ASIAN DEVELOPMENT BANK

RRP: KGZ 29151

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

SECOND ROAD REHABILITATION PROJECT

August 1998

CURRENCY EQUIVALENTS
(as of 1 August 1998)

Currency Unit	—	Som
$1.00	=	Som19.34
Som1.00	=	$0.0517

For the purpose of calculations in this Report, an exchange rate of Som17.2 to $1.00 has been used, which was the prevailing rate at the time of appraisal of the Project.

ABBREVIATIONS

AADT	-	Average Annual Daily Traffic
BME	-	Benefit Monitoring and Evaluation
CAR	-	Central Asian Republic
DGRMBOR	-	Directorate General for Rehabilitation and Maintenance of the Bishkek-Osh Road
DOR	-	Department of Roads
EIRR	-	Economic Internal Rate of Return
FSU	-	Former Soviet Union
GDP	-	Gross Domestic Product
GNP	-	Gross National Product
ICB	-	International Competitive Bidding
IEE	-	Initial Environmental Examination
LMU	-	Local Maintenance Unit
MOTC	-	Ministry of Transport and Communications
O&M	-	Operation and Maintenance
OECF	-	Overseas Economic Cooperation Fund
PDCD	-	Planning, Design and Construction Department
PIP	-	Public Investment Program
PIU	-	Project Implementation Unit
PRC	-	People's Republic of China
PSC	-	Project Steering Committee
RPMD	-	Road Policy and Management Division
RRMA	-	Regional Road Maintenance Agency
SIA	-	Social Impact Assessment
SIEE	-	Summary Initial Environmental Examination
SIM	-	Social Impact Monitoring
TA	-	Technical Assistance
TPD	-	Transport Policy Department
TRSPS	-	Transport and Road Sector Policy Statement
VAT	-	Value-added Tax
VID	-	Vehicle Inspection Department
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.

CONTENTS

LOAN AND PROJECT SUMMARY

Borrower	:	Kyrgyz Republic
Project Description	:	The Project is a continuation of Bank assistance to the Government for developing the road sector by supporting policy reforms, and strengthening road sector institutions. In physical terms, the Project provides for the second phase of rehabilitation of the Bishkek-Osh road.[1]
Classification	:	Economic growth
Environmental Assessment	:	Environmental category B An initial environmental examination (IEE) was undertaken, and the summary IEE is in Appendix 10.
Rationale	:	Efficient transport services are essential to support the development of domestic and international trade as the Kyrgyz Republic moves towards a market-based economy, which increases the demand for flexible, market-responsive road transport. The Bishkek-Osh road runs through four of the country's six regions and serves almost half of the country's population. It connects the two major urban centers of economic activity and population, which together account for over one half of the country's gross domestic product and 80 percent of the industrial enterprises. The Bishkek-Osh road is the most important transport corridor in the country, and is part of the transnational route linking Uzbekistan and Tajikistan with Kazakstan, People's Republic of China, and Russia's Siberia. Poor maintenance has resulted in serious deterioration of the road. Some sections of it are subject to periodic closure in winter months because of unsafe conditions. An all-weather road between the two key centers of the country is essential for future economic development and to improve transport safety. Policy and institutional reforms will improve the road sector's capability to respond more effectively to market demands.
Objectives and Scope	:	The main objective of the Project is to help improve the efficiency and safety of the country's principal road transport corridor by the rehabilitation of priority sections of the Bishkek-Osh road. The Project and the associated technical assistance (TA) will also help in implementing market-oriented policy reforms, encouraging private sector participation in road maintenance activities, improving road safety, reorganizing and strengthening road sector institutions, preparing and implementing road maintenance programs,

[1] The first phase is being financed from Loan No. 1444-KGZ(SF): *Road Rehabilitation Project*, for $50 million, approved on 13 June 1996.

implementing a user-pay approach to road funding, and training the domestic construction companies. The Project comprises two parts:

(i) civil works for the rehabilitation of about 208 kilometers (km) of key mountainous sections of the Bishkek-Osh road, including the 2.5-km Tyu Ashu tunnel; and

(ii) consulting services for construction supervision, road maintenance and safety, and benefit monitoring and evaluation.

Cost Estimates :

($ million)

Item	Foreign Exchange	Local Currency	Total Cost
A. Base Cost			
1. Civil Works	55.5	31.3	86.8
2. Consulting Services	3.9	0.9	4.8
Subtotal (A)	**59.4**	**32.2**	**91.6**
B. Contingencies			
1. Physical	6.5	3.1	9.6
2. Price	4.0	2.6	6.6
Subtotal (B)	**10.5**	**5.7**	**16.2**
C. Service Charges	**2.0**	—	**2.0**
Total Project Cost	**71.9**	**37.9**	**109.8**

Financing Plan :

($ million)

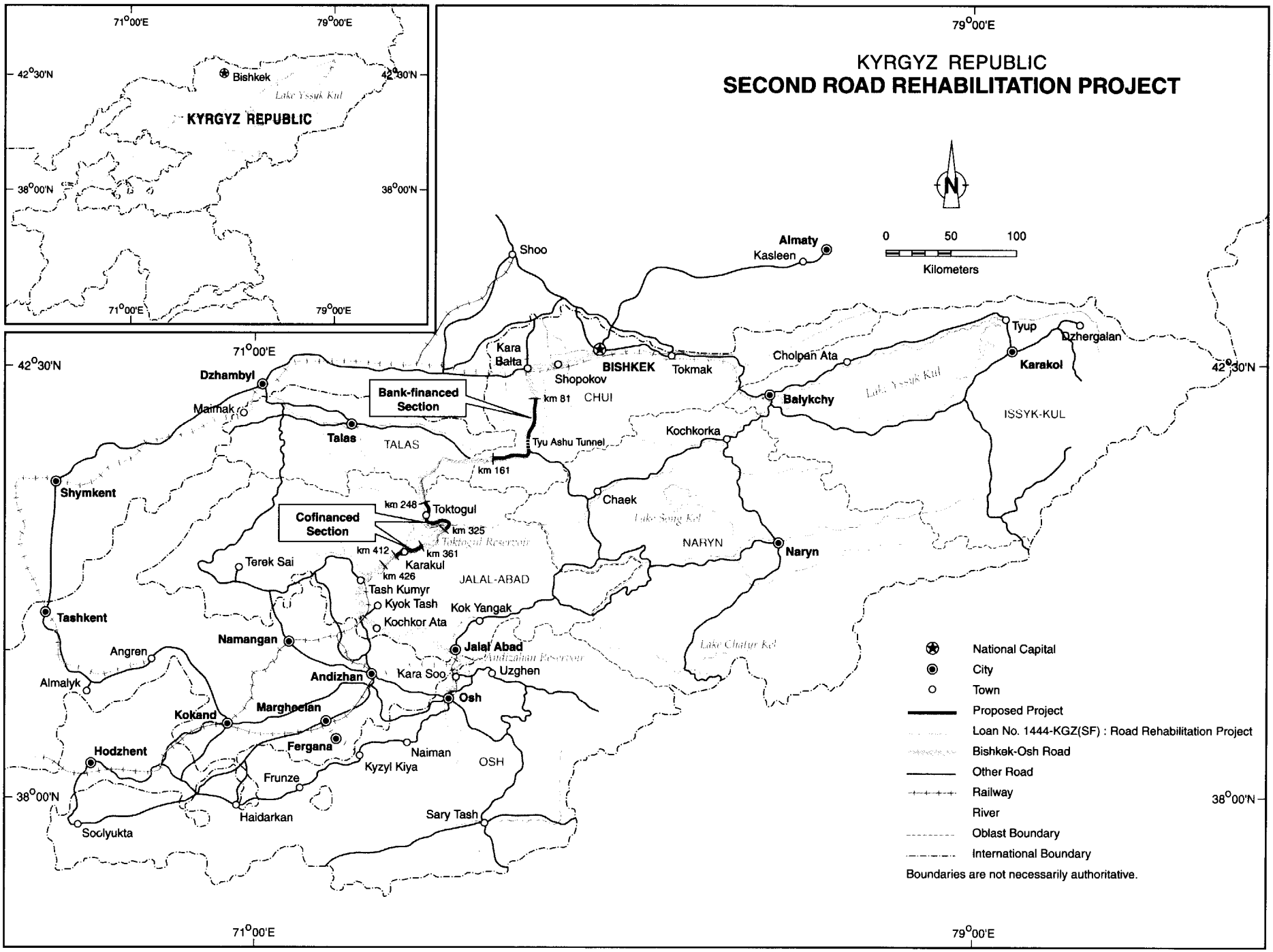
Source	Foreign Exchange	Local Currency	Total Cost
Bank	37.0	13.0	50.0
Cofinancing of OECF	34.9	5.9	40.8
Government	—	19.0	19.0
Total	**71.9**	**37.9**	**109.8**

Loan Amount and Terms : A loan of Special Drawing Rights 37,608,000 ($50 million equivalent) from the Bank's Special Funds resources with a repayment period of 40 years including a grace period of 10 years, carrying a service charge of 1 percent per annum

Period of Utilization : Until 30 April 2002

Implementation Arrangements	:	The Project Steering Committee that was established earlier for the first phase Road Rehabilitation Project will oversee the implementation of the Project and sector reforms, and the existing Project Implementation Unit will be strengthened to handle day-to-day implementation activities of the Project.
Executing Agency	:	Ministry of Transport and Communications
Procurement	:	All procurement to be financed under the loan will be carried out in accordance with the Bank's *Guidelines for Procurement*, using international competitive bidding procedures. The procurement under cofinancing from the Overseas Economic Cooperation Fund of Japan will follow the cofinancier's guidelines for such procedures. Advance procurement action was approved in November 1997 for the Bank-financed part to expedite Project implementation.
Consulting Services	:	About 202 person-months of consulting services for construction supervision, (including environmental monitoring and mitigation measures) road maintenance and safety, and benefit monitoring and evaluation, comprising 82 person-months of international consulting services and 120 person-months of domestic consulting services, are required to implement the Bank-financed part of the Project. The consultants will be engaged in accordance with the Bank's *Guidelines on the Use of Consultants*. Consultants required to supervise the cofinanced part will be engaged in accordance with the procedures acceptable to the cofinancier. Advance recruitment action was approved in November 1997 for the Bank-financed consultants to expedite Project implementation.
Estimated Project Completion Date	:	31 October 2001
Project Benefits and Beneficiaries	:	The Project will (i) facilitate efficient movement of domestic and international freight and passengers on the Project road through reduced transportation costs and time, (ii) improve road sector policies, (iii) improve maintenance procedures and the safety of the road network, (iv) assist in the development of the private sector road maintenance capability, and (v) improve funding from road users. The Project is the least-cost alternative, and has an economic internal rate of return of 16.0 percent.
Technical Assistance	:	A TA grant of $600,000 equivalent, financed from the Japan Special Fund, will provide advisory services to assist the

Government in strengthening policy functions, institutional development, and financial management capacity of the Ministry of Transport and Communications, and capacity building of private contractors to undertake road works. About 28 person-months of consulting services will be required to implement the TA. The consultants will be engaged in accordance with the Bank's *Guidelines on the Use of Consultants*.


KYRGYZ REPUBLIC
SECOND ROAD REHABILITATION PROJECT
71°00'E
79°00'E
42°30'N
38°00'N
Bishkek
Lake Issyk Kul
KYRGYZ REPUBLIC
N
0
50
100
Kilometers
Shoo
Almaty
Kasleen
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BISHKEK
Shopokov
Tokmak
Cholpan Ata
Tyup
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Karakol
Balykchy
ISSYK-KUL
Dzhambyl
Bank-financed Section
km 81
CHUI
Mainak
Talas
TALAS
Tyu Ashu Tunnel
km 161
Kochkorka
Shymkent
km 248
Toktogul
Cofinanced Section
km 325
Toktogul Reservoir
km 412
km 361
Karakul
km 426
Terek Sai
JALAL-ABAD
Tash Kumyr
Kyok Tash
Kok Yangak
Kochkor Ata
Chaek
Lake Song Kol
NARYN
Naryn
Tashkent
Angren
Namangan
Jalal Abad
Andijan Reservoir
Andizhan
Kara Soo
Uzghen
Almalyk
Osh
Kokand
Margheelan
Fergana
Naiman
Kyzyl Kiya
OSH
Hodzhent
Frunze
Haidarkan
Sary Tash
Soolyukta
Lake Chatyr Kol
National Capital
City
Town
Proposed Project
Loan No. 1444-KGZ(SF) : Road Rehabilitation Project
Bishkek-Osh Road
Other Road
Railway
River
Oblast Boundary
International Boundary
Boundaries are not necessarily authoritative.

98-1659 HR

I. THE PROPOSAL

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

II. INTRODUCTION

2. During the Bank's 1998 Country Programming Mission the Government of the Kyrgyz Republic reconfirmed its request for further Bank assistance to develop the country's road sector and to implement the Second Road Rehabilitation Project. Project preparatory technical assistance (TA), the Second Road Rehabilitation TA[1] was provided to the Government to update the transport sector profile including assessment of the priority needs of the sector and preparation of the feasibility study for the proposed Project. A tripartite meeting was held in September 1997 to discuss the findings of the Second Road Rehabilitation TA. The Fact-finding Mission for the Project was undertaken in September-October 1997, and an Appraisal Mission[2] was fielded in December 1997. Loan negotiations were held in Manila in August 1998.[3] The Project has been formulated based on the findings of the Bank missions, information provided by the Government, discussions with other funding agencies and road sector representatives, and the findings of the Second Road Rehabilitation TA. If approved, the proposed loan will be the Bank's second to the transport sector of the Kyrgyz Republic. The Project framework is shown in Appendix 1.

III. BACKGROUND

A. The Transport Sector

1. General

3. The transport infrastructure inherited by members of the former Soviet Union (FSU) was designed to facilitate integration of the republics of the FSU with Russia, rather than for domestic or international trade. With the changing trading patterns of the newly independent Central Asian republics (CARs), the transport network does not always utilize the shortest or most efficient links for domestic and non-FSU trade. Road transport dominates the transport sector within the Kyrgyz Republic, accounting for about 96 percent of freight tonnage movements and almost entire passenger traffic in 1997 (see 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 Kazak rail system, and the south of the country to the Uzbek system, with no direct connection between the two links[4] (see Map). As a result of longer average haulage, railways account for about 33 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 Yssyk-Kul.

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1 TA No. 2760-KGZ: *Second Road Rehabilitation Project*, for $600,000, approved on 11 February 1997.

2 The Mission comprised M. Ojiro (Mission Leader, Project Economist), S. Tamang (Sr. Project Engineer), S. Wu (Project Engineer), K. Motomura (Programs Officer), and E. L. Araneta (Counsel).

3 The delay in holding loan negotiations was due to delays in finalization of legislation for the Road Fund Act and the Automobile Roads Act.

4 The cost of establishing a railway link between Bishkek and Osh has been estimated at about $600 million. This link is a low priority project, given the country's other more urgent needs.

4. As with most other republics of the FSU, the economic crisis stemming from the breakup resulted in a decline in economic activity and disrupted customary trading patterns. There has been a dramatic fall in demand for transport since independence. The lowest levels were reached in 1995, when the volume 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. In 1997, when real gross domestic product (GDP) grew 10.4 percent, demand for transport increased to 21 percent and 47 percent of the 1990 levels. By most measures, the existing basic transport infrastructure is adequate for the current level of economic activity. Consequently, the primary concern is not expansion or major upgrading of the transport system, but proper maintenance and rehabilitation of the deteriorating infrastructure to preserve the previous investment.

a. Transport Planning and Coordination

5. The Ministry of Transport and Communications (MOTC) is responsible for policy, regulation, planning, and development of the transport sector. MOTC is divided into 12 departments with a total of 94 staff (see Appendix 3). MOTC coordinates the activities of ten agencies, which are at various stages of corporatization and privatization. The operations of MOTC and its agencies are severely constrained. Many staff in the agencies have been laid off without pay because of low demand for their services and budgetary constraints. MOTC is in the process of divesting itself of the responsibility for direct operation of the transportation systems through a program of privatization.

6. The railways, with a combined length of 370 km, are administered by the Department of Railway Management. The department exercises both regulatory and operational functions, and the railways are envisaged to remain under Government ownership. The National Airline of Kyrgyzstan, which is also owned by the Government, report on financial matters to the State Property Fund, and on policy matters to MOTC. It is planned to privatize the airline. The Board of Directors has been established and will review the proposal for privatization. Another agency under MOTC, Kyrgyz Transport Inspection, has been established for general regulatory and monitoring functions for the operations of the road cargo and passenger transport. The Vehicle Inspection Department (VID), located in the Ministry of Internal Affairs, an independent authority outside of MOTC's control, is responsible for road surveys and inspection, traffic management and control, and road safety functions including vehicle registration and inspection. The Ministry of Architecture and Construction is responsible for developing road design and construction standards. The overlapping responsibilities of these Ministries have created problems and confusion. To ensure that MOTC has the overall responsibility for the road sector, all responsibilities relative to that sector will be transferred from VID and the Ministry of Architecture and Construction to MOTC through implementation of the Automobile Roads Act of 1998 (paras. 33 and 35).

b. Investments

7. Public investment in the transport sector dropped from about 2 percent of gross national product (GNP) in 1990 to near zero during 1995. As a result of this underinvestment, transport infrastructure has deteriorated to a point where major reconstruction will be required unless adequate funds are allocated for operation and maintenance (O&M) of the transport systems. Total transport investment needs to be increased to about 3 percent of GNP to avoid major reconstruction costs. The incremental investment needs to be allocated efficiently among the competing transport modes to achieve cost efficiency. The Government has allocated about Som386 million for transport investment in 1998, which is still below the requirements. The Public Investment Program (PIP), 1998-2000, prepared by the Ministry of Finance, provides a

prioritized summary of the country's investment program for foreign assistance. The proposed Project is accorded high priority in the PIP in view of its national importance along with redevelopment of the Manas international airport, modernization of the telecommunications network, and upgrading and extension of the power transmission network.

2. The Road Sector

a. The Road Network

8. The road network in the Kyrgyz Republic covers all six regions (oblasts), connections to communities, and links to neighboring countries. 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 category I (15 meters [m] or wider), category II (9-11.5 m) and category III (7.5 m), while 85 percent are 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.

9. There are 15,000 km of roads outside MOTC's jurisdiction, mainly rural and farm roads. Most of these roads were formerly the responsibility of State and collective farms. The responsibility for the maintenance of rural and farm roads is now with the local district administrations following the progressive break-up of the State and collective farming system.

