earth, sand, or stone will be covered with tarps to avoid spilling;
- (viii) baseline and routine periodic water quality monitoring;
- (ix) baseline and routine periodic noise monitoring;
- (x) other noise-related provisions: source controls, time-of-day restrictions, time and activity constraints, and community awareness activities;
- (xi) safety provisions: provisions for detours and traffic interruptions, blasting procedures, and emergency response procedures in the event of accidents or natural disasters; and
- (xii) community relations.

### **2. Institutional Strengthening for Environmental Management**

27. The following measures for institutional strengthening to ensure sound environmental management are recommended:

- (i) Selected staff will undergo a training program addressing the goals and techniques of environmental management activities in road projects. The training should be given, but not necessarily limited, to contract and construction supervision personnel at the central and provincial levels and MOTC construction supervision staff, including those monitoring environmental impacts. In-country, on-the-job training is preferred to external training to take into account the Kyrgyz Republic's physical and administrative circumstances. The cost of training has been incorporated in the project costs.
- (ii) Staff from MOTC and the Ministry of Ecology and Emergency Situations should regularly undertake joint inspection of the environmental aspects of the Project, including erosion control, and include the results of the inspections in the quarterly reports submitted by MOTC to ADB.

## **G. Conclusions**

28. The road works will have no adverse environmental consequences if the recommendations presented in the IEE are complied with, and an environmental impact assessment is not necessary. The road works will actually alleviate some current environmental problems affecting the Naryn River by reducing floods, rockfalls, and mudflows in the mountainous areas along km 427–457. Detailed, site-specific environmental action plans will be included in each construction package under Government regulations. The action plans will be prepared after the tender and award of the construction contracts and will specify the locations of construction camps, asphalt plants, and other environmentally sensitive aspects of the construction program.

29. The following recommendations result from the IEE:

- (i) The design of the rehabilitated road will be followed, and any deviations that occur should consider the associated potential environmental impacts.
- (ii) The designs will make full provision for incorporating the various mitigation measures indicated in para. 26.
- (iii) Contract documents will include, but will not be limited to, all the appropriate clauses to cover the environmental protection requirements.
- (iv) Through loan covenants, provision will be made for adequate maintenance of the Bishkek–Osh road and the secondary roads.
- (v) The critical activities that have environmental impacts during project construction and operation should be closely monitored.

30. The Project will not have any significant adverse environmental impacts, and all potential minor impacts can be mitigated to insignificant levels. The Government has agreed that the Project will be implemented following the environmental laws of the Kyrgyz Republic and ADB's environmental guidelines, as specified in the loan covenants for the Project.

## SUMMARY SOCIAL IMPACT ASSESSMENT

### A. Introduction

1. The Kyrgyz Republic is a mountainous, landlocked country, covering an area of approximately 198,500 square kilometers (km<sup>2</sup>). The transition to a market economy following the collapse of the former Soviet Union (FSU) has seen increasing levels of poverty, increased unemployment, and decreased access to social services. Most recently the financial crisis in Russia in 1998 brought even greater increases in poverty levels and worsened the living standards of the population.

2. The Bishkek–Osh road in the southwestern part of the country links the two most important cities and economic centers. The Project will rehabilitate sections of the road from Bishkek to Osh and improve two secondary roads connecting poor villages to the Bishkek–Osh road. Although the Project will affect much of the country directly or indirectly, the project roads are limited to Jalal–Abad and Osh provinces. In Jalal–Abad, four districts and three cities will be directly affected. The districts are Bazar Korgon, Ak–Syi, Nooken, and Suzak, and the cities are Jalal–Abad, Tash Kumyr, and Mayлуу–Suu. In Osh, two districts (Kara Suu and Uzgen) and one city (Osh) will be directly affected. The Project will directly affect 27 percent of the total population, or about 1.3 million out of 4.9 million people.

### B. Socioeconomic Characteristics of the Country and the Project Area

#### 1. The Economy

3. Even before the breakup of the FSU, the Kyrgyz Republic was one of the poorest of the FSU republics. Following independence, the gross domestic product (GDP) declined by over 50 percent in a very short time. While some economic growth resumed in 1996–1997, the country was again set back by the region's financial crisis in 1998. The GDP growth rate has gradually increased since then, however, and reached 5.0 percent in 2000. Economic activity is curtailed by Uzbekistan and Tajikistan closing their borders at times, and by Kazakhstan imposing trade barriers on Kyrgyz exports.

4. Most residents of the Kyrgyz Republic derive their livelihoods from the agriculture and forestry sector. Agriculture and forestry accounted for more than 51 percent of the Kyrgyz Republic's employment in 1999, a figure that increased from about 47 percent in 1995. During the same period, the sector's percentage of contribution to GDP varied considerably, ranging from a high of 46.2 in 1996 to a low of 35.9 in 1998. Employment in the industry sector, which stood at more than 33 percent of total employment in 1993, fell to 17 percent in 1996. Since that time it has rebounded to a 1999 level of more than 22 percent of total employment.

5. Jalal–Abad province occupies approximately 17 percent of the country, has a population density of 26 persons/km<sup>2</sup>, and comprises approximately 18 percent of the country's population. Jalal–Abad is part of the Fergana valley with a long history of agricultural productivity. The province has significant industries, including the largest hydroelectric stations in the country and nearly all of the oil and gas extraction and oil processing enterprises. The area is subject to frequent natural disasters, particularly floods and landslides. Osh province occupies approximately 15 percent of the country, has a population density of 42 persons/km<sup>2</sup>, and comprises approximately one fourth of the country's population. Osh is also in the Fergana valley and is known as a center of agriculture (cotton, fruits, and vegetables). Its industrial output is considerably lower than that of Jalal–Abad province, while its agricultural production is higher (Table A12.1).

**Table A12.1: Main Economic Indicators of Project Provinces, 2000**

Indicator	Jalal-Abad	Osh
Regional Population		
Total	893,900	1,211,700
As percent of country	18.1	24.5
Unemployed Population (percent)	3.3	1.8
Per Capita Income (Som, current prices)	4,179	5,457
Agricultural Output (percent of country) <sup>a</sup>	14.4	18.5
Industrial Output (percent of country)	23.2	5.7
Regional Imports (percent of country imports) <sup>a</sup>	5.0	4.5
Regional Exports (percent of country exports) <sup>a</sup>	7.2	6.8

<sup>a</sup> Data are for 1999.