10. In terms of coverage, 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, but the situation is expected to gradually improve as the road maintenance capacity develops and more funds become available through a Road Fund.

b. Road Standards and Safety

11. 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 higher than those of the United States or Western Europe and do not always result in optimum road design. Compared with those in other developing countries, FSU standards for design speed and cross section for lower categories of roads are similar, but for higher categories of roads, they are higher. Although the standards specify that pavements should be designed for a 10-ton axle load, for many years a 6-ton design was followed, as this was the maximum permitted axle load at that time. Recent increases in the permitted axle load have enabled more efficient use of the truck fleet, but have resulted in a considerable reduction in the residual design life of pavements. Unlike the design standards, the quality of construction is rarely acceptable, mainly because of a lack of cost-effective construction techniques, and inadequate independent construction supervision and quality control. A review of road design and construction standards is being carried out through a Bank-financed TA[1] for three CARs (Kazakstan, Kyrgyz Republic, and Uzbekistan) and Mongolia to prepare road design and construction standards that are suitable for market-oriented operations.

12. Inadequate road safety is a major problem in the Kyrgyz Republic. In 1996, 4,022 accidents were recorded including 663 fatalities. This is equivalent to the fatality rate of 23.6

[1] TA No. 5733-REG: *A Review of Road Design and Construction Standards*, for $600,000, approved on 3 April 1997.

deaths per 10,000 vehicles.[1] The main reasons are poor driving skills, careless behavior of pedestrians, deficient road conditions, and technical problems with vehicles. The physical characteristics of roads, including alignment and condition, also contribute to accidents. Although the traffic police routinely collect data on reported accidents, the data are not processed to identify hazardous spots and to permit corrective and preventive measures. Measures also need to be taken to improve the education of road users so that accidents resulting from their behavior are minimized as traffic volumes increase, and as faster, more modern vehicles are introduced to the fleet (para. 40).

c. Vehicle Traffic and Fleet

13. The busiest main roads in the vicinity of Bishkek typically carry an average annual daily traffic (AADT) of about 13,200 vehicles, while traffic levels on similar roads around Osh reach about 3,800 AADT. Sections of main roads farther away from the larger towns, such as the central sections of the Bishkek-Osh road, now carry about 600-900 AADT, with a predominance of trucks. Prior to the economic crisis, traffic volumes on some road sections were three and six times higher in terms of freight and passengers, respectively. The current traffic levels are generally well below the design capacities of the roads, but the roads are not being maintained in adequate condition to cater to the designed traffic levels. Seasonal variations, reflecting both changes in transport demand and weather-related constraints, are significant on roads crossing the central mountainous areas of the country.

14. In 1997, the country's vehicle fleet comprised about 46,000 trucks and small commercial vehicles, 12,000 buses, 176,000 cars, and 34,000 motorcycles and three-wheeled vehicles. About 95 percent of the cars are privately owned. Previously, most trucks and buses were owned and operated by State organizations. Following the introduction of the privatization program and auctions, 26 percent of the trucks and 23 percent of the buses are now owned by individuals. The balance are owned and operated by transport companies. The majority of the fleet is still made up of vehicles manufactured in the FSU. A few modern buses have been procured under bilateral arrangements and assigned to selected bus companies. Some trucking companies have procured second-hand trucks of larger capacity and of more modern design, mainly for use on transitional routes. A significant number of cars, most of them second-hand, are now being imported privately from Western Europe.

15. The number of trucks has increased slightly since 1990, the number of buses has been stable, and the number of cars has fallen marginally because of the reduction in cars owned by Government departments and the contraction of the economy. The fleet is aging, since few companies have been in a position to buy modern vehicles. In 1996, only 1.8 percent of vehicles were less than 3 years old, 72.5 percent were between 3 and 10 years old, and the remainder were over 10 years old. Over half the truck fleet has a capacity of less than 7 tons, with a predominance of 5-ton trucks. Longer distance interurban freight movements are handled mainly by three-axle vehicles, and semitrailers with average payloads in the range of 8 to 15 tons. About 5 percent of the fleet has a capacity of 15 tons or more.

d. Road Transport Industry

16. Until 1994, transport companies were controlled by a holding company, Kyrgyz Auto Transport, which was then abolished by Decree No. 61, its functions being transferred to MOTC's Department of Transport. There are currently 89 transport companies operating trucks and buses. All of them have been privatized except for urban bus enterprises in major cities and

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[1] Comparable figures for other countries are: People's Republic of China, 77.0; India, 25.3; Thailand, 15.2; Russia, 13.6; Indonesia, 12.6; Japan 1.7; United Kingdom, 1.4.

some enterprises connected with State security. The transport companies employ about 13,000 people.

17. Most of the freight and passenger transport companies are operating at the provincial (oblast) and district (rayon) level, with a small number of national-level operators. In 1994, measures were introduced to increase competition. These comprised the abolition of national and provincial holding companies and associations (which had continued to exercise control over the operations of individual transport companies) and a reduction in the Government's shareholding in companies through the auctioning of surplus vehicles and assets to private bidders. The privatized transport companies have financial autonomy, but at present levels of demand, few are commercially profitable. Most companies cover only their short-term operating costs and do not provide for depreciation and fleet replacement. Some companies supplement their income from the sale of older vehicles, while others lay off staff or rent vehicles to their drivers on a monthly basis for some business. Few appear to have access to conventional credit arrangements and knowledge of commercial business practices to sustain their businesses.

e. Road Sector Revenue and Expenditure

18. Although still difficult, the overall budgetary situation of the Government has improved. The budget deficit was reduced to 4.7 percent of GDP in 1997, from 11.5 percent in 1995. Total expenditures were cut from 24 percent of GDP in 1994 to 23 percent in 1996. Measures have also been taken to increase revenues and strengthen tax administration. A new tax code was introduced in July 1996 to broaden the tax base, increase compliance, and improve intergovernmental fiscal relations. As a result, total revenues increased from 16.7 percent of GDP in 1994 to 17.6 percent in 1996. In 1996, about 53 percent of the budget deficit was financed by external resources, mostly on concessional terms, and the remainder by central bank credit.

19. Government expenditure in the road sector, funded by allocations from the State budget, is inadequate. The annual requirement is estimated at about Som1 billion, including the amounts required for rehabilitation and for periodic and routine maintenance. However, the amount actually made available in 1996 was only Som198 million, and the allocation for 1997 was Som290 million, including disbursements from the Bank for the first phase Road Rehabilitation Project. The 1998 budget provides for Som273 million. The actual allocations made available in the road sector have been much less than budgetary allocations. The establishment of the Road Fund is expected to improve this situation (see para. 41).

20. The main source of funds for road works is a 0.8 percent tax on the gross revenue of all enterprises, excluding road transport enterprises, which pay a 2 percent charge on gross revenue. Road users also pay general taxes such as the value-added tax (VAT) and import duties, and a range of specific taxes, including (i) taxes on the owners of transport vehicles, both individuals and firms; (ii) duties on registration of vehicles; (iii) charges for the use of tunnels; and (iv) charges for licensing transport services, currently paid to local governments.

21. In mid-1997, the gasoline price was about Som5.0, or $0.29, per liter, and the diesel price about Som3.7, or $0.22 per liter. These prices included a VAT of 20 percent and an excise tax of $45 per ton for gasoline and $25 per ton for diesel. Pricing of fuels (including taxes) requires close coordination with the neighboring CARs because of the country's open borders with them. This means that the country's prices for tradable goods, including fuels, cannot be significantly different from those prevailing in its larger neighbors, and fuel price increases need to be coordinated to reflect the prices in neighboring countries. The vehicle registration fee is levied at 5 percent of the new or second-hand vehicle price at the time of

purchase. Commercial vehicles are not registered individually but collectively through a process whereby the entire enterprise is licensed. There is also a small annual driving license fee. Fees from these sources do not provide significant revenue in relation to the needs of the sector and are not made available for road maintenance. The road tax, levied at 0.8 percent of gross revenue, is not directly related to the use by the companies of the road network. A recently completed Bank-financed Institutional Strengthening TA[1] examined ways to improve road sector revenues to maintain and operate the road network through establishing a dedicated Road Fund. This recommendation was followed by the Government, and the Road Fund Act was approved by Parliament on 3 March 1998 and signed by the President on 1 June 1998. The main revenue sources of the Road Fund include an excise tax on fuel, annual road user charges, vehicle registration charges, and budgetary allocations (para. 41).

f. Road Administration

i. Organizational Structure

22. The main responsibility for planning and administering road sector policies, programs, and projects is entrusted to MOTC by the Automobile Roads Act of May 1994.[2] DOR within MOTC is responsible for management of the road sector and the six regional road maintenance agencies (RRMAs). The latter control the operations undertaken by 38 local maintenance units (LMUs) for State roads and 33 LMUs for local roads. The existing DOR is inadequate in terms of organizational structure, and expertise to manage the road sector in a market economy. Through Decree No. 45 of 4 March 1996, the Government established the Directorate General for Rehabilitation and Maintenance of the Bishkek-Osh Road (DGRMBOR) under the Office of the Prime Minister with the specific aim to undertake a major rehabilitation and routine maintenance of the Bishkek-Osh road. Staffed with 23 persons, DGRMBOR has under it a construction unit in Osh, six LMUs, and a ferry transport at the Toktogul reservoir. DGRMBOR has recently been transferred to MOTC to integrate there the responsibility for the Bishkek-Osh road with other road projects. The Ministry of Architecture and Construction is responsible for developing technical standards for road design and construction in line with the Law of Standardization. This Ministry carries out field inspections at all construction sites, including roads, to ensure compliance with the existing standards. VID under the Ministry of Internal Affairs is responsible for road safety related matters. It comprises four divisions: (i) the Management Division, which deals with VID's overall functions; (ii) the Road Surveys Division, responsible for road surveys and inspection of road conditions and construction works; (iii) the Technical Surveys Division, responsible for vehicle registration and administration; and (iv) the Traffic Control Division, functioning as traffic police. Other important agencies in the road sector include (i) a joint stock holding company, designated "Kyrgyzjoldoru" (Kyrgyz Roads), which acts as an umbrella organization for 52 privatized former road construction entities; (ii) KyrgyzIntrans, a holding agency for six freight transport companies and forwarding agencies engaged mainly in international trade; and (iii) technical agencies in various stages of divestment from MOTC's control, including the Road Design Institute (Kyrgyzdortranproect), a small agency responsible for developing and testing new road construction techniques and equipment (Kyrgyztranstekhnika), and a privatized training agency for equipment operators (paras. 34 and 35).

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1 TA No. 2587-KGZ: *Institutional Strengthening of the Road Sector*, for $800,000, approved on 13 June 1996.

2 This is being superseded by the revised Automobile Roads Act of 1998 (approved by the President of the Kyrgyz Republic on 2 June 1998) which transfers to MOTC the responsibility for developing road design and construction standards (from the Ministry of Architecture and Construction), and road surveys and inspection, traffic management, and road safety functions (from the VID of the Ministry of Internal Affairs).

ii. Planning and Budgeting

23. 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 interventions that were required and their degree of priority. Neither an economic optimization of investments nor relating expenditures to user charges was undertaken. With the drastic reduction in road financing and 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, the Bank assisted MOTC through the Institutional Strengthening TA 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. Recommendations of the TA are being considered by MOTC for incorporation in its planning and budgeting system for the road sector.

iii. Construction and Maintenance

24. The Government's aim is to commercialize and privatize those construction and maintenance operations that are essentially commercial in nature. It is encouraging privatization of road construction by devolving all construction-related activities, personnel, and plant from DOR to separately incorporated companies; and encouraging international contractors to participate in tendering for road projects in association with local construction companies. But DOR currently has limited capability for contract administration and construction supervision. All 52 former Government construction entities, previously employing about 2,700 staff, have been commercialized and integrated in the joint stock holding company, Kyrgyz Roads. Although local road construction contractors exist, their participation in road construction and maintenance is limited because there is minimal work available, they lack adequate expertise, and most of their equipment is obsolete. The uncertainty relating to DOR's road construction program has hindered the development of the private road construction industry. There is a need to develop private sector road maintenance capability so that such activities can be undertaken more efficiently and help enhance the planning and management capacity of DOR (para. 38).

25. The RRMAs, located in six provinces, are responsible for carrying out road maintenance and minor rehabilitation works. At the operational level, the 71 LMUs are in charge of maintaining the national road network of 9,700 km and the local road network of 8,900 km. The total staffing of the RRMAs and LMUs is around 1,000 people. However, the equipment and methods used for maintenance do not meet current standards in similar environments in developed countries. A realistic maintenance plan, focusing on the maintenance requirements of the road network and on available financial resources, needs to be prepared. This will be done for the Bishkek-Osh road under the proposed Project. Under this plan, local contractors will be trained to undertake road maintenance, and guidelines and model contracts will be developed to contract out road maintenance works (para. 44).

B. Government Policies and Plans

26. The Government's transport sector strategy and plans are included in the PIP, prepared by the Ministry of Finance, as well as in the Transport and Road Sector Policy Statement (TRSPS) prepared under the Institutional Strengthening TA and recently issued by MOTC. The Government's overall policy objectives for the transport sector were developed with Bank assistance and include (i) adequately maintaining transport infrastructure to support 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. The strategy to achieve these objectives

includes (i) increasing the financial provision for rehabilitation and maintenance of 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 the 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 policies. These policies and strategies provide the Bank with an opportunity to continue supporting reforms and initiatives essential to the country's transition to a market economy (paras. 31-44).

C. External Assistance to the Sector

27. The Bank is playing a leading role in providing policy advice, capacity building, and capital financing for the Kyrgyz road sector. The Bank made its first loan of $50 million to the road sector in 1996, with cofinancing of about $28 million from the Overseas Economic Cooperation Fund (OECF) of Japan, to rehabilitate part of the Bishkek-Osh road.[1] In addition, the Bank has provided three TA grants totaling $2.0 million to the road sector.[2] The Kyrgyz Republic also has benefited from several Bank RETA operations.[3] The Bank's policy advice and institutional capacity-building assistance have complemented the development of the physical infrastructure. This has included preparation of the TRSPS, the Road Fund Act, the restructuring plan of MOTC, and the human resource development plan for the sector, and addressing of road maintenance, road funding and cost recovery issues. The European Union is providing TA to eight FSU countries, including the Kyrgyz Republic, in the areas of (i) standards and specifications for construction materials and plant, (ii) winter maintenance, (iii) road pavement and bridge testing, and (iv) prefeasibility studies for road and rail links (e.g., Osh-Saritash-Kashgar, and Issykul-Narin-Kashgar). The World Bank is undertaking an urban transport sector review prior to processing an Urban Transport Project programmed for 1998. The Islamic Development Bank has recently approved a loan to finance the southern section (49 km) of the Bishkek-Osh road in the amount of $9 million, which will complement Bank's efforts to rehabilitate other sections of the same road. The Islamic Development Bank has also provided grant assistance for a feasibility study for the rehabilitation of a section of the Bishkek-Naryn-Torugart road.

D. Lessons Learned

28. The Bank's first project in the road sector in the Kyrgyz Republic supported policy reform and institutional strengthening and financed the rehabilitation of priority sections of the Bishkek-Osh road, thereby improving the efficiency and safety of the country's principal road transport corridor. The civil works commenced in September 1996 and are progressing satisfactorily. The counterpart funds have been provided in a timely manner by the Government and the project is scheduled for completion in October 1999. The major loan covenants relating to physical implementation of the project, implementation arrangements, and environmental considerations have been complied with. Implementation of policy reforms and institutional strengthening activities proceeded in a timely manner although some delays (about 6-14 months) were experienced (e.g., issuance of TRSPS and establishment of the Road Fund). Valuable experience has been gained from the project as well as from a number of similar

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1 Loan No. 1444-KGZ (SF): *Road Rehabilitation Project*, for $50 million, approved on 13 June 1996.

2 TA No. 2256-KGZ: *Road Rehabilitation Project*, for $600,000, approved on 21 December 1994; TA No. 2587-KGZ: *Institutional Strengthening of the Road Sector*, for $800,000, approved on 13 June 1996; and TA No. 2760-KGZ: *Second Road Rehabilitation Project*, for $600,000, approved on 11 February 1997.

3 TA No. 5733-REG: *A Review of Road Design and Construction Standards*, for $600,000, approved on 3 April 1997; and TA No. 5620-REG: *Regional Initiatives in Road Safety*, for $600,000, approved on 4 January 1995.

interventions in Mongolia[1] and Kazakstan,[2] which are undergoing a similar rapid transition to a market economy. The experience has demonstrated that skills are available to implement straightforward infrastructure projects and has highlighted the need for investments to be accompanied by comprehensive support for policy reform, institutional strengthening, significant consultant assistance, human resource development, and increased attention to routine road maintenance. These lessons have been taken into account in the design of the Project.

E. The Bank's Operational and Sector Strategy

29. The main objectives of the Bank's strategy[3] for assistance to the Kyrgyz Republic reflect the developmental needs of the country and include (i) supporting the Government's reform activities and strengthening its development management; (ii) encouraging the creation of a new structure for output and capacity by the private sector through investment and job creation; and (iii) arresting the rapidly deteriorating, long-term potential of the country by investing in physical infrastructure and human resource development and also by selective interventions to protect and rehabilitate the environment. To maximize the impact of the Bank's limited resources and in consultation with the Government and the other aid agencies, the Bank's activities are focusing on (i) improvements in the provision of public services; (ii) agriculture; (iii) human resource development, especially education; and (iv) infrastructure, especially rehabilitation projects to preserve the economic utility of the past investment in the road and the energy sectors.

30. The Bank'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) commercializing and privatizing operations of State-owned enterprises; (iii) promoting competition and private sector participation in the provision and operation of transport facilities and services; (iv) increasing road funding by improving the collection of taxes and duties, developing a user-pays approach to road funding, and removing subsidy-induced distortions in pricing of transport services; (v) rehabilitating high-priority roads and improving O&M, and safety standards of the road network; (vi) developing human resources; and (vii) improving environmental standards. The Bank's involvement in the road sector since 1996 through the first phase Road Rehabilitation Project 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, preparation of a road maintenance plan, and mobilizing additional resources from other agencies.

F. Policy Dialogue

31. Since the Bank's involvement in the sector started in 1996, a comprehensive agenda for policy dialogue has been developed to assist the Government in facilitating overall development of the sector. The policy reform and institutional strengthening initiatives that have been achieved so far include (i) issuing the TRSPS, which provides a framework for developing sector regulations and guidelines; (ii) preparing the Road Fund Act, which is based on the user-pays approach, to increase the revenue for the sector; (iii) preparing the maintenance management system by developing a computer-based system; and (iv) preparing the human resources development plan for MOTC. Following these achievements in the area of policy reforms, the Bank's policy dialogue during processing of the Project has focused on the need for (i) completing the establishment of an enabling policy and regulatory environment that is

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1 Loan No. 1256-MON(SF): *Ulaanbaatar Airport*, for $36 million, approved on 17 August 1993; and Loan No. 1364-MON(SF): *Road Development*, for $25 million, approved on 22 August 1995.