Source: National Statistics Committee, Kyrgyz Republic, 1999, 2000.

6. Providing the Kyrgyz Republic's population with the basic minimum food requirements is an acute problem. The cost of food products makes up a significant part of consumer expenditures. The poor, the majority of the population, spend 50 percent of their income on food. Generally, food expenditures as a share of the family budget have risen because the prices of food products, particularly meat and milk products and fruit, have risen more quickly than income. As a result of high prices, food consumption by the population is insufficient and lower than established standards.

## 2. Ethnic Groups

7. The Kyrgyz Republic is a multiethnic country and the project area reflects much of the ethnic diversity. More than 100 ethnic groups are variously represented in the national population; a dozen major groups have populations greater than 20,000. The main ethnic groups are Kyrgyz, Russians, and Uzbeks (Table A12.2). Other ethnic groups with substantial representation are Germans, Ukrainians, Tatars, Dungans, Uighurs, Kazakhs, and Tajiks. The country's changing ethnic structure corresponds to shifts in the national economy associated with the decline of industrial production. There has been an outflow of ethnic groups traditionally involved in industrial production, as well as those migrating to countries with living standards higher than those of the Kyrgyz Republic.

**Table A12.2: Ethnic Composition**

Location	Ethnic Groups		
	Kyrgyz (%)	Russian (%)	Uzbek (%)
Jalal-Abad Province	68.9	1.3	30.7
Ak-Syi District	93.3	0.4	4.9
Tash-Kumyr City	82.2	4.0	8.5
Nookan District	65.1	1.1	30.5
Bazar-Korgon District	57.7	0.3	40.6
Suzak District	58.9	0.5	35.1
Jalal-Abad City	44.0	7.4	37.4
Mayлуу-Suu City	—	—	—
Osh Province	62.9	2.0	24.1
Uzgen District	73.0	0.6	21.7
Kara-Suu District	54.2	0.3	37.2
Osh City	43.0	5.3	43.3
Kyrgyz Republic	63.9	12.3	13.6

— = not available.

Source: TA 3335-KGZ: *Third Road Rehabilitation Project*, for \$600,000, approved on 10 December 1999.

## C. Social Analysis

8. The project preparatory technical assistance (TA)<sup>1</sup> tried to determine the priority that the poor place on the road rehabilitation Project among their many needs, and reached the following conclusions.

### 1. Needs Assessment

9. The surveys, workshops, and focus group interviews indicate that stakeholders perceive improvement of the project roads as being critically important in addressing the underlying causes of poverty and increasing economic development in the area and the country. All sectors recognized the Bishkek–Osh road as the Kyrgyz Republic’s premier highway and its rehabilitation has flagship status among other national development projects. As the road is a vital link between north and south, stakeholders perceive its improvement as strategic and essential to promote national integration, consolidation, and political stability. Stakeholders regard the following as impact areas of the Project:

10. **Employment.** Stakeholders regard the Project as a major opportunity to address in part the unemployment problems of local communities in the project area. The Project will generate an estimated 903 person–years of direct employment, including 624 person–years (69 percent) for unskilled labor for roadworks. It is expected that local residents will supply all of the unskilled labor and part of the skilled labor requirements of the Project. In addition to employment in roadworks, road improvements are expected to create jobs through the expansion of roadside trade and services, including camping and rest areas for transiting passengers and tourists and catering establishments.

11. **Agricultural Benefits.** Stakeholders see poor road conditions as a large problem for local farmers who want to get their products to city markets. High transport costs and loss of agricultural produce restrict market access and inhibit full production. The reductions in product damage anticipated from road improvements will provide significant savings. Lower production costs and expanded marketing opportunities are also expected.

12. **Education and Health Care Services.** Deficiencies in the provision of health care services and education exist, but mainly in terms of services and staffing. Physical facilities such as schools and hospitals are generally adequate. But the ability to maintain, staff, and support such facilities is not adequate due to the fact that the area is still recovering from the collapse of the FSU and the dislocations that followed. Road improvements are perceived as contributing to economic development and thus addressing the root cause of the problems. The proposed road improvements will contribute to mitigating the underlying causes of poverty in the area by facilitating economic recovery and allowing continued access to existing medical facilities and schools. In the areas of the secondary roads to be improved under the Project, residents have access to basic health facilities; however, improvement of the secondary roads will facilitate access to more comprehensive health facilities.

13. **Complement to Ongoing Poverty–Reduction Efforts.** Road improvements are also seen to complement ongoing development efforts in the project area. Other aid agency programs including microfinance, agricultural extension services, tourism development, and NGO support are active in the area and will benefit from the improved roads.

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<sup>1</sup> TA 3335–KGZ: *Third Road Rehabilitation Project*, for \$600,000, approved on 10 December 1999.

14. **Other Development Benefits.** Project stakeholders anticipate that improving the Bishkek–Osh road will result in increased household income, family budget savings from lower transport costs, enhanced labor mobility, improved access to services, increased practice of family planning, and a wider range and better quality of goods available at central markets. Road improvements are also expected to facilitate civil activity and the dissemination of information. Some stakeholders emphasized the need to complement road improvements with other measures such as microfinance activities to support small and medium–scale enterprise development and agriculture so as to realize full benefits from the Project and maximize its contribution to poverty reduction.

## 2. Adverse Impacts

15. **Ethnic Groups.** The TA's social assessment concluded that the Project would not significantly affect ethnic minorities. Although the findings identified interethnic relations as a sensitive social concern, the social assessment concluded that (i) ethnic groups that could potentially be adversely affected by the Project would not be affected on the basis of their ethnic identity, and (ii) that access to project benefits would not be conditioned by ethnicity. The social assessment found no reason to conclude that ethnic minorities would be inherently more affected by the potentially adverse impacts of road rehabilitation than would other groups. The rehabilitated roads will be open to all groups, and not restricted or constrained on an ethnic basis.