2 Loan No. 1455-KAZ: *Road Rehabilitation Project*, for $50 million, approved on 27 August 1996.

3 STS KGZ 96029: *Country Operational Strategy Study: Kyrgyz Republic,* December 1996.

consistent with the requirements of a market economy, (ii) reorganizing and strengthening MOTC, (iii) implementing a road maintenance system through private sector participation and road safety program, (iv) enacting the Road Fund Act to increase financing for the development and maintenance of the road network, (v) enacting the revised Automobile Roads Act to consolidate the sector responsibility under MOTC, and (vi) capacity building within MOTC through restructuring and training of staff and private road contractors. The Government has agreed to implement the related recommendations as discussed below.

1. Policy and Regulatory Framework

32. As agreed under the first Bank loan, the Government's commitment to market-based reforms for the road sector has been translated into a set of specific policies and guidelines through the TRSPS, the main objectives of which are to (i) create a proper business and regulatory environment and enhance the role of the private sector; (ii) introduce competition in the transport system; (iii) improve the efficiency of State-owned transport enterprises; and (iv) develop road safety and environmental standards. The TRSPS, prepared under the Institutional Strengthening TA was formally adopted by the Government through Decree No. 596 of 15 October 1997 to provide the basis for implementing appropriate policies and guidelines during the next decade. A Transport Sector Advisory Committee, chaired by the Minister, MOTC, has been established to monitor its implementation. The Committee consists of representatives from the Standing Committee on Transport and Communications of Parliament, the Ministry of Justice, and the eight Department Heads of MOTC.

33. The Automobile Roads Act of May 1994 lacked appropriate provisions with regard to the delineation of responsibilities and roles of the ministries involved in the road sector. A revised Act rectifying these deficiencies and making MOTC responsible for the road sector was prepared with Bank assistance, approved by Parliament on 8 May 1998, and signed by the President on 2 June 1998. Under the revised Act, MOTC has responsibility for (i) developing road design and construction standards; and (ii) functions relating to technical road surveys and inspection, traffic management facilities, and road safety. A series of Government decrees need to be issued so that implementation of the Act will be carried out by July 1999.

2. Reorganization and Strengthening of MOTC

34. The Government has agreed to implement reforms that will improve accountability and promote self-financing of the management and operation of the transport sector. The Government will achieve these objectives by restructuring sector institutions so that, in the longer term, the role of the Government will be limited to managing the sector with responsibility for setting policies, licensing, regulation and investment planning. While the responsibilities for design, construction, and O&M of transport infrastructure will initially be retained by the Government, such responsibilities will be transferred gradually to the private sector, in line with the development of its capacity.[1] The advisory TA proposed to complement the loan is designed to develop the capacity of the private sector, in particular for the construction and maintenance of road works (paras. 69 to 71). These efforts will help reduce the role of the State in the market economy, and increase private sector participation in the provision of transport infrastructure and services.

35. The following actions will be taken by January to July 1999 to strengthen MOTC's capacity to function efficiently as a line ministry: (i) reorganizing and strengthening MOTC, (ii) transferring the responsibility for developing road design and construction standards from the Ministry of Architecture and Construction to MOTC, and (iii) transferring the

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[1] Bus transport, both intercity and urban, is already largely in the hands of the private sector.

responsibilities for road surveys and inspection and for traffic management and road safety functions from VID under the Ministry of Internal Affairs to MOTC. The proposed organization structure of MOTC is shown in Appendix 4.

36. MOTC needs to be strengthened to deal with its policy functions in a market-oriented environment. The proposed Transport Policy Department and Planning, Design, and Construction Department (PDCD), which will replace DOR, need to develop their institutional capacity to undertake its function of developing and monitoring transport sector policies, programs, and projects. The proposed TA will provide assistance in this regard (paras. 69 to 71).

3. Private Sector Participation in Road Maintenance

37. Under the centrally planned economy, road construction and maintenance were undertaken by a State-owned construction department. MOTC has expertise in road construction and maintenance, and construction materials are available locally, but it is operating under difficult circumstances because of severe budgetary constraints. Although MOTC has a large fleet of road maintenance equipment, much of it is obsolete or inoperable, and MOTC continues to rely on Russia and other FSU countries for spare parts and equipment. The majority of this equipment does not meet current international standards, which restricts the transfer of productivity-enhancing technology from other countries.

38. The capability of the private sector for road construction and maintenance is limited because of the large capital investment required to purchase heavy construction equipment. The limited Government road construction activities are not adequate to make such investments commercially viable. The approach taken by the Government is to progressively develop privately owned road construction companies and private contractors to enable PDCD to implement road construction and maintenance through competitive tendering. As such an approach is new in the country's road sector, the Project includes assistance to facilitate the development of private sector road maintenance capability, and of a management system in PDCD for contract award and administration. With the assistance of the Project implementation consultants (i) local contractors will receive training for undertaking routine road maintenance; (ii) guidelines and model contract documents will be drawn up for use by PDCD and the contractors; and (iii) PDCD will put in place a process for bidding, contract award, and contract administration. These procedures will be implemented on selected road sections that require maintenance works where LMUs are being strengthened through the provision of equipment. The contracting procedures will later be extended to other parts of the road network, providing a regular demand for the services of private maintenance contractors.

39. The LMUs currently own about 1,500 pieces of road maintenance equipment. Additional road maintenance equipment (e.g., bulldozers, loaders, dump tracks) are being procured under the ongoing project. To effectively use the equipment and to facilitate the development of private road construction and maintenance capability, the Government has agreed to create a State-owned joint stock company to manage an equipment pool from which the equipment will be hired by private contractors for undertaking construction and maintenance works. To establish the equipment hire system, consulting services will be provided to study the requirements for developing it, including proper accounting procedures and maintenance of the equipment pool. The equipment hire system will incorporate appropriate provisions for depreciation and for O&M expenses. It will also help to establish workshop routines for the servicing and repair of equipment for effective preventive maintenance and will provide guidance and on-the-job training to equipment operators, workshop mechanics, and foremen in

the proper use and O&M of equipment. The equipment pool is expected to become operational by January 2000.

4. Road Safety

40. Road safety is dependent upon a number of factors, including road user behavior, vehicle fleet condition, physical characteristics of roads, accident prevention measures, and maintenance of the road and safety features. A detailed analysis of the relative importance of these factors in the Kyrgyz Republic is needed. Taking into account recommendations of the Bank-financed regional TA,[1] a time-bound road safety program will be formulated under the Project, with a view to reducing the high accident rate by (i) increasing understanding of the factors influencing road safety; (ii) developing strategies, measures, and training courses; and (iii) identifying actions to strengthen the capability within MOTC to tackle the growing safety problems.

5. Road Sector Revenues and Expenditures

41. The level of Government expenditure in the road sector funded by budget allocations is inadequate. The major sources of funds for road works yielded only Som198 million in 1996, including disbursements from the Bank, compared with the annual requirement for road development and maintenance estimated at about Som1 billion. Pursuant to the concerns raised by the Bank on the severe shortage of funds for the road sector and the need to address this situation, a Road Fund Act was prepared by the Government with assistance provided under the Institutional Strengthening TA. The Act, which was reviewed and refined in consultation with the Bank, was approved by Parliament on 3 March 1998 and signed by the President on 1 June 1998.[2] A dedicated Road Fund Account will be opened by the Ministry of Finance and the Road Fund budget will be approved by Parliament in order for the Road Fund to become fully operational by 1 January 1999. The Road Fund Account will be annually audited by independent auditors to ensure that the revenues collected are used only to finance approved expenditures. The operation of the Road Fund will be periodically reviewed to examine the appropriateness of phasing it out in light of beneficial fiscal consideration. The Bank will continue dialogue with the Government to ensure that all the necessary requirements are fulfilled prior to commencement of the operation of the Road Fund. Based on the user-pays principle, the main revenue sources of the Road Fund will comprise annual road user charges and an excise tax on fuel. The Road Fund collection from these sources is expected to amount to about Som400 million in 1999 and is expected to grow in the medium term at about 3 to 5 percent annually as the traffic volume increases over the years. The shortfall of funds for road development and maintenance will gradually be reduced over the years as the Road Fund revenue increases and capital expenditure requirements are gradually reduced. The initial capital expenditures, such as those under the Project, thus need to be financed from sources external to the Road Fund.

42. While diverging views can be found on the benefits of earmarking Government revenue for specific activities, the use of road funds, at least during the country's transitional period to a full market economy, will minimize the erosion of existing and newly created assets, enable the establishment of a road maintenance management system, and encourage the user-

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1 TA No. 5620-REG: *Regional Initiatives in Road Safety*, for $600,000, approved on 4 January 1995.

2 The Road Fund Act, comprising 11 articles, stipulates, among others, that (i) the purpose of establishing the Road Fund is to ensure that adequate funds will be raised, based on the user-pays principle, for road maintenance and development; (ii) revenue sources will include an excise tax on fuel, annual road user charges (vehicle tax), vehicle registration charges, heavy vehicle tax, toll charges; and budget allocations (iii) the use of the Road Fund should be limited to road maintenance and development; (iv) MOTC is responsible for proper utilization of the Road Fund; and (v) the Road Fund Account will be opened and maintained by the Ministry of Finance.

pays principle. The Bank is supporting the Government's effort to introduce the user-pays principle through setting up or improving road funds in other transitional economies. This approach is supported by the World Bank and is coordinated with the International Monetary Fund.

6. Capacity Building

43. To establish planning and management frameworks in road sector organizations, MOTC, with assistance provided under the Institutional Strengthening TA, reviewed its existing human resource requirements and identified (i) the skills that are required for MOTC, RRMAs, and LMUs; (ii) training needed to upgrade the skill base; and (iii) an appropriate approach to implement the training strategy. Based on that, a human resources development plan was prepared, which has been under implementation by MOTC since December 1997. The training of MOTC staff in tendering, financial management, and feasibility analysis and of privatized construction units proposed under the Project will complement the existing training program.

44. In addition to the assistance provided by the Bank to the CARs, including the Kyrgyz Republic, for the preparation of road design and construction standards, the capability of MOTC needs to be developed in competitive bidding procedures, including prequalification of bidders, tendering, and contract administration. The advisory technical assistance for Policy Support in the Transport Sector (the Policy Support TA) will help MOTC prepare prequalification and tender documents suitable for local competitive bidding, and will train its staff in bidding and contract management and administration. Apart from MOTC, the recently privatized construction units need training in tendering, planning, and control of work. The Policy Support TA will provide for such training of contractors as well (paras. 69-71).

IV. THE PROPOSED PROJECT

A. Rationale

45. Efficient transport services are essential to support the development of domestic and international trade as the Kyrgyz Republic moves towards a market-based economy, which increases the demand for flexible, market-responsive road transport. To develop efficient transport services, the use of existing transport infrastructure must be optimized and steps taken to prevent its further degradation. The Bishkek-Osh road interconnects the two major centers of economic activity and population in the country. The road runs through four of the country's six regions[1] and serves over two million people, almost half of the country's population. Bishkek, the capital, is located in the north of the country and has a population of about 605,000. Together with its adjacent region, it accounts for over half of the country's GDP and 80 percent of the industrial enterprises. Osh has a population of about 250,000 and is the main commercial center for the southern regions, which are the principal sources of the country's agricultural output. The Bishkek-Osh road is a key infrastructure facility, providing the means to integrate the national economy and strengthen social and cultural links within the country. The road, the most important transport corridor in the country, supports national integration. It is also part of the transnational route which is essential for regional and inter-regional trade, linking up with the agriculturally productive Fergana valley in Uzbekistan, as well

[1] Chui, Talas, Jalal-Abad, and Osh.

as the neighboring country of Tajikistan, to Almaty, the largest city of Kazakstan, and proceeding onwards to the People's Republic of China (PRC) and Russia's Siberia.[1]

46. Poor maintenance has resulted in serious deterioration of the road in certain sections, particularly in the mountainous areas. Although there is a need to rehabilitate substantial portions of the road, little rehabilitation work has been undertaken since 1991 (except for the sections that are being rehabilitated under the first phase Road Rehabilitation Project), and the road condition is deteriorating. Rehabilitation and routine maintenance of the national road network, and of the Bishkek-Osh road in particular, are essential for the country's economic development and to improve transport safety. The rehabilitated road will have positive economic impact by lowering transport costs of goods, reducing the time for movement of goods and passengers, and improving access to markets and social services. The proposed sections must be rehabilitated in a timely manner to maximize the benefits accruing from the completion of the rehabilitation program of the whole Bishkek-Osh road. The Tyu Ashu Tunnel, which was built in the early 1960s, requires urgent rehabilitation, as it is in disrepair and is a serious safety hazard. This tunnel has become a major constraint to the smooth flow of traffic.

47. The advisory TA will help the Government introduce road sector policies appropriate for a market-oriented economy. Policy and institutional reforms will improve the sector's capacity to respond more effectively to market demands, primarily through strengthened operations of MOTC and other relevant sector organizations, including private road contractors. The development of private sector capabilities in road maintenance, together with a management system in MOTC, will be facilitated under the Project through training of local contractors to undertake routine maintenance and through the development of guidelines and model contract documents for MOTC to administer such private sector participation in road maintenance.

B. Objectives and Scope

48. The objective of the proposed Project is to help improve the efficiency and safety of the country's principal road transport link by rehabilitating priority sections of the Bishkek-Osh road. The Project, and the associated advisory TA, will support the Government in furthering and implementing sector reforms in the areas of market-oriented policies, private sector participation in road maintenance activities, road safety, road maintenance programs, reorganizing and strengthening of road sector institutions, a user-pays approach to road funding, and training of domestic construction companies.

49. The Project consists of (i) civil works for the rehabilitation of about 208 km of key mountainous sections of the Bishkek-Osh road, including the 2.5-km long Tyu Ashu Tunnel, road protection structures, and minor realignments to improve safety; and (ii) consulting services for construction supervision, road maintenance and safety programs, and benefit monitoring and evaluation (BME).

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[1] The Bank is supporting regional economic cooperation among its developing member countries in Central Asia, including Kazakstan, the Kyrgyz Republic, Uzbekistan, and PRC through TA No. 5707-REG: *Regional Economic Cooperation in Central Asia,* for $1.15 million, approved on 8 November 1996; and TA No. 5760-REG: *Technical Assistance for Workshops on Economic Cooperation in Central Asia*, for $344,000, approved on 14 November 1997.

C. Technical Justification

50. The Kyrgyz Republic is a landlocked country set in the Tien Shan mountain range, with 90 percent of its land area exceeding an elevation of 1,500 m. The Bishkek-Osh road, which is 619 km long, traverses passes at over 3,000 m elevation and presents difficult driving conditions in its current dilapidated state. Most of the road was constructed before 1960. Poor construction and the lack of maintenance have resulted in its deterioration. In winter months, heavy snowfalls and avalanches block the road, while in the spring and summer months, melting snow and rain cause frequent rockfalls and landslides. Because of heavy snowfalls, unstable slopes, and lack of equipment to clear the road, it is often impassable during the winter months. Its rehabilitation is essential to allow efficient movement of freight and passengers, prevent irreversible degradation, and improve road safety in the hazardous mountainous sections. A rehabilitation program for the Bishkek-Osh road was prepared under the Bank-financed Road Rehabilitation Project TA.[1] The first phase of the program, which covers 135 km of mountainous sections, is being successfully implemented under the first phase Road Rehabilitation Project. The second phase, which was prepared under the Bank-financed Second Road Rehabilitation Project TA,[2] comprises an additional 208 km of mountainous sections, and will be undertaken under the proposed Project. Together these projects will cover the rehabilitation of 55 percent of the total length of the road. The rehabilitation of the remaining sections of this road link may be considered for Bank financing as the third phase of this program.[3]

51. Because of the downturn of the economy since 1991, the transport demand in 1995 was at about the same level as in the mid-1980s. In 1997, traffic volume increased in line with the economic recovery reflected in the 10.4 percent GDP growth. Transnational transit traffic using the road currently accounts for 11-17 percent of the total traffic, depending on the road section.

52. A traffic forecast for the Project for 2001-2021 is given in Appendix 5. The forecast is based on 1997 traffic data and forecast annual GDP growth rates of 4-6 percent; anticipated growth in population, incomes, and vehicle ownership; and income elasticity of demand for passenger vehicles in the range of 1.2-1.4. Additional traffic is expected to be generated as a result of the Project through a reduction of transport costs. Depending on the road section, the traffic is expected to grow at 5.4-6.0 percent per annum. Depending on the road section, total traffic is estimated at 954-1,302 AADT in 1997, forecast to increase at about 6.0 percent per annum to reach 1,197-1,701 AADT in 2001. The traffic will then grow more slowly at about 5.5 percent per annum to reach 3,461-5,005 AADT in 2021.

53. Average speeds on the road sections covered by the Project are below optimum levels, and a number of the sections have deteriorated to gravel surfaces. Traffic volumes are restricted because of the poor condition of the road; this is a constraint to national and foreign trade and to the expansion of a market economy. Rehabilitation is required to restore the road and preserve previous investments. The civil works component of the Project is designed to prevent the worst sections of the road in the mountains, including the tunnel, from deteriorating to a condition where more expensive major pavement reconstruction would be necessary. The selection of road sections for inclusion in the Project took into account (i) the need to avoid major reconstruction of those sections that are in the worst state of disrepair, (ii) unsealed sections with excessive roughness, (iii) major restrictions to traffic flows, (iv) the need to improve road safety in potential accident-prone areas, and (v) road sections subject to closure during winter. Civil works will consist of reconstructing some embankments, adding a crushed aggregate base course,

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1 TA No. 2256-KGZ: *Road Rehabilitation Project*, for $600,000, approved on 21 December 1994.

2 TA No. 2760-KGZ: *Second Road Rehabilitation Project*, for $600,000, approved on 11 February 1997.

3 A third road rehabilitation project is included in the Kyrgyz Republic Country Assistance Plan for 2000.

surfacing with asphalt, improving drainage, improving horizontal curves, and renovating the tunnel. Appropriate road protection structures will be designed and constructed at key locations.

54. The Institutional Strengthening TA reviewed the current practice for road maintenance and examined the need for proper maintenance for selected roads. Based on this preliminary work, further assistance will be provided under the Project for strengthening the LMUs along the Bishkek-Osh road, preparing and implementing maintenance systems, and creating an enabling environment for private sector participation in road maintenance activities.

D. Cost Estimates

55. The total Project cost is estimated at $109.8 million equivalent, of which $71.9 million (66 percent) is the foreign exchange cost and $37.9 million equivalent (34 percent) is the local currency cost. The Project cost estimates are summarized in Table 1 (for details, see Appendix 6).

Table 1: Cost Estimates
($ million)

Item	Foreign Exchange	Local Currency	Total Cost
A. Base Costs[a]			
1. Civil Works	55.5	31.3	86.8
2. Consulting Services	3.9	0.9	4.8
Subtotal (A)	**59.4**	**32.2**	**91.6**
B. Contingencies			
1. Physical Contingencies[b]	6.5	3.1	9.6
2. Price Escalation[c]	4.0	2.6	6.6
Subtotal (B)	**0.5**	**5.7**	**16.2**
C. Service Charge During Construction	2.0	—	2.0
Total	**71.9**	**37.9**	**109.8**

[a] In 1998 prices.
[b] At about 10 percent of base costs.
[c] At 2 4 percent per annum for foreign exchange costs and at 15 percent (1998), 12 percent (1999), and 10 percent (2000-2001) per annum for local currency costs.