16. **Resettlement.** No resettlement, relocation activities, or land acquisition are anticipated. As currently proposed, the project activities will include no bypasses, significant realignments, or development of new alignments in previously undisturbed areas. However, in case the detailed design reveals that people need to be resettled or land has to be acquired, the Executing Agency will comply with the Asian Development Bank (ADB) guidelines.

17. **Women.** Through participatory rapid appraisal and other project–design activities, it was concluded that women do not face any special obstacle in accessing and benefiting from transport services, nor are there apparent gender issues that might arise during implementation of the Project. Consultations also indicate that women are likely to participate in the employment generated by the proposed rehabilitation activities to some degree, although probably not to a large extent, especially for certain manual jobs.

18. **Other Vulnerable Groups.** Vulnerable groups are perceived as the small–scale farmers, the unemployed and underemployed urban poor, pensioners, female heads of households, and others who are vulnerable to changes in current economic conditions, including ethnic minorities. None of these groups are perceived as vulnerable to adverse impacts resulting from the Project, however, and no adverse impacts to them are anticipated. The Project is not expected to entail involuntary resettlement, loss of livelihood, or price changes.

## D. Incorporation of Social Dimensions into the Project Design

19. The social analysis indicates a need for activities to complement the road rehabilitation. Additional components have been identified, and activities will be incorporated in the Project consistent with ADB's guidelines.

### 1. Rehabilitation of Roadside Social Infrastructure

20. Pullover areas and bus shelters exist at adequate intervals along the roadway, but generally need repair. Sidewalks and pedestrian facilities in villages through which the road passes will be restored and improved.

## **2. Targeted Labor Recruitment**

21. Employment was widely identified as one of the major development benefits likely to be gained from the Project. Stakeholders argued that the most important way to maximize project benefits was to give more attention to local employment. Recruitment should be targeted so that maximum benefit goes to the most disadvantaged and impoverished members of the community. The project design incorporates measures to improve local recruitment. Benefits resulting from this component will be evaluated through the project performance management system (PPMS) by the project implementation unit. Several stakeholders also drew attention to salary issues, alleging that local employees of foreign contractors and subcontractors are underpaid and that salaries are not given on time. Late payments to subcontractors and employees reportedly cause hardships to local communities and affected households.

## **3. Participation of Local Contractors**

22. A number of complaints touch on the participation of local contractors in the project road construction and their ability to compete with foreign firms in contract awards; fairness of contracts and contracting procedures; delayed payments for works; and the need to give preference to local companies. Citing experience in the ongoing road rehabilitation projects, several stakeholders recommended that steps be taken to consolidate experience gained by local subcontractors and to strengthen and prepare them for participation in the proposed Project. This is being done by the international consultants for the Second Road Rehabilitation Project.

## **4. Targeted Procurement of Goods and Services**

23. The Project will also generate a considerable demand for goods and services that can be purchased, as much as possible, within the project area. Benefits resulting from this component will also be evaluated as a part of the PPMS.

## **5. Socially Transmitted Diseases**

24. The contractors will be required to distribute to all employees and casual laborers, and display in prominent places, advice concerning the nature, dangers, and transmission of socially transmitted diseases and information concerning precautionary measures. Similar material concerning the dangers of drug use and the penalties associated with possession of and trafficking in drugs should also be distributed.

## **TECHNICAL ASSISTANCE FOR INSTITUTIONAL SUPPORT IN THE TRANSPORT SECTOR**

### **A. Objectives**

1. The technical assistance (TA) has two objectives. First, the consultants will help the Ministry of Transport and Communications (MOTC) strengthen the management of the secondary road network and give training to the maintenance organizations and the local communities. In performing their task, the consultants will work in cooperation with community-based organizations or nongovernment organizations (NGOs) and the supervision consultants of the Project, who will supervise the implementation of the maintenance operations after completion of the TA. Second, the consultants will study the markets for transport services in the Kyrgyz Republic and recommend regulatory and other changes to increase their competitiveness. The cost estimates and financing plan are in Table A13.

### **B. Scope of Consulting Services**

2. It is estimated that about 17 person-months of international and 40 person-months of domestic consulting services will be required to implement the TA.

#### **1. Manual for Maintenance of Secondary Roads**

3. Using a participatory approach the consultants will

- (i) discuss the methodologies of community-based maintenance techniques with local communities along the secondary roads included in the Project; and
- (ii) prepare a manual for maintenance of the secondary roads, taking into account the results of the discussions with the relevant local communities. The manual will cover management of the roads, participation of the local road maintenance units, community-based maintenance, maintenance techniques, maintenance schedules, and financing of the maintenance operations.

#### **2. Training of Road Maintenance Personnel**

4. The consultants will

- (i) give the personnel of MOTC training in managing and financing construction, rehabilitation, and maintenance of secondary roads by organizing seminars and workshops in the Kyrgyz Republic and designing specialized training for key personnel of the Ministry of Finance and MOTC;
- (ii) train the chief engineers of the road maintenance units to train the road maintenance organizations of the local residents to undertake routine maintenance of secondary roads supported by the maintenance units, which will assist the maintenance organizations with equipment; and

- (iii) develop, in cooperation with MOTC, a financing mechanism to enable the maintenance organizations to finance the equipment, materials, and work needed beyond their local resources.

### **3. Competitiveness of the Markets for Transport Services**

#### **5. The consultants will**

- (i) survey passenger and freight vehicle drivers, owners, and users, and conduct interviews with Government officials and transport agencies and companies to confirm the findings of TA 3335-KGZ: Third Road Rehabilitation Project and TA 3065-KGZ: Policy Support for the Transport Sector regarding the competitiveness of the markets for transport services;
- (ii) based on the surveys and previous TAs, prepare an analysis of the structure of the markets for passenger and freight transport services (excluding urban transport), including (a) ownership of services, (b) degree of competition in the markets, (c) role played by and influence of the Government in the markets, and (d) regulatory and other practices that restrict competition and lead to higher fares for transport services;
- (iii) determine the impact of the structure of the transport services markets on the poor and very poor segments of the population, including the degree to which reductions in transport costs due to rehabilitation of the project roads are likely to be passed on to transport users and the extent to which the frequency and quality of transport services are likely to improve; and
- (iv) make specific recommendations for regulatory changes or other measures that will result in greater competitiveness in the transport services markets; reduce Government influence in these markets; ensure that reductions in transport costs are passed on to transport users; and stimulate increased frequency of transport services to poor areas, especially those along the secondary roads; recommendations should also consider the impact on the poorest part of the population and include measures to address any negative impact on that group.

#### **C. Required Expertise**

6. Maintenance for secondary roads will require expertise in road maintenance engineering, financing, and training. Competitiveness of markets for transport services will require expertise in economics of transport markets and transport sector policy reform.

#### **D. Schedule and Reporting**

7. The consulting assignment is expected to start in July 2002 and be completed by March 2003.

8. The Government will provide office space for the consultants. The consultants will hire the local administrative staff, equip their office, and provide local transportation.

9. The consultants will provide the Asian Development Bank (ADB) with all papers and reports prepared under the TA, particularly policy recommendations and guidelines prepared for the studies and training programs. The consultants will submit brief monthly reports to ADB. Upon completion of their services, the consultants will prepare a draft final report covering all subjects and requirements under the TA. A final report will be prepared four weeks after the tripartite review meeting with the Government, ADB, and the consultants and the receipt of comments from ADB and the Government. The reports, in English and Russian, are as follows:

- (i) inception report, one month after commencement;
- (ii) interim report, three months after commencement;
- (iii) final report, four weeks after the tripartite meeting and receipt of comments from ADB and the Government.

10. The following documents will be included in the draft final report and final report:

- (i) technical manual for maintenance of secondary roads;
- (ii) financing plan for maintenance of secondary roads;
- (iii) training manual for rural roads maintenance personnel (separate manuals for road maintenance unit personnel and representatives of the local communities); and
- (iv) recommendations for improving the competitiveness of the markets for transport services.

**A13: Cost Estimates and Financing Plan**

(\$)

Item	Foreign Exchange	Local Currency	Total
<b>A. ADB Financing (JSF)</b>			
1. Consultants			
a. Remuneration and Per Diems			
i. International Consultants	397,000	0	397,000
ii. Domestic Consultants	0	80,000	80,000
b. International Travel	20,000	0	20,000
c. Reports and Communications	3,000	3,000	6,000
2. Office Equipment	10,000	0	10,000
3. Surveys, Translation, Miscellaneous Administration, and Support Costs	2,500	26,500	29,000
4. Local Transportation	0	16,000	16,000
5. Government Representatives for Contract Negotiations	7,000	0	7,000
6. Contingency	66,000	19,000	85,000
<b>Subtotal (A)</b>	<b>505,500</b>	<b>144,500</b>	<b>650,000</b>
<b>B. Government Financing</b>			
1. Office Accommodations and Support Services	0	60,000	60,000
2. Remuneration and Per Diem of Counterpart Staff	0	40,000	40,000
3. Communications	0	20,000	20,000
<b>Subtotal (B)</b>	<b>0</b>	<b>120,000</b>	<b>120,000</b>
<b>Total</b>	<b>505,500</b>	<b>264,500</b>	<b>770,000</b>

ADB=Asian Development Bank, JSF=Japan Special Fund.

Source: ADB estimates.

## ECONOMIC ANALYSIS

### A. General

1. The economic analysis was carried out by comparing with- and without-project scenarios. Economic prices are expressed using the world price numeraire. The Project involves rehabilitation of approximately 120 kilometers (km) of the Bishkek-Osh road and improvement of approximately 125 km of secondary roads. In the without-project scenario, the road would receive only minimal maintenance and continue to deteriorate. The with-project scenario includes routine and periodic maintenance according to international standards. The economic analysis covers a period of 23 years (2002-2024), including about 3 years for project implementation. All benefits and costs are in constant 2001 prices.

### B. Costs

2. Project economic costs include the cost of resources for road improvement and maintenance, as well as rural road improvement, equipment, and consulting services. Costs were divided into tradable and nontradable. A standard conversion factor of 0.9 was then applied to the nontradable portion.

### C. Benefits

3. The principal sources of economic benefits from the Project are savings in vehicle operating costs (VOCs), passenger and freight time savings, benefits arising from generated traffic, and economic value added. Economic benefits were calculated with the same method used for costs. Improving the secondary roads will improve the access of the rural poor to markets and health services. Under present conditions, transport services are somewhat limited, relative to potential demand, as vehicle owners and drivers are reluctant to drive on the most deteriorated sections of the secondary roads. With improved conditions on these roads, it is expected that the frequency of service will increase, and fares and freight rates will decrease. This will facilitate greater use of transport by local residents to markets, for example. Economic value added arises from the improved market access with improvement of secondary roads. The benefits of improved access to health services or of improved safety conditions on the Bishkek-Osh road were not included in the analysis as data to quantify them was insufficient.

4. Savings in VOCs (Table A14.1) comprise the largest category of benefits, accounting for about 76 percent of total benefits, and arise from the improved road conditions resulting from the civil works carried out under the Project. The VOCs are calculated for each vehicle type. Unit economic VOCs for passenger and freight vehicles were estimated using the highway design and maintenance model (HDM-IV). VOC savings will accrue primarily from improvements on the road surface, horizontal and vertical alignment, and increased average speed on some sections. Generated traffic is expected to arise from the reduced VOCs. With a 20 percent reduction in VOCs and a price elasticity of transport demand of 0.5, generated traffic is estimated at 10 percent of total traffic. Benefits from VOC savings for generated traffic are estimated at half the value for normal traffic. Benefits from international transit traffic, which comprises about 5 percent of total traffic, are not included in the economic analysis as they do not accrue to the Kyrgyz Republic.

5. Rehabilitating the Bishkek-Osh road will result in time savings due to the improved road conditions. The value of time for passengers is calculated at \$0.28 per working hour and \$0.08 per nonworking hour. The value of time for freight traffic was estimated based on the

composition of commodities transported by vehicle type and the value of the commodities. The values range from \$0.05 per hour for light trucks to \$0.22 per hour for articulated trucks.

**Table A14.1: Representative Vehicle Operating Costs by Vehicle Type**  
(\$ per '000 vehicle-km)

Scenario <sup>a</sup>	Cars	Pickups	Buses	Light Trucks	Medium-size Trucks	Heavy Trucks	Articulated Trucks
Without Project	80	70	215	140	170	400	475
With Project	60	50	150	100	130	290	375
VOC Savings	20	20	65	40	40	110	100

VOC = vehicle operating costs.