E. Financing Plan

56. The financing plan for the Project is summarized in Table 2. The Government has requested the Bank to provide a loan from its Special Funds resources in an amount equivalent to $50 million to finance about 51 percent of the foreign exchange cost ($37.0 million) and about 34 percent of the local currency expenditure ($13.0 million equivalent). The proposed Bank loan represents about 46 percent of the total Project cost. The Borrower will be the Kyrgyz Republic. The terms of the loan will include the Bank's standard terms and conditions for loans from its Special Funds resources for Asian Development Fund-only countries, including a service charge of 1 percent per annum and an amortization period of 40 years including a grace period of 10 years. Parallel cofinancing of $40.8 million equivalent will be provided by OECF for civil works and consulting services for construction supervision, to finance about 37 percent of the total Project cost, consisting of 49 percent of the foreign exchange cost ($34.9 million) and 16 percent of the local currency expenditure ($5.9 million) equivalent.[1] The balance of the local

[1] The Government of Japan has pledged that OECF will cofinance civil works on about 128 km of the road and the related consulting services for construction supervision.

currency expenditures, amounting to $19 million equivalent (about 17 percent of the total Project cost), including taxes, duties, and associated contingencies, will be financed by the Government. The Government has given its assurance that adequate local counterpart funds will be made available from the Road Fund or other sources as may be considered necessary to enable the Project to be implemented in a timely manner.

Table 2: Financing Plan
($ million)

Source	Foreign Exchange	Local Currency	Total Cost	Percent of Project Cost
Bank	37.0	13.0	50.0	45.5
Cofinancing of OECF	34.9	5.9	40.8	37.2
Government	—	19.0	19.0	17.3
Total	**71.9**	**37.9**	**109.8**	**100.0**

F. Implementation Arrangements

57. The Project Steering Committee (PSC) established under the first phase Road Rehabilitation Project will also oversee the work of the proposed Project. Its functions are to (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 the Bank; (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 regional development. The PSC is chaired by the Minister, MOTC, and its members are the Project Manager and representatives from the Prime Minister's Office, Ministry of Finance, State Commission on Foreign Investment and Economic Assistance, and MOTC. The PSC will meet at least four times, more often if required.

58. To ensure cost-effective and timely implementation of the Project as well as to maintain continuity, the Project Implementation Unit (PIU) established under the first phase Road Rehabilitation Project will act also as the PIU for the proposed Project. The Project Manager is supported by three civil engineers with expertise in materials and soil engineering, roads, bridges, and tunnels, as well as by financial and clerical staff. To strengthen the PIU's capacity, two technical staff experienced in procurement and tunneling work will be added, and about four additional staff will be made available in the field throughout Project implementation. The PIU, assisted by the consultants to be recruited for construction supervision, will undertake day-to-day implementation supervision of the Project and provide the necessary liaison among MOTC, contractors, suppliers, the cofinancier, and the Bank.

1. Implementation Schedule

59. The Project is expected to be implemented in about four years, commencing with procurement activities already begun in early 1998, with construction complete by 31 October 2001 (Appendix 7).

2. Procurement

60. Civil works required for the Project have been split into two contract packages (Appendix 8) to encourage international competition, including joint venture participation by international and local contractors, and to meet the need for urgent rehabilitation of the key

sections of the road. Package 1, comprising rehabilitation of 80 km of the road from km 81 to km 161, including the 2.5-km long Tyu-Ashu Tunnel, civil works for road protection structures and minor realignments along the Bishkek-Osh Road to improve safety, is proposed for Bank financing, while the rehabilitation of 128 km section of the road (Package 2), from km 248 to km 325 and from km 361 to km 412, is proposed for parallel cofinancing by OECF. Package 1 will be procured using international competitive bidding (ICB) procedures in accordance with the Bank's *Guidelines for Procurement,* while Package 2 will follow the cofinancier's guidelines for ICB procedures. Given the limited yearly construction period because of winter snow between November and March, and the need to minimize implementation delays and ensure the timely completion of the Project, in November 1997 the Bank approved the Government's request for advance procurement action for Package 1.[1] The Government has been advised that Bank approval of such action does not commit the Bank to financing the Project.

3. Consulting Services

61. Consultants to be financed under the Bank loan will assist in construction supervision of Package 1 (including environmental monitoring and mitigation measures) and other activities relating to road maintenance and safety, and BME for the Project. About 82 person-months of international and 120 person-months of domestic consulting services will be required. The consultants will be recruited in line with the Bank's *Guidelines on the Use of Consultants* and other arrangements satisfactory to the Bank for the engagement of domestic consultants. Consultants required to supervise the construction of Package 2 will be engaged by the Government in accordance with procedures acceptable to the cofinancier. Given the national priority of the Project and the need to minimize implementation delays, the Bank approved in November 1997 the Government's request for advance recruitment action for the Bank-financed consultants.[2] The Government has been advised that Bank approval of advance recruitment action does not commit the Bank to financing the Project.

62. The main objective of the Bank-financed consulting services is to ensure that the civil works under Package 1 are undertaken in an efficient manner, consistent with international engineering standards and practices, and that procurement is undertaken in accordance with the Bank's *Guidelines for Procurement.* In rendering the services, the international consultants will ensure that on-the-job training and the transfer of expertise are provided to MOTC staff and local experts and contractors (see the outline terms of reference in Appendix 9).

4. Midterm Review

63. In 2000, the Bank and the Government will carry out a midterm review of the Project. The main objectives of the review will include (i) examining the Government's progress in implementing sector reforms, (ii) reviewing the implementation of the Project, and (iii) examining compliance with assurances provided in the Loan Agreement.

5. Reports, Accounts, and Audit

64. MOTC will prepare and submit to the Bank and the cofinancier quarterly reports on the progress of the Project implementation. MOTC will maintain separate accounts for the Project components financed by the Bank and the cofinancier and have them audited by the Government audit authority. The audited accounts and auditor's report, prepared in accordance with internationally accepted accounting standards, will be furnished to the Bank within nine

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1 The advance procurement action was reported in the December 1997 edition of *ADB Business Opportunities.*

2 The advance recruitment action was reported in the December 1997 edition of *ADB Business Opportunities.*

months of the end of the financial year.[1] To facilitate postevaluation of the Project, MOTC will furnish to the Bank, within three months of its physical completion, a Project completion report covering the execution and initial operation of the rehabilitated road sections.

6. Monitoring and Evaluation

65. Based on the recommendations made under the Institutional Strengthening TA, a system identifying and recording key indicators, including traffic data, and collecting statistics for monitoring Project benefits and impact will be established with the assistance of the Bank-financed consultants. Physical, economic, and social benefits will be monitored and evaluated on an annual basis during the course of Project implementation, commencing in January 1999. These activities will be reviewed by the Bank through the quarterly progress reports and review missions that will monitor the progress of the Project, its impact, and the Government's sector reform.

G. The Executing Agency

66. MOTC will be the Executing Agency for the Project and will be responsible for planning, managing, supervising, and coordinating it. The former DGRMBOR, which acted as the implementing agency for the first phase Road Rehabilitation Project, has been integrated within MOTC and forms a core group that will be primarily responsible for day-to-day implementation of both the ongoing project and the proposed Project. This group, which includes the PIU, has suitably qualified staff in procurement, construction, maintenance, and finance, and has developed the capability to implement internationally financed projects. The capacity of MOTC, particularly in financial management, will be further enhanced through the advisory TA.

H. Environmental and Social Measures

67. The Project is in Environmental Category B, and an initial environmental examination (IEE) was carried out under the Second Road Rehabilitation TA in accordance with the Bank's *Environmental Assessment Requirements and Environmental Review Procedures,* and *Environmental Guidelines for Selected Infrastructure Projects*. A summary of the IEE is given in Appendix 10. As for the first phase Road Rehabilitation Project, the IEE for the proposed Project has indicated that there will be no significant adverse environmental impacts, because the Project involves rehabilitation of a road along an existing alignment (except for minor realignments to improve road safety) and will not require land acquisition for rights-of-way. Appropriate mitigation measures have been incorporated in the design of the Project to cover things such as adequate drainage systems, erosion prevention solutions, provisions for traffic management requirements, and planting trees to protect against landslides. The Project implementation consultants will supervise and monitor (i) the selection and restoration of borrow areas and quarries, (ii) the extraction of water for construction purposes, (iii) the control of hazardous and toxic materials, and (iv) the impairment of downstream water quality. These environmental monitoring and mitigating measures have been incorporated in the terms of reference for the consultants. The Government has assured the Bank that it will address adequately any adverse environmental impacts of the Project.

68. A social impact assessment (SIA) conducted under the Second Road Rehabilitation TA (Appendix 11) indicated that no resettlement will be needed, and that the

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[1] The Bank assisted the Government in preparing a project accounting manual for Bank-financed projects through TA No. 5724-REG:*Capacity Building in Project Accounting in the Republic of Kazakstan, Kyrgyz Republic, and Republic of Uzbekistan*, for $450,000, approved on 7 February 1997. The project accounting manual was recently completed and officially endorsed by the Government. The manual will assist MOTC in preparing the Project accounts.

Project has no particular impact on vulnerable groups. The social impact of the Project will be monitored and evaluated through the BME system (para. 65).

I. Technical Assistance

69. The Government has requested advisory technical assistance for the Policy Support TA to help implement sector policy reforms formulated under the Institutional Strengthening TA. The Policy Support TA will focus on (i) institutional development of MOTC to carry out its new functions in a market-oriented environment; (ii) strengthening of the financial management capabilities of MOTC; and (iii) capacity building through training of MOTC staff and private contractors.

70. About 18 person-months of international and 10 person-months of domestic consulting services will be required to implement the Policy Support TA over a one-and-a half-year period. The total cost of the TA is estimated at $750,000 equivalent, comprising $550,000 in foreign exchange costs and $200,000 equivalent in local currency expenditures (for details, see Appendix 12). The Government has requested the Bank to finance $600,000 equivalent, covering the entire foreign exchange cost and $50,000 equivalent of the local currency cost. The TA will be financed by the Bank on a grant basis from the Japan Special Fund, funded by the Government of Japan. The Government will finance the remaining $150,000 equivalent in local currency cost. A consulting firm will be selected and engaged by the Bank using the simplified technical proposal procedures in accordance with the Bank's *Guidelines on the Use of Consultants* and other arrangements for the engagement of domestic consultants.

71. MOTC will be the Executing Agency and will provide overall guidance for the activities to be carried out under the Policy Support TA. It will appoint suitable senior counterparts, who will be responsible for day-to-day supervision and coordination activities, including monitoring progress achieved and resolution of any difficulties that may arise during TA implementation. The consulting services are expected to start in 1999 and to be completed in 2000. The outline terms of reference for the TA are shown in Appendix 12.

V. PROJECT JUSTIFICATION

A. Economic Analysis

72. Economic analysis has been carried out for both the Bank-financed and the cofinanced road sections and for the entire Project based on a comparison of the "with" and "without" Project scenarios. The principal sources of economic benefits from the Project accrue from savings in vehicle operating costs (VOCs) for both normal and generated traffic, passenger time costs, and maintenance costs. In the "with" Project case, VOCs will be lower than would be the case "without" the Project. The VOC savings have been determined as a function of anticipated changes in existing surface roughness and improved pavement as well as increased traffic volume. The VOCs have been calculated on the basis of vehicle types representative of the road traffic. Savings in VOC and time costs for transnational transit traffic have not been taken into account, since these benefits do not accrue directly to the Kyrgyz economy. In the "without" Project case, to prevent further deterioration of road surfaces, essential routine maintenance works would be required to keep the road open to traffic. Implementation of the Project will result in maintenance cost savings due to improvement in pavement strength and drainage. Road maintenance costs have been based on the routine and periodic expenditures required to maintain the Project road in a useable condition.

73. The estimated VOC savings will amount to about 95 percent of the benefits that have been quantified. The remaining 5 percent will accrue from savings in passenger time and maintenance costs. In addition to these savings, the Project will also provide the following benefits, which are difficult to quantify and have thus not been included in the analysis: reduced number of accidents; provision of an all-weather link between the two major centers of economic activity and population in the country; improved access to the mountainous areas; integration and strengthening of social and cultural links among the country's diverse population groups; and increased regional cooperation among neighboring countries including Kazakstan, Tajikistan, Uzbekistan, and PRC.

74. The economic internal rate of return (EIRR) for the Bank-financed Package 1 is estimated at 14.3 percent, and that for the cofinanced Package 2 at 17.1 percent. The EIRR for the entire Project is estimated at 16.0 percent (Appendix 13). Sensitivity analysis carried out to test the effects of possible unfavorable scenarios stemming from changes in key parameters that determine the costs and benefits of the Project indicates that it would require an increase in costs of about 40 percent, or a decrease in benefits of about 30 percent, for the EIRR to decline to the cut-off level of 12 percent. Given the existing construction skills and performance so far on the ongoing project, such a major cost increase is unlikely. The changes in the structure of the transport industry towards greater competition will prevent such a major decline in benefit levels.

B. Project Risks

75. The Project has been formulated to reduce potential risks. To minimize the risk of delays during implementation, the Bank has approved advance procurement and recruitment actions. Given the country's limited absorptive capacity, the Project does not involve any unique or sophisticated technology. The Project is not expected to face any major technical or managerial risks. MOTC's capabilities in project implementation will be further strengthened, with the assistance of international consultants. The use of ICB procedures and the packaging of the main civil works contracts will minimize the potential for logistical difficulties during Project implementation. To minimize the risk of poor quality control during construction, the Project implementation consultants will assume overall responsibility for material testing, monitoring, and other quality control measures. To minimize potential delays in Project implementation because of a shortage of counterpart funds (i) the Project scope and proposed financing have been designed to take account of the country's absorptive capacity; (ii) extensive discussions have been held with the Government regarding budgetary provisions, and enactment of the Road Fund Act was required prior to completion of the processing of the Project; and (iii) policy dialogue will continue to increase domestic resource mobilization and road sector revenues. In addition, the experience gained through implementing the first phase Road Rehabilitation Project has been incorporated in the Project design (e.g., by including under the Project scope the provision of road survey and design equipment to enable the road design institute to undertake design work efficiently).

C. Social Dimensions

76. The participatory approach was adopted to undertake the SIA of the Project. Key local persons and household heads were interviewed in selected towns and villages to assess the perception of the beneficiaries of the Project as to their current problems and needs in the Project area. Six towns and villages were selected (Sosnovka, Susamyr, Toktogul town, Torkent, Kara Djygach, and Karakul), representing different types of communities ranging from a power station town as a rural administrative center to a small roadside village. The average monthly cash income per person in these communities is less than $10, and the unemployment rate is high at

about 56 percent. The results of the interviews indicate that the main problems as perceived by the people are isolation and lack of employment. Strategies suggested by the key persons to address these problems include rural manufacturing, hydropower dam construction, and tourism. The people interviewed agreed that the proposed Project would provide the basic infrastructure support to implement these strategies. The majority of them mentioned lack of access to transport (private or public) and/or poor road conditions as major problems in their daily life. The proposed Project will deliver substantial nonquantified benefits such as quicker and less costly market access for farmers and tradesmen, increased access for social communications, reduced waiting time for passengers, reduced time for movement of trade goods with higher reliability, and in general better transport services for the entire region. The improved road will reduce the transport costs of fresh fruit and vegetables, forest products, fuel, coal, and building materials. The civil works under the Project are expected to generate about 2,400 person-years of employment for skilled and unskilled labor. Additional local employment will be created through routine and periodic maintenance upon completion of the Project.

VI. ASSURANCES

77. The Government has given the following specific assurances, in addition to the standard assurances, which will be incorporated in the legal documents:

(i) Institutional Reforms

The Government will, through the Automobile Roads Act and appropriate Government decrees, transfer to MOTC (i) by 1 January 1999 the responsibilities for developing road design and construction standards—from the Ministry of Architecture and Construction; and (ii) by 1 July 1999 the functions relating to technical road surveys and inspection, traffic management facilities, and road safety—from the VID in the Ministry of Internal Affairs.

(ii) Cost Recovery and Road Funding

(a) In line with the provisions of the Road Fund Act, the Government will set, by 1 January 1999, in consultation with the Bank, road user charges, including an excise tax on fuel and an annual road user charge, and will commence collecting revenues from these charges. In the event that the Road Fund is insufficient for the budgeted costs of road maintenance and development, the Government will make available on a timely basis the resources required to cover such costs.

(b) The Government will (i) maintain a separate Road Fund account in line with the provisions of the Road Fund Act (ii) have such account audited annually in accordance with appropriate auditing standards by independent auditors and (iii) furnish such audited accounts to the Bank within nine months from the end of fiscal year.

(iii) Road Maintenance and Safety

(a) By 1 July 2000, with assistance from the Project implementation consultants, the Government will prepare and commence implementing the road maintenance system for the Bishkek-Osh road, including (i) preparing repair and maintenance standards, (ii) preparing specifications for data collection and analysis for use in prioritizing maintenance activities, and (iii) strengthening LMUs and training maintenance crews.

(b) By 1 July 2000, MOTC will, with assistance from the Project implementation consultants, invite bids from local contractors to undertake routine road maintenance on selected road sections to facilitate private sector participation in road maintenance.

(c) By 1 January 2000, MOTC will, with assistance from the Project implementation consultants, establish the equipment pool so that road maintenance equipment may be hired out by private road maintenance companies to undertake maintenance works.

(d) By 1 January 2000, with assistance from the Project implementation consultants, MOTC will prepare in consultation with the Bank a time-bound road safety program with a view to reducing the high accident rate.

(iv) Environment and Gender

(a) The Government will ensure that appropriate environmental protection and safety measures will be included in the design of the Project facilities; and will construct, operate, and maintain the Project facilities in accordance with the IEE, the Bank's *Environmental Assessment Requirements and Environmental Review Procedures,* and *Environmental Guidelines for Selected Infrastructure Projects.*

(b) The Government will ensure that the Bank's Policy on Gender and Development is followed during the implementation of the Project.

VII. RECOMMENDATION

78. I am satisfied that the proposed loan would comply with the Articles of Agreement of the Bank and recommend that the Board approve the loan in various currencies equivalent to Special Drawing Rights 37,608,000 to the Kyrgyz Republic for the Second Road Rehabilitation Project, with a service charge at the rate of 1 percent per annum and with an amortization period of 40 years, including a grace period of 10 years, and such other terms and conditions as are substantially in accordance with those set forth in the draft Loan Agreement presented to the Board.