<sup>a</sup> For Uzgen-Osh road section in 2005.

6. Economic value added comprises the generated agricultural production resulting from improved access to markets provided by the improved secondary roads. Surveys of residents in the areas of the secondary roads indicate that a large proportion of residents will increase agricultural production to sell in markets along the secondary roads and the Bishkek-Osh road. The surveys also indicate that significant numbers of residents will shift to higher value agricultural crops to take advantage of the improved access to markets. The economic value added is calculated at 60 percent of the value of agricultural production.

#### D. Results of Economic Analysis

7. The economic internal rate of return (EIRR) for the Project is 19.3 percent (Table A14.2), and the net present value is \$28.2 million. Sensitivity analysis was carried out to test the effects of negative changes in the key parameters that determine the benefits and costs of the Project. The sensitivity analysis (Table A14.3) indicates that costs would have to increase by 77 percent or benefits decrease by 43.5 percent for the EIRR to reach the cutoff level of 12 percent. Given the straightforward nature of the rehabilitation works and the executing agency's experience with similar projects, such changes are unlikely to occur.

8. Distribution analysis was carried out for the net economic benefits arising from the Project. The benefits were distributed among (i) passengers, (ii) freight users, (iii) vehicle owners, (iv) direct labor, and (v) the Government/economy (Table A14.4). The distribution is based on the development of increased competitiveness of transport services in the project area, as a result of the policy reforms to be implemented as part of the Project. The increased competitiveness will result in a higher proportion of VOC savings being passed on to passenger and freight transport users than would be the case without the Project. It is assumed that vehicle owners will pass on 50 percent of VOC savings to users in the form of lower fares and freight rates. The benefits from the economic value added from generated agricultural production accrue to direct labor, based on poverty incidence in the areas of the secondary roads. Passenger users receive the largest proportion of benefits at 46 percent, followed by labor at 33 percent.

**Table A14.2: Economic Internal Rate of Return**  
(\$ million)

Year	Costs			Benefits					Net Benefits
	Capital	Maintenance	Total	VOC Savings	Time Savings	Generated Traffic	Economic Value	Total	
2002	13.475		13.475						(13.475)
2003	17.966		17.966	0.550	0.056	0.039		0.644	(17.322)
2004	13.475		13.475	1.576	0.178	0.113		1.866	(11.609)
2005	0.000	0.014	0.014	3.021	0.418	0.216	0.410	4.065	4.051
2006	0.000	0.014	0.014	4.670	0.808	0.334	0.820	6.632	6.618
2007	0.000	0.014	0.014	5.888	1.114	0.421	1.230	8.652	8.638
2008	0.000	0.014	0.014	6.324	1.211	0.452	1.640	9.627	9.613
2009	0.000	0.014	0.014	6.815	1.327	0.487	2.050	10.679	10.665
2010	0.000	0.014	0.014	7.380	1.461	0.527	2.050	11.418	11.404
2011	0.345	0.014	0.359	7.923	1.597	0.566	2.050	12.136	11.777
2012	0.419	0.014	0.433	8.458	1.737	0.604	2.050	12.848	12.415
2013	0.000	0.014	0.014	8.803	1.863	0.629	2.050	13.345	13.331
2014	0.000	0.014	0.014	9.506	2.047	0.679	2.050	14.283	14.269
2015	0.000	0.014	0.014	10.267	2.239	0.733	2.050	15.289	15.275
2016	0.070	0.014	0.084	11.001	2.416	0.786	2.050	16.253	16.169
2017	1.110	0.014	1.124	11.745	2.597	0.839	2.050	17.231	16.107
2018	0.000	0.014	0.014	12.917	2.844	0.923	2.050	18.733	18.719
2019	0.983	0.014	0.997	13.765	3.053	0.983	2.050	19.851	18.854
2020	0.000	0.014	0.014	14.894	3.286	1.064	2.050	21.294	21.280
2021	0.000	0.014	0.014	15.894	3.519	1.135	2.050	22.599	22.584
2022	0.345	0.014	0.359	16.826	3.740	1.202	2.050	23.818	23.459
2023	0.419	0.014	0.433	17.666	3.934	1.262	2.050	24.912	24.479
2024	0.000	0.014	0.014	18.368	4.093	1.312	2.050	25.822	25.808

VOC = vehicle operating costs.

Source: ADB estimates.

**Economic Internal Rate of Return = 19.3%**

**Net Present Value = 28.220**

**Table A14.3: Sensitivity Analysis**

Scenario	EIRR (%)	Switching Values (%)
1. Base case	19.3	–
2. Increase in total costs (10%)	18.0	77.0
3. Decrease in total benefits (10%)	17.8	43.5
4. Decrease in VOC savings (10%)	18.3	64.0
5. Exclusion of time savings	17.3	–
6. Exclusion of generated traffic	18.6	–
7. Exclusion of economic value added	17.3	–
8. Implementation delay of one year	19.1	–
9. Combination of 2, 3, and 8	16.4	–

– = not available, EIRR = economic internal rate of return,

VOC = vehicle operating costs.

Source: ADB estimates.

**Table A14.4: Distribution Analysis**  
(\$ million)

	<b>Passenger Users</b>	<b>Freight Users</b>	<b>Vehicle Owners</b>	<b>Direct Labor</b>	<b>Government Economy</b>	<b>Total</b>
<b>NPV</b>	12.933	5.493	0.736	9.207	-0.150	28.220

## SUMMARY POVERTY IMPACT ASSESSMENT

### A. Introduction

1. The project preparatory technical assistance (TA)<sup>1</sup> consultants prepared a poverty impact analysis (PIA) of the proposed Third Road Rehabilitation Project. The PIA

- (i) assessed the extent to which transport cost reductions will be passed on to users of passenger and freight transport services;
- (ii) assessed the distribution of the net benefits between users of transport services and other groups;
- (iii) identified the proportion of poor and very poor beneficiaries and the net benefits they will receive;
- (iv) clarified the assumptions and analysis behind the distribution analysis and poverty impact assessment; and
- (v) identified complementary activities to help reduce poverty in the project area.