MITSUO SATO
President

13 August 1998

APPENDIXES

PROJECT FRAMEWORK

Design Summary	Project Targets (Variable Indicators)	Monitoring Mechanisms	Risks/Assumptions
Goal			
To facilitate development of the market-oriented economy in the Kyrgyz Republic by improving efficiency and safety of road transport	Transport services enhanced, and efficiency and safety of traffic movement improved; local economy developed	Project Completion Report and postevaluation of the Project	Government initiatives in facilitating policy reforms to encourage private participation in road sector and road services in a market economy
Purpose			
1. More efficient movement of freight and passenger traffic	1. Physical conditions of the Project road sections improved in accordance with technical design and implementation schedule	1. Progress reports on project implementation and construction supervision, and PCR	1. Diligent construction supervision and support of the executing agency for contract management
2. Reduced transport costs	2. Vehicle operating cost (VOC) for passenger cars on the Project road section reduced from $173 to $140 per 1,000 vehicle-km upon completion of the Project	2. The Ministry of Transport and Communications' (MOTC) statistics on VOCs and monitoring on traffic counts; benefit monitoring and evaluation report by Project Implementation consultants	2. Quality of surveys to be conducted and quality of statistics
3. Improved road safety	3. (i) Number of accidents reduced; and (ii) reduction of loss from injuries and damages caused by traffic accidents	3. Road safety statistics collected by MOTC. Surveys on road safety and traffic management using indexes developed under the Institutional Strengthening TA	3. MOTC's efforts in collecting road safety data and information, and maintaining the statistics
4. Enhanced financing of road maintenance	4. Action plans for implementation of Road Fund Act and Automobile Roads Act prepared; Road Fund to be effective in 1999. About Som400 million expected to be collected under the Road Fund in 1999	4. Project review missions and Government budget allocation from the Road Fund; audit report of Road Fund Account	4. Government initiatives to improve its institutional performance and upgrade its administrative/policy management
Project Components/Outputs			
1. 208 km of road rehabilitated	1. Realization of Project design and compliance with all technical specifications	1. Review of bidding documents and performance of procurement; reports from consultants for construction supervision; Bank review missions	1. Demonstrated preparation and implementation capacity of the executing agency
2. Improved financial sources available for road maintenance and development programs	2. Road Fund expected to be implemented in 1999	2. Bank review missions and progress reports on Project implementation	
3. New decrees issued by the Government after enactment of Road Fund Act	3. An action plan prepared for implementation of the Act	3. MOTC's performance in project implementation, road maintenance plans, and schedule of activities	
4. Issuance and implementation of the new Automobile Roads Act	4. Transfer of responsibilities to MOTC from (i) the Ministry of Architecture and Construction for developing road design and construction standards; and (ii) the Ministry of Internal Affairs for the technical road surveys and inspection, traffic management, and road safety	4. Organizational structure changes in MOTC to take on the new responsibilities	

Design Summary	Project Targets (Variable Indicators)	Monitoring Mechanisms	Risks/Assumptions
5. Strengthening of capability of financial management and project accounting	5. Revised accounting standards for the Project implementing units and improved financial statements	5. Review of audited financial statements of the Project submitted by the executing agency	
Activities			
(i) Providing timely the loan funds and counterpart funds for project implementation	(i) Sufficient fund allocation from Government budget and Road Fund	(i) Progress reports on project implementation and MOTC's budget plans	(i) No major risks foreseen
(ii) Recruiting timely consultants for construction supervision	(ii) Consultants recruited by November 1998	(ii) Contracts signed between MOTC and the consultants	
(iii) Carrying out survey and design	(iii) Survey and design completed by March 1998	(iii) Final report of survey and design	
(iv) Tendering for civil work contracts and awarding the contracts	(iv) Civil works contracts awarded by December 1998	(iv) Contracts signed for the captioned works	
(v) Project implementation and completion of Project	(v) Rehabilitation completed by October 2001; PCR scheduled for October 2002	(v) Project completion report and review mission	
(vi) Enactment of Road Fund Act and Automobile Road Act by President of the Kyrgyz Republic	(vi) Two acts enacted in June 1998	(vi) Review Mission to the Kyrgyz Republic to conduct policy dialogue at a higher level with the Government for implementation of these two acts	
(vii) Staff training for the Project Implementation Unit and MOTC on project management and financial management	(vii) Staff training scheduled during the course of Project implementation by consultants recruited under the loan	(vii) Progress reports of Project implementation and review missions; performance of Project Implementation Unit and MOTC on Project implementation; consultants' training reports	
Inputs/Resources			Availability of counterpart funds

Project costs ($ million), including tax:

1. Rehabilitation	
Civil works	86.8
2. Consulting Services	
Construction supervision	
Maintenance Assistance and Benefit Monitoring and Evaluation	4.8
3. Contingencies	16.2
4. Service Charge during Construction	2.0
Total	**109.8**

Appendix 2

PAST TRANSPORT DEMAND

A. Freight Traffic

Transport Mode	1990	1991	1992	1993	1994	1995	1996	1997
1. Total in million tons	338.7	366.1	237.7	71.1	42.0	28.1	28.6	35.9
Road	330.0	359.0	231.9	67.7	39.9	27.2	27.3	34.4
Railway	8.0	6.5	5.5	3.3	2.0	0.9	1.3	1.5
Waterway	0.7	0.6	0.3	0.1	0.1	0.0	0.0	0.0
Civil Aviation [a]	-	-	-	-	-	-	-	-
Road (percent)	97.4	98.1	97.5	95.2	95.1	96.7	95.4	95.8
Railway (percent)	2.4	1.8	2.3	4.6	4.8	3.2	4.5	4.2
Waterway (percent)	0.2	0.2	0.1	0.2	0.1	0.1	0.1	-
Civil Aviation (percent) [a]	-	-	-	-	-	-	-	-
2. Total in million ton-kilometers	8,737	8,813	5,632	2,263	1,435	1,212	1,454	1,824
Road	5,631	5,936	3,759	1,271	787	709	865	1,253
Railway	2,620	2,415	1,589	923	575	403	481	472
Waterway	114	98	61	23	9	6	6	2
Civil Aviation	372	364	223	46	64	94	102	97
Road (percent)	64.5	67.4	66.7	56.2	55.9	58.4	59.5	68.7
Railway (percent)	30.0	27.4	28.2	40.8	44.0	33.3	33.1	25.9
Waterway (percent)	1.3	1.1	1.1	1.0	0.6	0.5	0.4	0.1
Civil Aviation (percent)	4.3	4.1	4.0	2.0	4.5	7.8	7.0	5.3

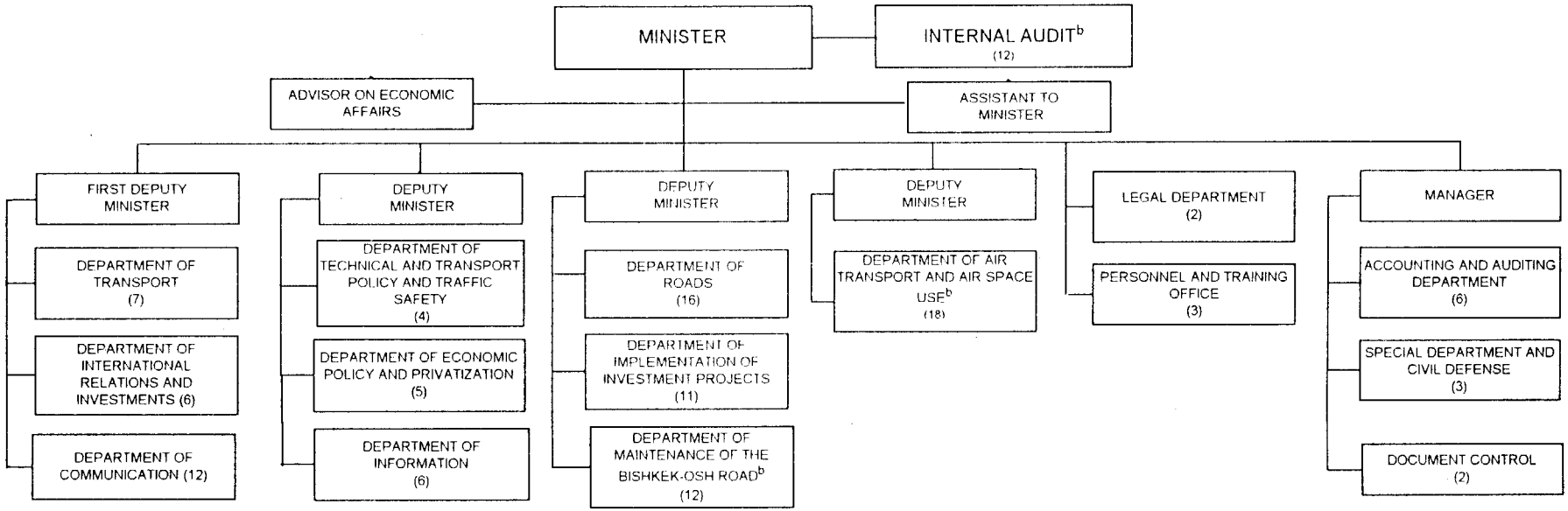
[a] Freight traffic for civil aviation in million tons is negligible.

B. Passenger Traffic

Transport Mode	1990	1991	1992	1993	1994	1995	1996	1997
1. Total in million passengers	656.6	609.7	445.0	273.9	269.7	213.6	257.2	308.1
Road	653.4	606.6	442.3	271.3	267.1	212.3	255.6	306.6
Railway	1.4	1.4	1.7	2.3	2.2	0.8	1.0	1.0
Civil Aviation	1.8	1.7	1.0	0.3	0.4	0.5	0.6	0.5
Road (percent)	99.5	99.5	99.4	99.1	99.0	99.4	99.4	99.5
Railway (percent)	0.2	0.2	0.4	0.8	0.8	0.4	0.4	0.3
Civil Aviation (percent)	0.3	0.3	0.2	0.1	0.1	0.2	0.2	0.2
2. Total in million passenger-kilometers	9,524	9,495	6,576	2,935	2,849	3,279	3,633	3,807
Road	5,501	5,530	3,835	2,182	2,051	2,336	2,675	3,029
Railway	205	200	231	295	192	87	90	93
Civil Aviation	3,818	3,765	2,510	458	606	856	868	685
Road (percent)	57.8	58.2	58.3	74.3	72.0	71.2	73.6	79.6
Railway (percent)	2.2	2.1	3.5	10.1	6.7	2.7	2.5	2.4
Civil Aviation (percent)	40.1	39.7	38.2	15.6	21.3	26.1	23.9	18.0

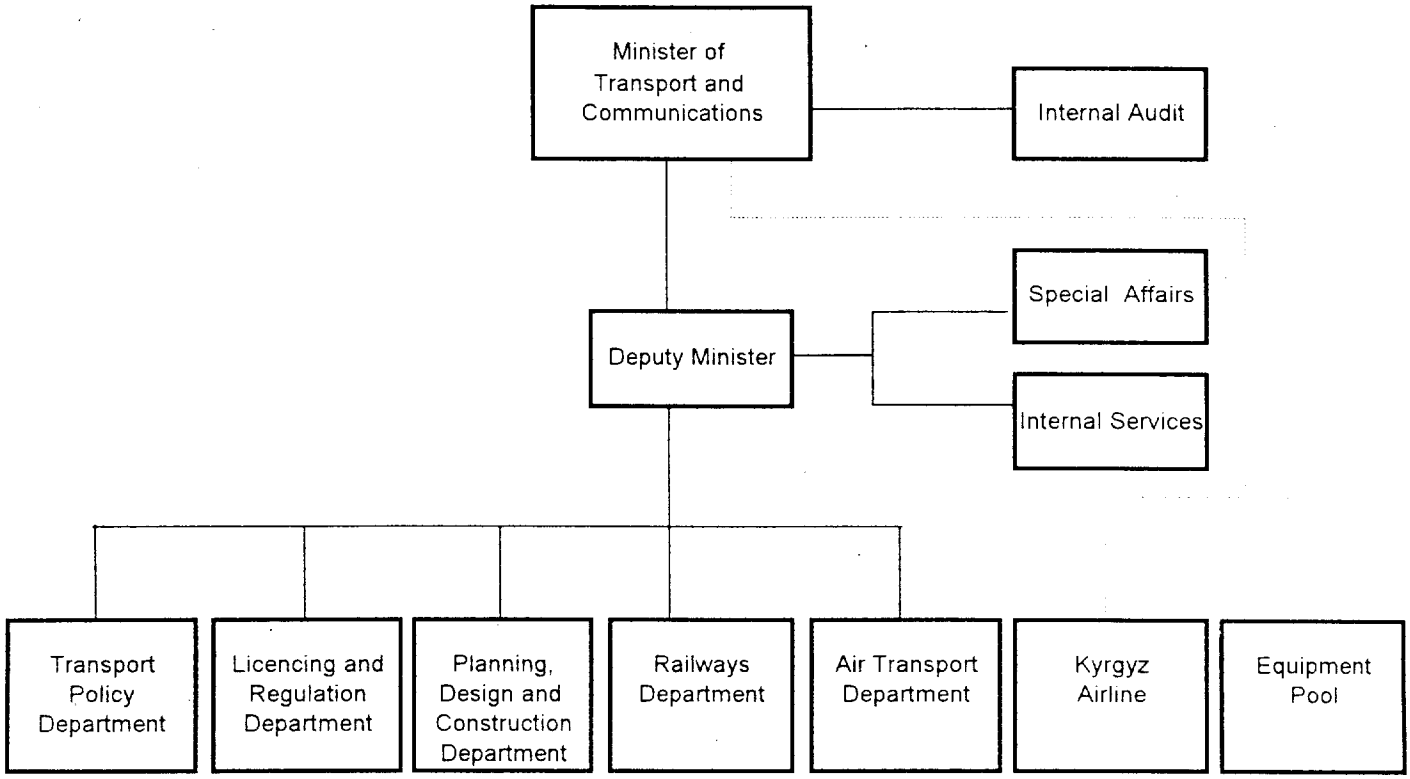
Source: TA No. 2760-KGZ: *Second Road Rehabilitation Project.*

CURRENT ORGANIZATION STRUCTURE OF THE MINISTRY OF TRANSPORT AND COMMUNICATIONS[a]



[a]Current organization is in accordance with Decree No. 419 of 4 July 1998. Staff numbers are shown in parenthesis.
[b] These departments are budgeted from sources other than MOTC.

PROPOSED ORGANIZATION STRUCTURE OF THE MINISTRY OF TRANSPORT AND COMMUNICATIONS



TRAFFIC FORECAST FOR THE PROJECT

1. During the feasibility study for the Project, two types of traffic surveys were carried out for purposes of traffic analysis, pavement design, and economic evaluation. First, manual counts were undertaken for 24 hours in July 1997 at six locations along the Project road (km 46, km 80, km 144, km 266, km 365, and km 396) that classified traffic into the following nine vehicle categories: car, pickup, small bus, large bus, light truck, 2-axle truck, 3-axle truck, tractor-trailer, and tractor semitrailer. These counts provided base data for the calculation of the base year traffic volume. Second, origin-destination surveys were undertaken at two locations—km 46 and km 396—to obtain general information about cargo and passenger movement including vehicle type, vehicle occupancy, cargo type, and type of fuel.

2. Based on the results of the traffic surveys as described above, a two-stage process was adopted to identify the opening-year traffic flows. First, the existing traffic movements were identified, and then the trip distribution model was calibrated taking into account the population, employment, and car ownership data collected in the zone of influence of the Project. Transnational traffic was also identified considering the external zones to represent the countries adjacent to the Kyrgyz Republic. Generated traffic was added to the normal traffic and was further refined to take account of likely changes in the size and composition of the vehicle fleet over the 20-year period of evaluation. Traffic growth rates were based primarily on expected gross domestic product growth, growth rate of population, and future economic activities in the Project area. The traffic forecast methodology and results of traffic projections were reviewed and refined by the Second Road Rehabilitation TA, and it was concluded that the traffic forecasts are reasonable and consistent with those of other projections made for the Kyrgyz economy.

3. Traffic projections for the Project are shown in the table. Depending on the road segment, total traffic was estimated at 954-1,302 average annual daily traffic (AADT) in 1997, and is forecast to increase at about 6.0 percent per annum to reach about 1,197-1,701 AADT in 2001. The traffic will then grow more slowly at about 5.5 percent per annum to reach 3,461-5,005 AADT in 2021.

TRAFFIC FORECAST FOR THE PROJECT
(Average Annual Daily Traffic)

Road Section	Cars	Pick-ups	Small Buses	Large Buses	Light Trucks	2-Axle Trucks	3-Axle Trucks	Tractor Trailer	Tractor Semi-Trailer	Total
km81-km144 [a]										
1997 [c]	401	41	11	0	31	40	332	30	68	954
2001	502	51	14	0	39	50	417	38	86	1197
2011	826	85	25	0	68	87	727	66	149	2033
2021	1358	139	44	0	120	151	1272	116	261	3461
km144-km161 [a]										
1997 [c]	456	46	15	0	41	52	440	41	94	1185
2001	572	58	19	0	51	65	554	51	118	1488
2011	941	95	34	0	90	114	943	90	207	2514
2021	1547	157	60	0	158	202	1714	158	365	4361
km248-km266 [b]										
1997 [c]	512	59	17	0	21	59	479	103	100	1350
2001	643	74	23	0	27	74	604	130	126	1701
2011	1058	123	40	0	47	131	1064	229	223	2915
2021	1740	202	71	0	83	231	1880	405	393	5005
km266-km325 [b]										
1997 [c]	438	51	17	0	19	53	434	93	91	1196
2001	552	64	22	0	24	67	547	118	114	1508
2011	908	105	40	0	43	118	961	207	201	2583
2021	1492	173	71	0	75	208	1695	365	355	4434
km361-km386 [b]										
1997 [c]	461	28	17	0	11	32	560	25	62	1196
2001	580	35	22	0	14	40	706	32	79	1508
2011	955	58	40	0	24	70	1240	56	138	2581
2021	1569	95	71	0	43	124	2189	99	244	4434
km386-km412 [b]										
1997 [c]	461	55	13	9	17	77	550	37	83	1302
2001	578	69	17	12	21	97	695	46	105	1640
2011	951	114	31	21	38	171	1224	81	186	2817
2021	1563	187	55	37	67	303	2164	144	328	4848

[a] Road Sections Proposed for Bank Financing.

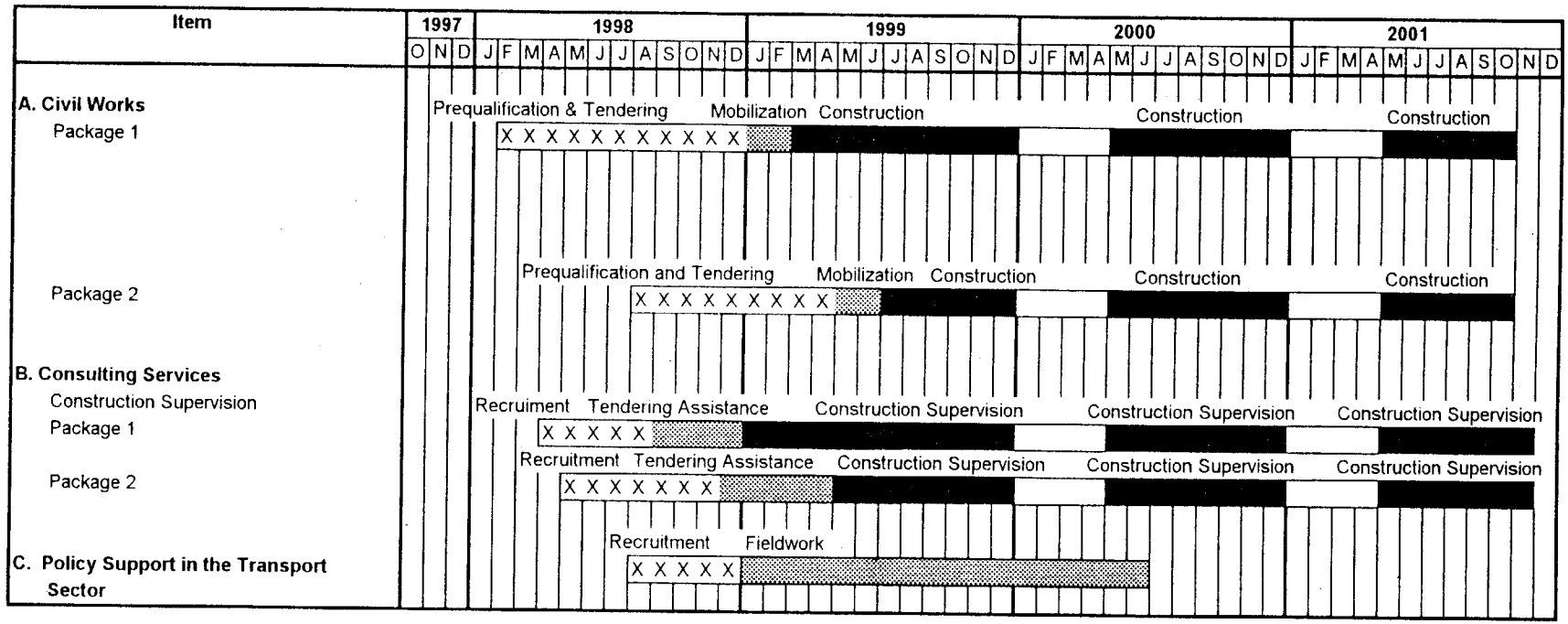
[b] Road Sections Proposed for Cofinancing.

[c] Actual Traffic.

COST ESTIMATES AND FINANCING PLAN
($ million)

Item	Foreign Exchange	Local Currency	Total Cost
I. Bank Financing			
Part A: Civil Works			
(i) Road Rehabilitaton for Package 1 (km 81- km 161) (80 km)	15.4	5.6	21.0
(ii) Tunnel	12.6	4.2	16.8
Part B: Consulting Services			
(i) Construction Supervision for Package 1 (including survey and design equipment)	1.3	0.3	1.6
(ii) Road Maintenance and safety	0.6	0.2	0.8
(iii) Benefit Monitoring and Evaluation	0.2	0.1	0.3
Part C: Contingencies			
1. Physical	3.6	1.4	5.0
2. Price	2.3	1.2	3.5
Part D: Service Charge During Construction	1.0	-	1.0
Subtotal I	**37.0**	**13.0**	**50.0**
II. Cofinancing			
Part A: Civil Works			
(i) Road Rehabilitaton for Package 2 (km 248 - km 325) (77 km)	15.3	2.7	18.0
(ii) Road Rehabilitaton for Package 2 (km 361- km 412) (51 km)	12.2	2.1	14.3
Part B: Consulting Services			
Construction Supervision for Package 2	1.8	0.3	2.1
Part C: Contingencies			
1. Physical	2.9	0.5	3.4
2. Price	1.7	0.3	2.0
Part D: Interest and Other Charges During Construction	1.0	-	1.0
Subtotal II	**34.9**	**5.9**	**40.8**
III. Government			
Part A: Civil Works			
(i) Road Rehabilitaton (km 81- km 161) (80 km)	-	4.4	4.4
(ii) Tunnel	-	3.9	3.9
(iii) Road Rehabilitaton (km 248 - km 325) (77 km)	-	5.3	5.3
(iv) Road Rehabilitaton (km 361- km 412) (51 km)	-	3.1	3.1
Part B: Consulting Services			
(i) Construction Supervision	-	-	-
(ii) Road Maintenance	-	-	-
(iii) Benefit Monitoring and Evaluation	-	-	-
Part C: Contingencies			
1. Physical	-	1.2	1.2
2. Price	-	1.1	1.1
Part D: Service Charge During Construction	-	-	-
Subtotal III	**-**	**19.0**	**19.0**
TOTAL	**71.9**	**37.9**	**109.8**

IMPLEMENTATION SCHEDULE



CONTRACT PACKAGES

Contract and Description	Contracts (no.)	Estimated Contract Value ($ million)	Procurement Method [a]
A. Civil Works			
1. Package 1 for Rehabilitation of about 80 km of Road and Tunnel (2.5 km)	1	46.1	ICB
2. Package 2 for Rehabilitation of about 128 km of Road	1	40.7	ICB/CF
B. Consulting Services			
1. Consulting Services for Construction Supervision for Package 1, Road Maintenance Safety, and Benefit Monitoring and Evaluation	1	2.7	ICR
2. Consulting Services for Construction Supervision for Package 2	1	2.1	LCR/CF

[a] CF = cofinanced,
ICB = international competitive bidding,
ICR = international competitive recruitment,
LCR = limited competitive recruitment.

OUTLINE TERMS OF REFERENCE FOR CONSULTING SERVICES FOR PROJECT IMPLEMENTATION

1. The consulting services will comprise three parts:

Part I	:	Construction Supervision (for tunnel rehabilitation and rehabilitation of the road sections from km 81 to km 161)
Part II	:	Road Maintenance Assistance and Road Safety
Part III	:	Benefit Monitoring and Evaluation of the Bank-financed roads

A. Construction Supervision

1. Objectives

2. The main objective of Part I of the consulting services is to ensure that the proposed rehabilitation under the Project is undertaken in an economical and efficient manner, consistent with widely accepted engineering standards and practices for such works, and to the satisfaction of the Government and the Bank. In providing the services, the consultants should use, to the extent possible, locally available expertise. Also, they should make a special effort to ensure that on-the-job training and transfer of engineering and project management expertise are provided by the internationally recruited consultants to the Ministry of Transport and Communication (MOTC) and local Design Institute and supervision companies.

2. Scope of the Services

3. The consulting services will be required for carrying out construction supervision of the rehabilitation component of the Project, and tendering. The tendering will be carried out in such a way that the implementation of the civil works could start in 1999 to enable completion by the end of 2001. At all stages, the consultants will ensure compliance with relevant international engineering standards wherever practicable.

a. Tendering and Procurement

i. Assist MOTC in the Invitation and Evaluation of Contractors' Proposals

4. Assist MOTC in the following matters relating to bidding and evaluation of bids for rehabilitation of the Project road by (i) issuing tender documents to prequalified bidders; (ii) providing on-site assistance to prequalified contractors in identifying sources of local materials and labor and in understanding the Project's objectives, designs, and specifications; (iii) organizing prebid conferences for prequalified and invited bidders; (iv) providing interpretation of plans, specifications, and contract conditions; (v) evaluating bids in accordance with the Bank's *Handbook on Bid Evaluation*, and preparing evaluation reports; and (vi) preparing documents necessary to finalize the contracts with the successful bidders and providing advisory assistance to MOTC in (a) completing the signing of contracts and

issuing orders to proceed, and (b) procuring equipment according to procedures agreed upon between the Bank and the Government.

ii. Design and Mobilization Review

5. Conduct the following prior to the commencement of construction: (i) review and approval of selected contractor's designs, working drawings, and specifications during mobilization and the commencement of construction; and (ii) review and approval of the contractor's plans for mobilization and establishment of contracting operations. The international consultants will also assist the Government in procuring the survey and design equipment for the Design Institute following the Bank's international shopping procedures and undertake training of Design Institute staff in using the survey equipment, particularly the global positioning system and theodolite. The consultants will ensure that the Design Institute is capable of using the survey equipment independently.

b. Supervision of Construction

6. For the road and tunnel rehabilitation component, carry out all duties ascribed to "The Engineer" in the "International Conditions of Contract" issued by the International Federation of Consulting Engineers. The consultants' tasks will include, but not necessarily be limited to

(i) organizing and supervising preconstruction conferences;
(ii) monitoring the progress of mobilization of resources required to undertake the works by the contractors;
(iii) checking and inspecting, for MOTC's approval, all working drawings and as-built drawings prepared by the contractor;
(iv) reviewing the contractors' quality control program;
(v) inspecting and testing all materials and works to ensure that they comply with the specifications, and giving immediate notice to the contractors in the event that such materials and works do not comply with specifications;
(vi) preparing recommendations to MOTC on acceptance or rejection of any part or parts of the completed works;
(vii) advising MOTC on changes in plans or specifications that may prove necessary or desirable during construction, together with preparing the necessary revised plans or specifications for any changes that MOTC and the Bank may approve;
(viii) measuring the quantities of approved and accepted works and materials, and checking and certifying contractors' monthly invoices;
(ix) periodically checking the remaining quantities and undertaking constant monitoring of Project costs;
(x) examining and making recommendations to MOTC and the Bank on claims arising from the contractors for extensions of time, payments for extra work, and other matters as may arise from time to time;
(xi) negotiating with the contractors and recommending to MOTC the rates for any unscheduled items of work that may arise;
(xii) ensuring that appropriate environmental monitoring and mitigation measures are undertaken as included in the detailed design;

(xiii) preparing monthly reports to MOTC and the Bank;
(xiv) upon completion of construction, carrying out an inspection of the works and facilities and certifying to MOTC the date of the commencement of the 12-month maintenance periods; and
(xv) preparing a Project completion report.

B. Road Maintenance and Road Safety

1. Road Maintenance

a. Objectives

7. The main objectives of these consulting services are to

(i) prepare, repair and maintenance standards for sealed roads, and train the maintenance crew in their applications through both classroom and on-the-job training;
(ii) prepare specifications for collection of basic data for use in prioritizing maintenance activities, and train the maintenance crew in use of the data;
(iii) assist MOTC in establishing local maintenance units with an appropriate computer-aided system for basic accounting operations, resource management, and maintenance operations, and train the counterpart staff to enable them to perform the future maintenance operations; and
(iv) train local contractors to undertake routine maintenance, and develop guidelines and model contract documents to administer private sector participation in road maintenance.

b. Scope of the Services

i. Routine Maintenance Standards and System

8. **Maintenance Standards for Sealed Roads.** The consultants will prepare specifications and performance measures in the Kyrgyz Republic for the following operations:

(i) maintenance of drainage channels;
(ii) maintenance of unsealed shoulders;
(iii) maintenance of waterways at culverts;
(iv) construction of cutoff drains ("French drains");
(v) preparation of base and construction of road structure and sealed surface rehabilitation for
  (a) potholes (of maximum horizontal dimension less than 600 millimeters), using hot bitumen and graded aggregate; and
  (b) wider areas of failure, including short lengths extending essentially over the width of the road; and
(vi) winter maintenance including snow clearance.

9. **Basic Data for Use in Prioritizing Maintenance Activities**. The consultants will

(i) establish a reference system for locating defects on any sealed road; and
(ii) define measurements of defects for at least the following components:
  (a) shoulders (in particular, too high and not sloping away from the carriageway);
  (b) side drainage channels (inadequacy of invert level and location relative to edge of seal);
  (c) other drainage channels (availability of adequate means of discharging water from side drainage channels, e.g., flumes, or sumps and culverts to pass flow to the low side of the road);
  (d) potholes;
  (e) failed structures (block cracked asphalt; heaving of surface);
  (f) breaks at edges of asphalt (particularly at narrow lanes and intersections);
  (g) subsidence at culverts or bridge abutments; and
  (h) prioritization of maintenance tasks.

10. **Maintenance System for Local Maintenance Units.** The consultants will

(i) prepare a preliminary estimate of budget requirements for maintenance of sealed roads, and prepare instructions in Russian for assembling basic cost information from road maintenance depots (labor, materials, equipment, electricity, heating, property, etc.) and for specific maintenance operations;
(ii) establish a spreadsheet for recording unit costs, and develop costs of operations (including overhead), suitable for budgeting purposes; and
(iii) establish a spreadsheet to enable monthly performance measurement of depots against the program, and expenditure to be compared against the budget.

11. **Field Implementation.** The consultants will implement a routine road maintenance system on the selected sections of the road comprising about six depots for which the equipment will be hired from the Equipment Pool. Particular attention will given to (i) inspecting the implementation of specification requirements; (ii) encouraging the development of interaction between laboratory and field personnel, and in general unifying theory and practice; and (iii) providing any necessary support and direction. The consultants will prepare additional course/support materials and other instructions in the Russian language concerning the application of documents produced by them and will instruct the road maintenance personnel in the depots using classroom methods as well as in the field. The training materials should also include, in Russian, the code of environmental practice for road works.

12. Local Maintenance Units of MOTC currently own about 1,500 pieces of road maintenance equipment. About 80 additional pieces of equipment are being procured under Loan No. 1444-KGZ(SF). To put the equipment fleet into more effective and efficient use and to facilitate the development of private road maintenance capabilities, it is proposed to create a State-owned autonomous entity, the Equipment Pool, from which the equipment will be hired by private contractors for undertaking road maintenance activities. To establish the equipment

hire system, the consultants will, after reviewing the existing equipment fleet[1] and after determining the appropriate size and organization of the Equipment Pool, assist in developing a system of equipment hire, including proper accounting procedures, and in maintaining the Equipment Pool. The equipment hire system will incorporate appropriate provisions for depreciation and operation and maintenance expenses. The consultants will also help establish workshop routines for the servicing and repair of equipment for effective preventive maintenance and will provide guidance and on-the-job training to equipment operators, workshop mechanics, and supervisors in the proper use, operation, and maintenance of equipment. The Government will provide the land, office space, and a workshop building, which will be accounted for in the equipment operation. The results of this study should be available in July 1999, and the Equipment Pool should be operational by January 2000.

ii. Private Sector Participation.

13. Currently there is no private sector capability to undertake road maintenance and the local maintenance units of the Department of Roads (DOR) are being strengthened through provision of maintenance equipment and training under the ongoing project. However, under the proposed Project, a major component will be to develop such private sector road maintenance capabilities for which the consultants will

(i) develop a management system in DOR or its successor to support the award of contracts to the private sector on a competitive bidding basis,
(ii) assist in training of local contractors to undertake routine maintenance, and
(iii) develop guidelines and model contract documents to administer private sector participation in road maintenance.

14. In 2000, following completion of the ongoing project and when routine maintenance will be required on the newly rehabilitated road sections or any other roads, bids will be invited from local contractors by DOR to undertake road maintenance on selected links or selected areas. The consultants, after completing the tasks under para. 13 above, will assist DOR in

(i) the bidding process, and
(ii) award of contracts and the administration of local contractors for full implementation of a private sector-focused approach to road maintenance.

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[1] Some information in this regard is available in the August 1997 report prepared under TA No. 2587-KGZ: *Institutional Strengthening of the Road Sector,* for $600,000, approved on 13 June 1996.

2. Road Safety

a. Objectives

15. The main objectives of these consulting services are to

(i) increase understanding of the underlying factors influencing the road safety problems in Kyrgyz Republic;
(ii) develop strategies, initiatives, and training courses; and
(iii) identify actions to strengthen the capacity of MOTC to tackle the growing road safety problems in the Kyrgyz Republic, including carrying out safety audits.

b. Scope of the Services

16. The scope will include

(i) undertaking a statistical analysis of road accident records in the Kyrgyz Republic and pinpointing the characteristics and underlying factors of road safety problems in the country;
(ii) developing potential solutions to road safety problems that will include road safety strategies and both short-term and longer term initiatives and training of staff covering accident investigation, problem diagnosis, traffic engineering, and design of low-cost accident counter measures;
(iii) ranking both the short-term and longer term measures in the order of priority, identifying the resources required to implement them, and identifying the institutional capacity and changes (e.g., enforcement procedures, legislation, safety audit) required to support the time-bound road safety program;
(iv) identifying from the statistical analysis, accident "black spots" and recommending and implementing on selected spots road improvements to enhance road safety; and preparing general guidelines in the form of a code of practice and road safety design standards; and
(v) undertaking driver training and a public awareness program on road safety.

C. Monitoring and Evaluation

17. The objectives of these consulting services are to measure the performance of road improvements and the impacts of these improvements on the area served, and to establish a system to carry out benefit monitoring and evaluation (BME), including social impact monitoring (SIM), of sections of the road rehabilitated under the first Road Rehabilitation Project and under the proposed Project.

18. The scope of the consulting services will include

(i) preparing a detailed program and appropriate formats for data collection and analysis necessary for monitoring and evaluating the socioeconomic impact of the Project in the influence areas;

(ii) compiling and analyzing the traffic and socioeconomic data from the surveys conducted, such as the initial baseline survey, completion survey, and full development survey; and updating the previous surveys conducted;

(iii) establishing an interactive computerized system for BME and SIM of road projects, including freight and passenger charges for all traffic;

(iv) monitoring the continued appropriateness of BME and SIM methodology;

(v) conducting on-the-job training of the counterpart staff in BME and SIM; and

(vi) submitting to the Bank and MOTC a report of their findings and on the operation of the system established.

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SUMMARY INITIAL ENVIRONMENTAL EXAMINATION

A. Introduction

1. This summary initial environmental examination (SIEE) concerns the proposed Second Road Rehabilitation Project in the Kyrgyz Republic. The initial environmental examination (IEE) was prepared under the Second Road Rehabilitation TA[1] in accordance with the Bank's requirements and format. This SIEE presents the data, findings, and recommendations of the IEE.

2. The IEE was prepared in three steps. First, existing baseline data and reports on relevant previous projects were collected and analyzed. In addition, discussions were held with local experts from the Ministry of Environment and from the Road Design Institute. Also, the data collected for the Project (e.g., geological, social, and economic baseline data) were reviewed. Second, an extensive field trip was made to examine the present condition of the road environment. The third step involved assessing the possible environmental impacts; planning mitigation measures for each step of planning, design, construction, and operation of the road; and preparing monitoring programs.

B. Description of the Project

3. Since road rehabilitation involves mainly working on the existing alignment, severe environmental impacts are not usually expected to occur. This is the case for this Project.

4. During rehabilitation, activities usually include minor widening of the road in places, removing some layers of the road structure and replacing them with new materials, straightening some tight curves, and improving drainage structures. This involves the use of quarries, borrow pits, and an asphalt plant as well as labor camps and base camp operations. Although no severe environmental impacts are expected as a result of the road rehabilitation, attention must be paid to good practice during the different phases of project planning, design, and implementation to prevent any possible adverse impact.