2. The main finding is that the Project will directly benefit the poor and very poor people in the project area. It will give them a substantial share of the net benefits from the Bishkek–Osh road and secondary roads by decreasing vehicle operating costs and improving access to markets, employment opportunities, and health facilities.

### B. Poverty

#### 1. Definition of Poverty

3. The Kyrgyz National Statistics Committee in conjunction with the World Bank set two poverty lines for the Kyrgyz Republic: the first or the "food" poverty line measures "extreme poverty" and is set at the level of consumption below which, even if all resources were devoted to food, the minimum caloric requirement would not be met. The other, or the "general" poverty line, represents a minimum per capita consumption basket that includes food and nonfood items. The value of the general poverty line for the year 2000 is Som7,580 (equivalent to approximately \$158) and that of the extreme poverty line is Som4,563 (equivalent to approximately \$95). These have been adopted by all international agencies and Government offices to define poverty in the Kyrgyz Republic.

#### 2. The Policy Environment

4. The comprehensive development framework (CDF) is the Government's framework for the country's development over the period 2000–2010. A key element of the CDF is the national strategy for poverty reduction (NSPR). The premises and key features of the CDF are

- (i) growth and development of the private sector,
- (ii) growth of employment and reduction of unemployment,
- (iii) growth of Government revenues,
- (iv) improving the tax system, and
- (v) providing targeted assistance to vulnerable groups.

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<sup>1</sup> TA 3335-KGZ: *Third Road Rehabilitation Project*, for \$600,000, approved on 10 December 1999.

5. The Government, with the support of the Asian Development Bank, the World Bank, and the United Nations Development Programme, is currently drafting the NSPR. The strategy will define the priority areas of intervention for each sector and also geographically so as to maximize the poverty reduction impact of foreign and domestic investments. The NSPR has highlighted the importance of the transport sector principally for promoting political stability, economic growth, and trade as a necessary step in reaching the country's development and poverty-reduction goals.

### 3. Poverty Profile

6. At the national level, the proportion of households living in poverty in the Kyrgyz Republic increased from 43.5 percent in 1996 to 54.9 percent in 1998. Similarly, the incidence of extreme poverty increased from 19.1 percent in 1996 to 23.0 percent in 1998. With the increased economic growth since 1998, the overall poverty incidence dropped to 52.0 percent in 2000 (Table A15.1), while the percentage of the extremely poor decreased to 17.8 percent.

**Table A15.1: Kyrgyz Republic Poverty Incidence and Per Capita Income, by Province – 2000**

Location	Per Capita Income (Som)	Poor %	Extremely Poor %	Non-Poor %	Total Population (thousands)
Chuy	8,056	28.1	4.5	71.9	767.1
Jalal-Abad <sup>a</sup>	4,179	67.9	15.1	32.1	893.9
Osh <sup>a</sup>	5,457	51.6	19.8	48.4	1,211.7
Talas	4,041	72.7	36.6	27.3	204.1
Naryn	3,155	81.4	37.6	18.6	254.2
Issyk-Kul	4,631	60.9	27.6	39.1	420.2
Batken	4,125	69.0	34.3	31.0	390.8
Bishkek	9,644	29.9	5.8	70.1	793.4
<b>National Average</b>	<b>5,945</b>	<b>52.0</b>	<b>17.8</b>	<b>48.0</b>	<b>4,935.4</b>

<sup>a</sup>Provinces traversed by the project roads.

Source: 1996–1998 Kyrgyz Poverty Monitoring Surveys, World Bank, and National Statistics Committee, Kyrgyz Republic, 2000.

7. Within a country in which more than half of the population is classified as poor, the data indicate that in the project area<sup>2</sup> there are extremely high poverty rates (ranging roughly from 46 to 95 percent) and that five of the six districts (Table A15.2) directly affected by the proposed Project have a poverty incidence above the national average. The Project will directly affect 1.3 million people (27 percent of the total population) of which 963,000 are poor, resulting in a poverty incidence of 73 percent.

<sup>2</sup> The Project area is four districts and three cities in Jalal-Abad Province (Bazar Korgon, Ak-Syi, Nookan, Suzak, Jalal-Abad City, Tash Kumyr City, and Mayлуу-Suu City), and two districts and one city in Osh Province (Kara Suu, Uzgen, and Osh City). The populations of these districts will be directly affected by the project roads.

**Table A15.2: Poverty Incidence Percentages and Absolute Numbers for Project Area Districts – 1998<sup>a</sup>**

Affected District/City	Percentage			Absolute Numbers			
	Poor	Of which, extremely poor	Non-Poor	Poor	Of which, extremely poor	Non-poor	Total
<b>Jalal-Abad Province</b>							
Bazar Korgon District	95	70	5	112,669	83,727	6,431	119,100
Ak-Syi District	57	13	43	54,130	12,484	41,170	95,300
Nookan District	86	30	14	22,994	7,933	3,806	26,800
Suzak District	46	8	54	87,406	15,560	104,695	192,100
Jalal-Abad City	41	12	59	33,128	9,696	47,672	80,800
Tash Kумыr City	61	—	39	24,583	—	15,717	40,300
Mayлуу-Suu City	38	—	62	8,816	—	14,384	23,200
<b>Osh Province</b>							
Kara Suu District	84	23	16	249,816	68,402	47,584	297,400
Uzgen District	84	20	16	164,640	39,200	31,360	196,000
Osh City	85	56	15	204,875	134,584	35,025	239,900
<b>Total Project Area</b>	<b>73</b>	<b>28</b>	<b>27</b>	<b>963,057</b>	<b>371,586</b>	<b>347,844</b>	<b>1,310,900</b>
<b>National Average<sup>b</sup></b>	<b>52</b>	<b>18</b>	<b>48</b>				

— = no available data.

<sup>a</sup> Data on poverty incidence by district and city are only available through 1998.

<sup>b</sup> Data for 2000.

Source: 1998 Poverty Monitoring Survey by the World Bank and National Statistics Committee.

## B. The Poor and the Transport Sector

8. Through household surveys and focus groups, the TA gathered information on various issues regarding the poor and the transport sector.