5. This Project has features affecting the environment that require particular attention. Various forms of erosion, one of the most critical threats to the physical and natural environment of the country, constitute a challenge for planning and design and for maintenance during the operation stage. Apart from erosion, other possible adverse impacts and risks related to the implementation of construction works can be avoided through careful consideration, good planning and control of works, and open cooperation among all parties involved.

6. The road from Bishkek to Osh is approximately 620 kilometers (km) long. It passes through varied terrain, valleys, gorges, and high rocky mountains, and impacts on several rivers and creeks. There are five tunnels along the way from Bishkek to Osh, one being the Tyu Ashu Tunnel at km 130 with a length of 2,562 meters (m), located at an elevation of 3,115-3,185 m.

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[1] TA No. 2760-KGZ: *Second Road Rehabilitation Project*, for $600,000 approved on 11 February 1997.

7. The road is divided into several sections and subsections mainly on a technical basis depending on the type of rehabilitation needed for the section. On sections comprising Phase 1, rehabilitation works are being carried out or are about to be contracted. These sections are at km 161-248, km 325-361, and km 412-426.

C. Description of the Environment

1. Physical Resources

8. The Kyrgyz Republic is a landlocked country located in the center of Central Asia, with borders with the People's Republic of China (PRC) (858 km), Kazakhstan (1,051 km), Tajikistan (870 km), and Uzbekistan (1,099 km). The total area of the country is 198,500 square kilometers (km^2), of which waters count for less than 4 percent (7,200 km^2).

9. High mountains, deep gorges, and fertile valleys characterize the country. The elevation ranges from less than 500 m in the Fergana Valley up to 7,439 m at Pobeda Peak, one of the highest mountains in the world. The biggest lake in the Kyrgyz Republic, Lake Issyk-Kul, located in the northeast at an elevation of 1,600 m, is the second deepest (668 m) mountain lake in the world. With clear blue water and sandy beaches, and surrounded by snow capped mountains, the lake has great potential as a tourist resort. The largest rivers in the Kyrgyz Republic include the Naryn, Chui, and Talas, of which the Naryn is the most important in terms of hydroelectric power.

10. The climate is continental, though quite variable due to the extreme differences in altitude. Along the road from Bishkek to Osh, almost every climatic zone of the country is encountered. From Bishkek through Kara-Balta to Sosnovka, the climatic is boreal (with distinct winter and summer) dry climate of steppe. When rising up towards the Tyu-Ashu Tunnel, the zone changes from rainy boreal to cold tundra type. The same variation continues in the Suusamyr valley and through to the Chychkan River gorge and the Naryn River valley beyond Toktogul Reservoir. When descending to the Fergana valley, the climate zone is classified as moderate warm steppe type with no regular snow.

11. Precipitation varies considerably in the different zones. It is highest in the mountains (more than 1,000 millimeters (mm)/year) and lowest in the valleys (less than 200 mm/year in some cases). It rains mainly during the cold season, which means that on the mountains the major part of the precipitation is snow.

12. The Kyrgyz Republic has many natural resources such as coal, peat, some rare metals (including gold), and uranium. There are many minerals and thermal water springs, some close to the Project road but not close enough to be threatened by the rehabilitation works. Most of these resources, along with medicinal mud, are located in the eastern part of the country, especially around Lake Issyk-Kul.

13. Among the most significant environmental problems in the country is erosion. Water, wind, and pasture erosion can easily be observed all along the road from Bishkek to Osh. This is a major threat not only to the physical and biological environment but also for the people depending on arable land for farming or land fertile enough for grazing. Only 7 percent of the area of the country is covered with arable soil. Pasture areas cover about 50 percent,

but more than one third of this area is available only for summer utilization because of high altitude.

14. Of the total land area suffering from erosion, 63 percent is pasture erosion, 30 percent water erosion, and 7 percent wind erosion. One fifth of the pasture erosion area is classified as severely eroded. The severity of the problem is illustrated by the fact that of all land fertile enough for farming or grazing, 24 percent is regarded as severely eroded.

2. Biological Resources

15. The Kyrgyz forest stock is limited, and the forest area covers about 7 percent of the total area of the country. The main varieties are archa, different sorts of fir, walnut, and pistachio. The most dominant type of forest measured by the area occupied is, due to the high altitude, forest with different sorts of stunted trees. At lower altitudes some low bushes and grass can be found. Valleys are more diverse in species and varieties.

16. Different protected areas account for less than 1 percent (174,700 hectares) of the total area of the country. Reserves are regarded as unique territories or areas of most typical geographic features of the country. The purpose of reserves is to preserve and protect certain species or habitats and to give researchers the opportunity to study the populations in the area. National parks are territories to preserve specific national ecological, historical, and cultural landscapes and nature, and areas are allocated to recreational, educational, scientific, and cultural purposes.

17. Two of these areas are crossed by the road from Bishkek to Osh. The Chychkan Reserve is on both sides of the section presently under construction. The other, the Ryazan-Saiski Botanical Sanctuary, is crossed by the road close to the crossing of the Naryn and Altynalchi rivers. The sanctuary comprises only a strip of 40 m at the spot where the road passes it.

18. Kyrgyz wildlife includes around a hundred mammals and quite voluminous populations of birds, many of which are migratory. It is reported that snow leopards still inhabit the mountains, and there are rare sightings of animals like wolves, foxes, bears, and deer.

3. Socioeconomic Environment

19. The Kyrgyz population is diverse in many respects: It consists of more than 80 ethnic groups, the largest being Kyrgyz, Russian, and Uzbek. The northern and southern parts of the country are more densely populated than the center, and the structure of population in the north and the south differs in relation to level of urbanization, age distribution, and ethnic composition.

20. Within the overall Project area, the north (Bishkek and Chui region) has about 1-1.3 million inhabitants and the south has 1.6-2.0 million. The mountainous and isolated central area has only about 128,000 inhabitants.

21. The Kyrgyz, the major population group, have an ethnic history that traces back over 2,000 years. Kyrgyz culture and tradition reflect from its nomadic roots. The Project road is part of the fabled silk road along which many armies, explorers, and tradesmen have left

their marks on the land and history. Along parts of the road, shepherds and herdsmen live in yurts and move with their sheep, horses, and cows in search of pasture.

22. Housing is privately owned in rural areas. Electricity, television and refrigerators are common, although in many cases these do not work well. There are disruptions in the distribution of electricity and water. Many villages experienced water supply problems after the irrigation system broke down and was not repaired. Running water, sewage and telephones are conveniences restricted to urban dwellers.

23. In all the communities surveyed by the social impact assessment under the Second Road Rehabilitation TA, the average monthly income per person is below $10. In cities there are only tiny minorities who say that there is enough money for all needs. The majority of families spend the vast majority of their money on food.

D. Screening of Potential Environmental Impacts and Mitigation Measures

24. Screening following the checklist of the Bank's *Environmental Guidelines for Selected Infrastructure Projects* was used to determine the depth of environmental study required for the Project. Using criteria such as type, sensitivity of the environment, and magnitude of impacts, a scale was designed to identify potentially significant impacts and mitigation measures to avoid or reduce potential adverse environmental impacts. There are often different alternatives to mitigate certain effects. Therefore, selecting mitigation methods to be used should be a joint process between engineering and environmental experts to select the best available and economically feasible method. Selecting proper mitigation methods is not, however, enough to guarantee a good outcome. Cooperation and supervision are needed to ensure that the method is implemented correctly. Although this Project is regarded as having no significant potential adverse impacts, there are need to avoid or decrease smaller scale impacts that may cause inconvenience, unnecessary loss or damage, or avoidable risks.

1. Environmental Problems due to Project Location

25. The alignment identified in the feasibility study is considered to be environmentally acceptable. There will be no relocation, resettlement, or compensation, and no social issues involved. The Project will have no adverse impacts on vulnerable groups. Such groups will benefit from the improved road made possible by the Project.

2. Environmental Problems Related to Design

26. Many of the environmental problems – adverse environmental impacts—that may be caused by road construction, maintenance, and traffic can be avoided or reduced by good engineering practices if environmental issues are taken into consideration during the design phase. An engineer familiar with environmental engineering in the design team will be in charge of the environmental quality of the design. The measures to be included in the design deal with design standards; traffic safety issues; solutions to prevent erosion; selecting locations for quarries, borrow pits, and rest areas; and traffic management requirements.

3. Environmental Problems Associated with Construction Stage

27. The road sections include three types of terrain, which have different environmental implications:

(i) Level terrain: There are no potential adverse impacts that cannot be avoided or significantly mitigated by good design and engineering practice. Most of the effects concern rehabilitation works within settlement areas, towns, and villages.

(ii) River gorges: There are limited potential adverse impacts, which can be readily mitigated by good design and engineering practices. Particular attention should be paid to the risks of river pollution and erosion.

(iii) Mountainous terrain: There will be few potential adverse impacts if no significant earthworks or rock cutting are carried out on erosion-sensitive locations without carefully planned and implemented aftercare.

28. For contract documents, a list of requirements will be developed dealing with contractor's environmental management, use of heavy equipment, traffic control, cooperation with local authorities, waste management in construction camps, pollution control of plants and workshops, and aftercare of borrow pits to mitigate potential adverse environmental impacts.

4. Environmental Problems During Project Operations

29. During Project operations, emphasis will be put on maintenance of the rehabilitated road, and maintenance facilities and equipment will be developed considering their environmental sustainability.

E. Institutional Requirements and Environmental Monitoring Program

30. The most relevant parties to deal with the environmental issues of the Project are government and local road authorities and local environmental authorities familiar with local conditions. Both road and environmental authorities should cooperate in the area of environmental management of the Project. From the environmental side the most relevant parties would be those responsible for water and forests.

31. Local authorities have close contacts to local people who might be affected by the Project. Cooperation at the local level will decrease possible conflicts concerning detours and relations between local people and construction workers.

32. After the completion of the construction, the formal acceptance of the works should include a full examination of the contractor's compliance with the specifications relating to environmental provisions. This should include verification of the proper clean-up and restoration of all temporary works sites (quarries, camps, etc.) and of the proper landscaping, planting, and draining of all borrow and spoil areas.

33. In the longer term, the road authorities should monitor the effectiveness of the erosion and rockfall protection methods used. This will be a part of their maintenance activities.

A reporting system should be implemented to ensure that information regarding defects in design/construction methods are fed back to the center and to the design organizations.

F. Findings and Recommendations

34. The main finding of this IEE is that there are no significant adverse environmental impacts resulting from the rehabilitation of the Bishkek-Osh road provided that the recommendations set out below are complied with. Accordingly, there is no need to prepare a full environmental impact assessment for this Project.

35. The following recommendations result from the IEE:

(i) The design of the rehabilitated road will not deviate significantly from the established road alignment.

(ii) Designs will make full provision for the incorporation of the various mitigation measures included in para. 26.

(iii) Contract documentation will include appropriate clauses to cover all the environmental protection requirements listed in para. 28.

(iv) Provision will be made for adequate future maintenance of the road through loan covenants.

G. Conclusion

36. The general conclusion of the IEE is that the rehabilitation of the Bishkek-Osh road will not generate significant negative environmental impacts provided that the works are designed and executed following sound engineering practices, and the mitigatory and precautionary measures described in the IEE are implemented.

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SUMMARY SOCIAL IMPACT ASSESSMENT

A. Introduction

1. The proposed Project covers the difficult mountainous area of the Bishkek-Osh road. Special attention has been given to social impacts in this area. Along with analyzing official statistics, key local persons and 400 households were interviewed. The localities visited represent different types of communities, varying from a power station town to a rural administrative center to small roadside villages situated between Sosnovka and Kara Kul (km 80-368). The interview data on 400 households were collected during a field trip from 28 July to 2 August 1997 with the help of the Road Design Institute. The interviews covered 2.8 percent (Toktogul town) and 1.9 percent (Kara Kul) of the town populations, and from 5.9 percent (Susamyr) to 8.2 percent (Kara Djygach) of the rural populations of the localities visited.

B. The Structure of the Population Affected by the Project

2. The national importance of the road was often expressed by the interviewees, who said that it is the sole connection between the southern and the northern parts of the country. The north (Bishkek and Chui region) has about 1.0-1.3 million inhabitants and the south 1.6-2.0 million. The mountainous and isolated center, where the next phase of rehabilitation will take place, has about 128,000 inhabitants. The population structures of the north and the south differ in level of urbanization, age distribution, and ethnic composition.

C. Population and Economy of the Communities Interviewed

3. Sosnovka, in the Chui region, is a rural village with a local administration office. The local economy is based on agriculture and a hat factory. The population structure is northern. About 40 percent of the interviewed households were Russians and 55 percent Kyrgyz. The average family size is 4.0.

4. Susamyr, in the center of Susamyr valley, is located between the two east-west mountain ridges after the Tyu-Ashu Tunnel. The district has a population of 5,300, practically all of whom are Kyrgyz. The average family size is 4.9. The climate on this high plain is continental, with a long winter. The economy is based on agriculture.

5. Toktogul town is the center of Toktogul district. The town itself has about 18,000 inhabitants, and the district has a population of 58,000. Toktogul is a Kyrgyz town; only 3 percent of the population is Russian. The average family size is 5.6. Torkent is a rural administration center, with 4,800 inhabitants. The economy in the area is based on agriculture; earlier there were some food processing plants, which are now all closed. The Torkent State Farm grows wheat, maize, and tobacco and has sheep (1,000), cattle (600 head), and horses. The brick plant and a salt processing plant are now closed. Kara Djygach is a small sovkhoz village of about 2,500 inhabitants, all of whom are Kyrgyz. In both of these Kyrgyz villages, the families are large, averaging 6.0 in Torkent and 6.8 in Kara Djygach.

6. The town of Kara Kul has many features of a northern town. The average family size is 4.1, and the ethnic composition is multinational. Three quarters of the population are Kyrgyz but there is a sizeable Russian minority (17 percent) and several other nationalities. The town has about 23,000 inhabitants. Kara Kal was built during the construction of the Naryn River hydroelectric power station, and power production is still an important part of the local economy. The factory that produced components for the Russian television industry is now closed.

D. Living Conditions

7. Private housing is common in rural areas. Electricity, televisions, and refrigerators are common in all places. However, there are disruptions in the supply of electricity and water. Villages have problems with water supply, and the village of Kara Djygach is without electricity. Running water, sewerage, and telephones are provided to urban dwellers and are less common among rural inhabitants. Basic economic indicators of the representative towns in the Project area are shown in Table 1.

Table 1: Indicators of the Economic Position of Households

Item	Sosnovka	Susamyr	Toktogul	Torkent	Kara Djygach	Kara Kul
Unemployment (percent)	48	68	60	39	83	35
Average monthly income/family (Som)	613	634	548	508	282	1,153
Average monthly income/person (Som)	153	129	87	84	41	284
Average monthly income/family ($)	36	37	32	30	17	68
Average monthly income/person ($)	9	8	5	5	2	17

E. Main Problems of the Communities

8. According to the key-person interviews the main problems in the communities of the Project area are isolation and the lack of employment opportunities. To create jobs, three strategies were offered: (i) rural manufacturing, (ii) hydroelectric dam construction, and (iii) rural tourism. Each of these opportunities requires the rehabilitation of the road as one of the preconditions for successful development. Some of the key persons mentioned poor transport as the key obstacle to local development.

F. Needs for Transport Services and the Road

9. From one quarter to one third of households have some kind of vehicle, excluding tractors. In poorer rural communities the vehicle is often a motorcycle, and in towns it is usually a car. Because public transportation is limited in the Project area, 24-34 percent of families use their own vehicles.

10. In the area affected by the central stretch of road, 71 percent of friends and relatives and 50 percent of partners live in Bishkek. Therefore, many people living in the Project area want convenient, cost-effective transport to and from Bishkek. People also take trips to visit friends, relatives, and partners living in other parts of the Project area, and to the south (e.g., Jalal-Abad and Osh). Business trips to sell produce are usually made to the nearest district center rather than to Bishkek.

11. Three quarters of the 316 problems mentioned by people in connection with travel concern either the lack of transport (neither a private car nor public transport) or the poor condition of the road. One tenth of the problems concern difficulty in obtaining petrol.

G. Expected Beneficiaries

12. All groups of affected persons felt that they will benefit directly or indirectly from the Project. The first ones to benefit would be, according to the key persons, those working on the road or involved in road transport (e.g., truck drivers, road workers), some traders (kommersanti), and car owners.

H. Vulnerable Groups

13. Neither the key-person interviews nor the household interviews identified any group that would be adversely affected by the road rehabilitation. However, the following problem situations could arise:

(i) The faster vehicle speed allowed by the Project road may increase the danger for pedestrians, particularly children, and livestock if safety is not properly considered during Project design. Local farmers, herd owners, and district and village leaders should be consulted about these needs during the design process.

(ii) The owners of roadside service points (petrol pumps, car repair shops, and canteens) may be a vulnerable group in light of the new obligatory health and environmental standards. Local leadership should be consulted about the possible entrepreneurs, and what their requirements would be in order to meet the standards.

I. Relevant Gender Roles

14. In addition to participating in the work force, women undertake the following roles: taking care of the needs of the family, including children and the elderly; shopping for food and necessary goods; and selling food and goods in bazaars and shops. Men tend to drive cars and make transport decisions for the family.

J. Emerging Social Issues and the Risk of Aggravating Them

15. The most difficult local problem is the very high rate of unemployment. About half of the comments made by key persons regarding the issue of employment were about recruiting local labor for rehabilitation of the Project road. There were complaints about the use of foreign workers under the ongoing rehabilitation project.

16. Recommendations with regard to unemployment are as follows:

(i) facilitate the use of a local workforce to the extent possible, consistent with the Bank's *Guidelines for Procurement*;
(ii) Facilitate the use of local products and services; and
(iii) Communicate about the availability of jobs with local leaders and local journalists.

K. Environmentally Related Concerns of the User Groups

17. Concerns of the user groups in respect of environment were as follows:

(i) condition of the road or bypasses during the reconstruction,
(ii) possible long term consequences of careless construction and use of explosives,
(iii) organization of roadside services for truck drivers and travellers to regulate unlicensed car repairs and petrol dealing services, and
(iv) pollution of the pastures near the roadside if the traffic gets heavy.

L. Conclusion

18. The interviews indicated that there are no negative social impacts associated with the Project. However, the following matters should be considered during its planning and design:

(i) inflated expectations of positive impacts,
(ii) Keeping the road open through the winter, and
(iii) needs of local agriculture and of pedestrians.

19. The following will be monitored as part of the benefit monitoring and evaluation activities:

(i) the general local opinion about the ongoing rehabilitation work,
(ii) expectations of the population concerning the impacts of rehabilitation,
(iii) the development of the communities,
(iv) the service structures by the road, and
(v) the relationship of the construction team to the local community.