### 1. The Passenger Transportation Market

9. **Vehicle Ownership.** The results for the provinces in the project area are very similar to the aggregate for the country. The poor and very poor do not own motor vehicles. Given the breadth of poverty, the ownership rates are somewhat higher than expected for the middle-income quintiles (Table A15.3).

**Table A15.3: Percent of Households Reporting Ownership of a Motor Vehicle, Kyrgyz Republic, by Total Per Capita Household Expenditure Quintile**

Total Per Capita Expenditure Quintile	Yes	No
81–100%	9	91
61–80%	5	95
41–60%	4	96
21–40 %	3	97
0–20%	2	98

Source: Poverty Monitoring Survey.

10. **Income Levels and Transport Expenses.** The Project's household survey results show how expenditures for transport and gasoline vary by per capita income levels (Table A.15.4). The disparity between expenditures for transporting farm produce to market suggests that only the better-off farmers travel to more distant markets.

**Table A15.4: Households in the Project Area and Transportation Expenditure (Som), 2000**

Total Per Capita Expenditure Quintile	Average Total Monthly Per Capita Income	Average Per Capita Monthly Expenditure on all Transportation	Average Per Capita Monthly Expenditure to Transport Farm Produce <sup>a</sup>
81 – 100%	1,508	169	36
61 – 80%	763	77	4
41 – 60%	611	51	3
21 – 40 %	443	36	3
0 – 20%	391	25	2

<sup>a</sup>For those engaged in farming or marketing farm produce.

Source: Consultant Household Survey, The Kyrgyz Republic, 2000.

11. **Competitiveness of Transport Services.** Results of the surveys suggest that the market for passenger transport on the Bishkek–Osh road is somewhat competitive, but the public sector still has a large influence. While the Government has privatized the majority of transport enterprises, it still maintains large holdings in the joint-stock companies, which comprise the largest share of privatized enterprises. The surveys confirmed the Government's presence in the transport market. Of the drivers of passenger vehicles surveyed, a third are employed by the Government or lease their vehicles from the Government. The remainder of the passenger vehicles are driven by owner/operators, almost all of whom own only one vehicle. Fares vary by vehicle type and distance, as is to be expected in a competitive market. About 15 percent of passenger drivers said they would reduce the fares they charged based on the vehicle operating cost (VOC) savings they would realize from the rehabilitated project roads.

12. The Government owns the bus stations along the Bishkek–Osh road. The bus terminal operators require large bus operators to travel previously approved routes. The bus terminals also set the fares that the drivers can charge. Each driver is issued a document approving each trip from origin to final destination. The Ministry of Internal Affairs, through its own checkpoints, routinely stops large bus drivers to check their papers. Large bus drivers without the documentation issued by the bus terminal must make frequent unofficial payments to proceed to their destinations. Moreover, these unofficial payments are large so that such trips are not very profitable and are thus a relatively rare event. The survey indicates that unofficial payments are made at various checkpoints set up by Government agencies. These informal tolls run as high as Som1,500 per vehicle per checkpoint for drivers of freight vehicles and Som200 per vehicle per checkpoint for drivers of passenger vehicles.

## 2. Poor People's Use of the Project Roads

13. The surveys show that the users of the Bishkek–Osh road are predominantly poor. Of the 113 passengers surveyed, 73 percent were below the poverty line, and 52 percent were below the extreme poverty line.<sup>3</sup> People engaged in nonfarm commerce make up about a third of the road users surveyed. The other large group of users (35 percent) comprises professionals who are primarily in the public sector. Of the passengers using the Bishkek–Osh road, 70 percent live in rural areas. They tend to use the road for local as opposed to long-distance trips.

<sup>3</sup> As was done for the Poverty Monitoring Survey (PMS) and all of the consultant's surveys, reported expenditures were adjusted upward to take into account people's noncash incomes. Using the PMS method, an estimated 26 percent of rural household income is produced on land near the home. For urban households, the PMS estimated that 5 percent of household income was produced via noncash means. Even with these upward adjustments, the results show that the poor and extremely poor comprise very large proportions of the project road users.

### 3. Access to Social Services

14. As with most countries of the former Soviet Union, access to lower-level schools and hospitals/health facilities generally is not a major issue. The vast majority of passengers with school-age children reported that the school is less than a kilometer from their residence and that all the children walk to school. Over three quarters of them said that it takes their children less than 30 minutes to reach school. The results are nearly the same for hospitals/clinics. About two thirds say they walk to the nearest hospital or clinic, and about 80 percent say that the trip takes less than 30 minutes. The only access problem occurs when there is a health emergency situation, a need for more comprehensive health facilities, or when one wants to reach higher education facilities that are found in the district center. Men and women use the road with equal frequency. The average age of the passengers on the road is 38. The profile of household size fits the national pattern, with rural households approaching six persons and urban households approaching three persons.

#### C. The Secondary Road Network

15. Evaluation criteria and an evaluation system were developed to identify secondary roads to be improved by the Project. The system incorporated inputs from MOTC, as well as from MOTC provincial offices and local maintenance units in the project area. Inputs from other local government units at the provincial and district levels, and other stakeholders, including prospective beneficiaries, were also solicited and their road nominations considered.

16. The following criteria were used to form the shortlist:

- (i) population and population density within the road area of influence;
- (ii) extent and degree of poverty within the beneficiary population;
- (iii) cash crop production and potential of the agricultural areas to be served by the secondary roads;
- (iv) extent to which the roads would improve access to employment, health, education, and other services (i.e., number of schools and clinics served);
- (v) existing and potential traffic volumes on the roads; and
- (vi) environmental assessment.

17. The selected secondary roads are listed in Table A15.5.

**Table A15.5: Selected Secondary Roads**

Road	Length To Be Rehabilitated (km)	Population Served
Bazar Korgon–Arslanbob (including Kyzyl Ungkur branch)	72	37,400
Tash Kumyr–Kara Djigadz	53	102,000

- (i) The Bazar Korgon–Arslanbob road connects the Bishkek–Osh road to the Kyzyl Ungkur road segment. The valley's economic potential lies in its rich agricultural resource base—cotton, tobacco, and rice, as well as orchards and livestock. Farmers also tend walnut trees along the productive segments of this road. The Government permits, but regulates, selective harvesting of wood. Walnut wood is a high-value commodity and an appropriate extension program could help farmers expand

production of the nuts and the wood. The Kyzyl Ungkur branch is 35 km from the Bishkek–Osh road. According to the social, economic, and environmental criteria, this road segment is the top priority road requiring improvement. The population of the valley is served by a hospital that has 6 doctors and 42 nurses. The hospital seems in good condition although patients have to buy their own medicine in order to be treated and purchase fuel if they need to be transported to the main hospital in Jalal–Abad.