20. A monitoring team should have responsibility also for communicating with local communities, journalists, and staff of other regional development projects. When necessary, more systematic household interviews can be repeated.

OUTLINE TERMS OF REFERENCE FOR TECHNICAL ASSISTANCE FOR POLICY SUPPORT IN THE TRANSPORT SECTOR

A. Objectives

1. Because the Government will be restructuring the road sector prior to, and during, the implementation of the proposed Second Road Rehabilitation Project, the Government requested technical assistance (TA) to assist in the implementation and formulation of key aspects of the restructuring and strengthening process. The most recent and important initiatives undertaken by the Government are:

(i) merging within the Ministry of Transport and Communications (MOTC) from the Ministry of Internal Affairs and the Ministry of Architecture and Construction the responsibilities with regard to road survey and road safety, and development of road standards, respectively;

(ii) enacting the Automobiles Road Act and Road Fund Act; and

(iii) implementing various policies with regard to the road and road transport sector (as contained in the Transport and Road Sector Policy Statement [TRSPS], which establishes a platform for policy restructuring).

2. The TA consists of two parts. The objective of Part A covers strengthening MOTC, which includes (i) providing advisory assistance for transport policy; and (ii) strengthening the financial management system of MOTC.

3. The objective of Part B is to assist in (i) refining the organization structure and roles of the Department of Roads (DOR) (to be superseded by the Transport Policy Department [TPD] and the Planning, Design, and Construction Department [PDCD]) and establishing initial operational systems, and (ii) capacity building through training of MOTC staff and private road contractors.

4. The TA will play an important role in facilitating the development of focused and accountable MOTC operations after the transfer of road-related activities to MOTC. In providing the services, the consultants will use, to the extent possible, locally available expertise. Also, the consultants will make a special effort to ensure that on-the-job training and transfer of expertise are provided to the staff of MOTC.

B. Scope of Services

5. It is estimated that a total of about 18 person-months of internationally recruited consulting services (not less than 8 person-months for the transport policy advisor) and 10 person-months of domestic consultants will be required.

1. Part A: Strengthening of MOTC

a. Advisory Assistance for Transport Policy

6. The advisory assistance to the transport sector will be provided with the help of the transport policy advisor recruited through an international consulting firm to assist the Minister and senior personnel of MOTC in adopting market-oriented policies and laws and regulations to help in defining the functions of the MOTC. The policy advisor will assist in the following areas:

(i) Define MOTC's role, policy objectives, and relationship with its departments and the transport operators in the transition to a market economy,

(ii) Assist in implementing the provision in the TRSPS,

(iii) Adopt transport regulations that promote equitable competition among transport modes (e.g., between road and rail) and help to develop private transport operators while assisting the Government in promoting safe and environmentally acceptable transport operations,

(iv) Review pricing policies in the transport sector, including the price of transport inputs, and make recommendations on the reduction of price distortions, on cost recovery (including road-user cost recovery), on subsidy policies and strategies, and on transport operators' autonomy in setting transport prices,

(v) Review transportation procurement procedures for strategic commodities (e.g., fuel and harvest) and recommend appropriate market-oriented methods to meet the requirements,

(vi) Assist in the preparation of the three-year national transportation investment plan, with particular attention to providing advice on analytical methods for assessing the potential for complementary operations among transport modes, especially between road- and rail-based transport and between aviation and road network development.

b. Financial Management in MOTC

7. The existing financial management in MOTC is not consistent with a market economy. In the existing environment, actual production does not relate to the amount of money, and accounting is based on the norms and not on actual work done. Planning, budgeting, and costing are all done by reference to manuals that date from to 1984, and jobs are not costed according to the money that has been spent but based on how much the manual says they should cost. There is little understanding of cost efficiency, economy, or value for money. The standard accounting packages from overseas are not appropriate because of different accounting concepts. The objective is for the international consultants to design systems for MOTC on a pilot basis in cooperation with local finance managers. The system should include:

(i) financial accounting for MOTC to enable it to know the financial position of the organization, giving details about how much has been spent in a given period, how much surplus or profit has been made, and historic information;

(ii) management accounting for MOTC that concentrates on data that provide the information that managers need to do their work, including cost accounting and job costing; and

(iii) creating a financial infrastructure for MOTC that will meet the accounting as well as management requirements of the Ministry of Finance and the Bank.

8. The consultants will take particular note of the shift, in terms of both procedures and concepts, that is required for developing and introducing a new financial management system for MOTC, and will design a computerized system that is simple, user-friendly, and relevant for market-oriented operations.

2. Part B: Organizational and Capacity Development

9. Part B of the TA will be undertaken in line with the TRSPS and will consist of two components:

a. Institutional Development and Strengthening

10. The consultants will assist MOTC in:

(i) defining the roles, responsibilities, and functions of TPD and PDCD, and designing and implementing an appropriate organizational structure for them.

(ii) establishing a system in TPD and PDCD to monitor, review, and update their policies, programs, and projects, taking into account their overall responsibilities such as (a) formulating road sector policy, including a privatization policy; (b) programming and budgeting road activities; (c) mobilizing resources and funding of road activities, including management of the Road Fund; (d) maintaining a centralized road inventory; and (e) controlling the cost and quality of works;

(iii) finalizing the reallocation of activities between PDCD and public sector road construction companies to achieve focused and accountable operations by the Government and commercial organizations;

(iv) developing and implementing a simple and relevant management system for PDCD and providing on-the-job training on the objectives and operation of the system;

(v) developing procedures for traffic and other surveys on the main Kyrgyz roads including the Bishkek-Osh road;

(vi) developing simple procedures for feasibility analysis, programming, and budgeting for road links;

(vii) preparing sample prequalification and tender documents for competitive bidding that will be relevant and appropriate to the size and type of works that PDCD is expected to handle, taking into account existing laws and regulations and the development of the local contracting industry; and

(viii) training PDCD staff in prequalification of bidders, tendering, and contract management.

b. Training of Road Construction Units (Joint Stock Companies)

11. In line with the Governments' policy to transform their road operation activities to market-based procedures, the Bank is assisting the Central Asian republics (CARs) in preparing road design and construction standards under TA No. 5733-REG: A Review of Road Design and Construction Standards.[1] These standards will be appropriate for implementing road works following competitive bidding procedures. The privatized construction units and joint stock companies have not been exposed to execution of works following competitive bidding procedures. The existing privatized construction units need training in tendering, planning, and control of work. The consultants will develop appropriate training and seminar materials to train the contractors to enable them to understand competitive bidding procedures, the various contract documents, and contractual terms and conditions; prepare bids including training on costing and simple accounting; and execute work under the supervision of consultants.

12. In addition, the consultants will also explain the significance of the corporate plans and company strategies of a private civil works contracting firm with the help of sample corporate plans and company strategies prepared to illustrate their value.

C. Reporting Requirements

13. For both Part A and Part B, the consultants are required to submit to the Government and the Bank five copies each of the following reports: (i) an inception report that provides a summary of initial findings and an outline of the work program, (ii) an interim report that summarizes the progress on the study and an updated outline for the work program, (iii) a draft final report, and (iv) a final report.

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[1] For $600,000, approved on 3 April 1997.

COST ESTIMATES AND FINANCING PLAN

($)

Item	Foreign Exchange	Local Currency	Total Cost
A. Bank Financing (JSF)			
1. Consultants			
a. Remuneration and Per Diem			
i. International Consultant	410,000	--	410,000
ii Domestic Consultant	--	25,000	25,000
b. International Travel	50,000	--	50,000
c. Reports and Communications	2,000	10,000	12,000
2. Office Equipment [a]	10,000	--	10,000
3. Surveys, Miscellaneous Administration and Support Costs	2,000	9,000	11,000
4. Government Representatives for Contract Negotiations [b]	7,000	--	7,000
5. Contingency	69,000	6,000	75,000
Subtotal (A)	**550,000**	**50,000**	**600,000**
B. Government Financing			
1. Office Accommodation and Support Services	--	100,000	100,000
2. Communications, Office Supply, and Equipment	--	30,000	30,000
3 Others	--	20,000	20,000
Subtotal (B)	**--**	**150,000**	**150,000**
Total	**550,000**	**200,000**	**750,000**

(-- = magnitude zero)

[a] To be procured by the consultants under the contract and its ownership will be transferred to the Government.

[b] Includes the cost of Government observers to attend contract negotations at the Bank's Headquarters.

Source: Staff estimates.

ECONOMIC INTERNAL RATE OF RETURN

A. General

1. Economic analysis of the entire Bishkek-Osh road, except for the road sections that are being rehabilitated under the first phase Road Rehabilitation Project,[1] has been carried out, based on a comparison of the "with" and "without" Project scenarios. The individual road sections are homogeneous in terms of the proposed rehabilitation works and have fairly uniform traffic flows. To calculate the economic internal rate of return (EIRR), benefit streams were estimated for 2001-2020, which covers the economic life of the improved road. The construction costs were spread over the four-year implementation period, 1998-2001. In 1995, a Bank-financed technical assistance (TA)[2] recommended that rehabilitation work for the whole road be implemented in three phases over eight years starting in 1996. The three road sections, totaling 135 kilometers (km) under implementation under Phase I, are the Karakulkul - Kurpsai section (14 km), the Susamyr Jn - Alabel Pass section (87 km), and the Naryn - Kokbel section (34 km). The further three road sections selected for implementation under Phase II are (i) km 81 -km 161 (80 km) including the Tyu Ashu Tunnel (2.5 km), (ii) km 248-km 325 (77 km), and (iii) km 361-km 412 (51 km). These sections were selected because they already suffer from rough and dangerous surfaces and require urgent rehabilitation and improvement works to prevent total deterioration. The economic assessment of the Project was conducted based on the feasibility study prepared under the Second Road Rehabilitation TA.[3]

B. Costs

2. The economic costs of implementing the Project were derived from the financial costs of civil works and consulting services. Price escalation provisions, interest during construction, and taxes and duties were deducted from the financial costs to derive the economic costs. The cost of the tunnel rehabilitation was apportioned to the proposed Project (43 percent) and the third phase (57 percent) in proportion to their length of road sections. To determine the appropriate economic costs, goods and services to be used in Project implementation were divided into tradable and nontradable groups. The financial costs of the nontradables were converted into economic costs by using the standard conversion factor of 0.9. Financial maintenance costs were also adjusted using the same approach to obtain economic costs. During the operation of the Project, the asphalt concrete road surface will be resealed and overlay will take place. All economic costs were estimated in constant 1998 prices.

C. Benefits

3. The main sources of economic benefits from the Project include savings in (i) vehicle operating costs (VOCs), (ii) time costs for passenger traffic; and (iii) maintenance costs. In estimating benefits, the financial benefits were adjusted to economic benefits by

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1 Loan No. 1444-KGZ(SF): *Road Rehabilitation Project*, for $50 million, approved on 13 June 1996.
2 TA No. 2256-KGZ: *Road Rehabilitation Project*, for $600,000, approved on 21 December 1994.
3 TA No. 2760-KGZ: *Second Road Rehabilitation Project*, for $600,000, approved on 11 February 1997.

applying the same approach as in the estimation of economic costs. Among the expected benefits, those from VOC savings for both normal and generated traffic account for about 95 percent of the gross benefits. Unit economic VOCs for passenger and freight vehicles under the "with Project" and "without Project" scenarios were estimated by using the VOC submodel of the Highway Design and Maintenance Standards Model version III. VOC savings will accrue primarily from improvements in road surface, horizontal and vertical alignment, and average vehicle speeds. Based on the traffic projections and improved road conditions, VOC savings by vehicle type, in US dollars per 1,000 vehicle-km, were estimated as shown in Table 1. As a result of reduction in VOC, about 10-20 percent of existing traffic will be generated. VOC savings were attributed as a benefit to this traffic at 50 percent of unit VOC savings. Savings in VOC and time costs for transnational transit traffic, which accounts for about 11-17 percent of total traffic, have not been taken into account, since these benefits do not accrue directly to the Kyrgyz economy.

Table 1: Representative Vehicle Operating Costs by Vehicle Type

($ per thousand vehicle-km)

Scenario	Car	Pick-ups	Small Buses	Large Buses	2-Axle Truck	3-Axle Truck	Tractor Trailer	Tractor Semi-Trailer
Without Project [a]	173.4	279.7	420.3	592.5	433.8	402.2	650.6	799.2
With Project [b]	139.7	206.3	328.5	540.9	358.9	318.9	520.2	626.4
VOC Savings	33.7	73.4	91.8	51.6	74.9	83.3	130.4	172.8

[a] For an international roughness indicator of 7.3.
[b] For an international roughness indicator of 2.0.

4. The improvement in road conditions resulting from the Project will reduce the time required by passengers to travel. This was estimated using the average annual wage. Savings in passenger time costs were estimated at $0.296 per passenger-hour. Data are not available to separate work-related from nonwork-related travel.

5. Under the "without" Project case, to prevent further deterioration of road surfaces, essential annual routine maintenance works would be required to keep the road open to traffic, such as heavy grading and repair of potholes and patching. Because pavement and drainage would be improved "with" the Project, routine maintenance would cost less than in the "without" Project case. Road maintenance cost savings are estimated to amount to about an average of $3,900/km.

D. Results of Economic Analysis

6. The EIRRs for Package 1 (Bank-financed) and Package 2 (cofinanced) are estimated at 14.3 percent and 17.1 percent, respectively (Tables 2 and 3).The EIRR for the entire Project is estimated at about 16.0 percent (Table 4). Sensitivity analysis, which was carried out to test the effects of possible unfavorable scenarios on changes in key parameters that determine the costs and benefits of the Project, indicates that it would require an increase in costs of 39.5 percent or a decrease in benefits of 29.7 percent for the EIRR to decline to the cut-off level of 12 percent (Table 5). Given existing construction skills, and performance so far on the first loan, such a cost increase is unlikely. The changes in the structure of the transport industry towards greater competition should ensure against such a decrease in benefit levels.

Table 2: Economic Internal Rate of Return for Package 1 (80 km)
($ million)

Year	Costs		Benefits		Net Benefit
	Capital	Maintenance	Savings in VOC	Savings in Time Cost	
1998	5.614				-5.614
1999	9.246				-9.246
2000	9.246				-9.246
2001	8.916	-0.038	0.613	0.013	-8.252
2002		-0.228	3.678	0.076	3.982
2003		-0.228	3.885	0.080	4.193
2004		-0.228	4.196	0.086	4.511
2005		-0.228	4.526	0.094	4.848
2006		-0.228	4.886	0.101	5.215
2007		-0.228	5.274	0.109	5.611
2008		-0.228	5.692	0.118	6.038
2009		-0.228	6.145	0.128	6.501
2010		-0.228	6.634	0.138	7.001
2011		-0.228	7.162	0.149	7.538
2012		-0.228	7.731	0.162	8.120
2013		-0.228	8.304	0.174	8.706
2014		-0.228	8.871	0.185	9.284
2015		-0.228	9.473	0.198	9.900
2016	0.085 [a]	-0.243	10.109	0.212	10.479
2017	0.431 [a]	-0.311	10.781	0.227	10.887
2018		-0.228	11.602	0.243	12.073
2019		-0.228	12.405	0.259	12.892
2020		-0.228	13.261	0.277	13.766
		EIRR =	**14.3%**		
		NPV =	**5.499**		

[a] Major maintenance.

Table 3: Economic Internal Rate of Return for Package 2 (128 km)
($ million)

Year	Costs		Benefits		Net Benefit
	Capital	Maintenance	Savings in VOC	Savings in Time Cost	
1998	8.705				-8.705
1999	14.338				-14.338
2000	14.338				-14.336
2001	13.826	-0.098	1.168	0.026	-12.534
2002		-0.588	7.011	0.153	7.752
2003		-0.588	7.672	0.167	8.427
2004		-0.588	8.377	0.187	9.152
2005		-0.588	9.096	0.205	9.889
2006		-0.588	9.782	0.219	10.589
2007		-0.588	10.439	0.232	11.260
2008		-0.588	11.120	0.248	11.956
2009		-0.588	11.847	0.266	12.701
2010		-0.588	12.622	0.283	13.493
2011		-0.588	13.405	0.299	14.292
2012		-0.588	14.191	0.317	15.096
2013		-0.588	15.023	0.333	15.944
2014		-0.588	15.898	0.353	16.839
2015	0.120 [a]	-0.611	16.816	0.374	17.681
2016	0.419 [a]	-0.649	17.786	0.395	18.411
2017	0.207 [a]	-0.625	18.869	0.419	19.706
2018		-0.588	20.005	0.441	21.034
2019		-0.588	21.146	0.465	22.200
2020		-0.588	22.342	0.490	23.420
		EIRR =	**17.1%**		
		NPV =	**19.386**		

[a] Major maintenance.

Table 4: Economic Internal Rate of Return for the Entire Project ($ million)

Year	Costs		Benefits		Net Benefit
	Capital	Maintenance	Savings in VOC	Savings in Time Cost	
1998	14.319				-14.319
1999	23.584				-23.584
2000	23.584				-23.584
2001	22.742	-0.136	1.781	0.038	-20.787
2002		-0.816	10.689	0.229	11.734
2003		-0.816	11.557	0.247	12.620
2004		-0.816	12.573	0.274	13.663
2005		-0.816	13.622	0.299	14.737
2006		-0.816	14.668	0.320	15.804
2007		-0.816	15.713	0.341	16.871
2008		-0.816	16.812	0.366	17.994
2009		-0.816	17.993	0.394	19.202
2010		-0.816	19.256	0.421	20.493
2011		-0.816	20.567	0.447	21.830
2012		-0.816	21.922	0.478	23.217
2013		-0.816	23.328	0.507	24.650
2014		-0.816	24.769	0.539	26.124
2015	0.120 [a]	-0.839	26.289	0.572	27.580
2016	0.504 [a]	-0.892	27.895	0.607	28.890
2017	0.638 [a]	-0.936	29.649	0.646	30.593
2018		-0.816	31.607	0.684	33.107
2019		-0.816	33.552	0.724	35.092
2020		-0.816	35.603	0.767	37.186
		EIRR =	**16.0%**		
		NPV =	**24.885**		

[a] Major maintenance.

Table 5: Sensitivity Analysis

Scenario	Change (percent)	EIRR (percent)	Economic Net Present Value ($ million)	Sensitivity Indicator [a]	Switching Value (percent) [b]
1. Base Case	-	16.0	24.9	-	-
2. Cost Increase	10	14.8	18.6	2.5	39.5
3. Benefit Decrease	10	14.8	16.5	3.4	29.7
4. Implementation Delay	1 year	14.2	13.8	-	-
5. Combination of 2, 3 and 4	-	12.1	0.3	-	-
6. Without Time Savings	-	15.8	23.1	-	-
7. With Benefits to Transit Traffic	-	18.0	38.5	-	-

[a] Sensitivity indicator = percentage change in net present value divided by percentage change in variable tested.

[b] Switching value indicates the percentage increase in a cost item (or decline in benefit item) required for the net present value to become zero.