- (ii) The Tash Kumyr–Kara Djigadz road has become, due to the border controls imposed by Uzbekistan, the only outlet to markets for people living along the road. At the beginning of the road, just off the Bishkek–Osh road, coal mining still provides minimal economic activity. In the relatively poorer areas of the district, economic potential is limited to sheep and goat husbandry. However, for the town and the surrounding valley the outlook will be much better with improved access. This area is better endowed with agricultural potential, with cotton and tobacco being prominent crops. Improving the road will help facilitate economic growth and reduce poverty caused by the cessation of access to markets in Uzbekistan.

#### D. Distribution Analysis and Poverty Impact Ratio

18. The estimated direct benefits to the economy as a whole of rehabilitating the Bishkek–Osh road and the secondary roads are \$28.2 million in present value (PV). This is a conservative estimate, because only direct benefits are considered, and represents the sum of the PV of benefits to passengers, freight users, vehicle owners, labor, and the Government or the economy. The distribution of net benefits (Table A15.6) is based on increased competitiveness of markets for transport services in the project area, which will result from the policy reforms to be implemented as part of the Project. As a result of increased competitiveness, a higher proportion of VOC savings will be passed on to the poor than would be the case without the Project. It is assumed that vehicle owners will pass on 50 percent of VOC savings to users in the form of lower fares and freight rates.

**Table A15.6: Distribution of Net Benefits and Poverty Impact Ratio**  
(\$ million)

Item	Financial Present Value	Economic Present Value	Economic – Financial	Passengers	Freight Users	Vehicle Owners	Labor	Govt/ Economy	Net National Benefits	Lender Foreign
Net Project Benefits		28.220	28.220	12.933	5.493	0.736	9.207	-0.150		
Net Loan Flows	-21.980		21.980					21.980		-21.980
Government's Financial Revenues	-4.132		4.132					4.132		
Net Present Value		28.220	54.332	12.933	5.493	0.736	9.207	25.962		-21.980
Gains and Losses				12.933	5.493	0.736	9.207	25.962	54.332	
Proportion of the Poor (%)				73	60	5	80	33		
Net Benefits for the Poor				9.441	3.296	0.037	7.365	8.568	28.707	
									<b>Poverty Impact Ratio</b>	<b>53%</b>

19. The Project will also provide indirect benefits, such as the increased trade and economic activity induced by the improved road, in addition to the generated agricultural production included in the economic analysis. The size of the indirect benefits will depend on how the regional and national economies grow over the Project's time horizon. The indirect benefits will affect the poor in

two ways: first, jobs and other economic opportunities will be created; and second, the tax revenue arising from the generated economic activity will provide more funding for social services.

20. To assess the poverty impact of the Project, the proportion of the poor in each category of beneficiary was determined, based on extensive surveys in the project area carried out by the TA consultants and by analysis of Government expenditures. The surveys indicated that 73 percent of passengers using the Bishkek–Osh road are poor (which corresponds to poverty incidence in the project area), while 60 percent of freight users are poor. Among the users of freight services are small farmers sending their goods to market as well as individuals engaged in small-scale trading activities. The Project will use a high level of unskilled labor, and the proportion of the poor for labor is estimated at 80 percent. Benefits from the economic value added from the generated agricultural production have been distributed to labor, in accordance with poverty incidence in the areas along the secondary roads. For benefits accruing to the Government or the economy, it was calculated that 33 percent will go to the poor, based on the proportion of Government spending directed to the poor, and determined through analysis of Government expenditure data.

21. As part of the benefits analysis, the poverty impact ratio (PIR) was computed for the Bishkek–Osh road and the secondary roads, based on the present value of the benefits. The PIR represents the proportion of project benefits that accrue to the poor. The PIR is 0.53, indicating that 53 percent of the net project benefits reach poor users. With the 73 percent proportion of the poor among project beneficiaries and the PIR of 53 percent, the Project is expected to have a significant poverty-reduction impact. However, since the Project is beneficiary non-specific and it cannot be guaranteed that the Projects benefits will be passed on to the poor, by ADB's poverty classification criteria the Project is classified as other, with a thematic priority of economic growth.

22. Sensitivity analysis was conducted to determine the effect of reduced competition for transport services on the poverty reduction impact of the Project. The analysis was conducted for a scenario of reduced competition in which it is assumed that vehicle owners pass on only 5 percent of reductions in VOCs to road users, compared with 50 percent in the base case. In the reduced competition scenario, the PIR is estimated to be 44 percent (Table A15.7), versus 53 percent in the base case. This demonstrates that increased competition in the transport market is an important factor in ensuring that benefits are passed on to the poor, and reinforces the importance of the Project's policy dialogue on this issue.

**Table A15.7: Sensitivity Analysis: Distribution of Net Benefits and Poverty Impact Ratio with Less Competitive Transport Markets**  
(\$ million)

Item	Financial Present Value	Economic Present Value	Economic –Financial	Passengers	Freight Users	Vehicle Owners	Labor	Govt/ Economy	Net National Benefits	Lender Foreign
Net Project Benefits		28.220	28.220	4.963	2.107	6.995	11.047	3.108		
Net Financial Flows	-21.980	0.000	21.980					21.980		-21.980
Government's Financial Revenues	-4.132	0.000	4.132					4.132		
Net Present Value		28.220	54.332	4.963	2.107	6.995	11.047	29.220	0.000	-21.980
Gains and Losses				4.963	2.107	6.995	11.047	29.220	54.332	
Proportion of the Poor (%)				73	60	5	80	33		
Net Benefits for the Poor				3.623	1.264	0.350	8.837	9.643	23.717	
						<b>Poverty Impact Ratio</b>			<b>44%</b>	