

**ASIAN DEVELOPMENT BANK
Independent Evaluation Department**

PROJECT PERFORMANCE EVALUATION REPORT

ON

**KAZAKHSTAN AND THE KYRGYZ REPUBLIC: ALMATY-BISHKEK
REGIONAL ROAD REHABILITATION PROJECT**

In this electronic file, the report is followed by Management's response, and the Board of Directors' Development Effectiveness Committee (DEC) Chair's summary of a discussion of the report by DEC.



Performance Evaluation Report

Project Numbers: 29568 and 32463
Loan Numbers: 1774 and 1775
Project Performance Evaluation Report (Joint Report)
March 2009

Kazakhstan and the Kyrgyz Republic: Almaty– Bishkek Regional Road Rehabilitation Project

This joint evaluation report was prepared by the Independent Evaluation Department of the Asian Development Bank and the Evaluation Department of the European Bank for Reconstruction and Development.

Asian Development Bank

CURRENCY EQUIVALENTS

Asian Development Bank

Currency Unit (Kazakhstan) – tenge (T)

		At Appraisal (August 2000)	At Project Completion (October 2007)	At Operations Evaluation (August 2008)
T1.00	=	\$0.0070	\$0.0082	\$0.0084
\$1.00	=	T142.400	T120.855	T119.680

Currency Unit (Kyrgyz Republic) – som (Som)

		At Appraisal (August 2000)	At Project Completion (October 2007)	At Operations Evaluation (August 2008)
Som1.00	=	\$0.0208	\$0.02895	\$0.0289
\$1.00	=	Som47.990	Som34.540	Som34.560

European Bank for Reconstruction and Development

Currency Unit (Kazakhstan) – tenge (KZT)

		At Appraisal (October 2000)
\$1	=	€1.17
\$1	=	KZT (tenge)144

ABBREVIATIONS

ADB	–	Asian Development Bank
BME	–	benefit monitoring and evaluation
CAREC	–	Central Asia Regional Economic Cooperation
CBA	–	cross-border agreement
EBRD	–	European Bank for Reconstruction and Development
EIRR	–	economic internal rate of return
EvD	–	Evaluation Department (EBRD)
HGV	–	heavy goods vehicle
IBRD	–	International Bank for Reconstruction and Development
IED	–	Independent Evaluation Department (ADB)
IRI	–	international roughness index
JER	–	joint evaluation report
km	–	kilometer
MOTC	–	Ministry of Transport and Communications
OEM	–	Operations Evaluation Mission
PCR	–	project completion report (ADB)
PIU	–	project implementation unit
PRC	–	People's Republic of China
RSDP	–	road sector development program
SDR	–	special drawing rights
TA	–	technical assistance

TRACECA	–	Transport Corridor Europe–Caucasus–Asia
VOC	–	vehicle operating cost
vpd	–	vehicle per day

NOTE

In this report, “\$” refers to US dollars and € refers to euros.

Key Words

kazakhstan, kyrgyz republic, almaty, bishkek, adb, asian development bank, development effectiveness, ebrd, european bank for reconstruction and development, road, roads maintenance, performance evaluation, transport, infrastructure, joint evaluation

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CONTENTS

	Page
PREFACE	i
BASIC DATA	iii
EXECUTIVE SUMMARY	vii
MAP	
I. INTRODUCTION	1
A. Background	1
B. Project Preparation	1
II. DESIGN AND IMPLEMENTATION	2
A. Rationale	2
B. Cost and Financing Arrangements	3
C. Executing Arrangements and Scheduling	4
D. Change in Project Design	5
E. Loan Covenants and Technical Assistance	6
III. ASSESSMENT OF PROJECT OUTPUTS AND PERFORMANCE	7
A. Outputs	7
B. Performance of Contractors and Supervising Consultants	8
C. Performance of the Beneficiary Countries	9
D. Performance of the Multilateral Development Banks	10
IV. ASSESSMENT OF PROJECT OUTCOMES AND IMPACTS	12
A. Overall Assessment	12
B. Relevance	13
C. Effectiveness	14
D. Efficiency	15
E. Sustainability	16
F. Impacts	18
V. ISSUES, LESSONS, AND FOLLOW-UP ACTIONS	24
A. Border Infrastructure	24
B. Lack of Capacity of Implementing Institutions	24
C. Adequacy of Loan Covenants	25
D. Importance of Sufficient Maintenance Allocations	25
E. Project Financing	25
F. Follow-Up Actions	26

In accordance with guidelines formally adopted by the Independent Evaluation Department (IED) of the Asian Development Bank to avoid conflict of interest in its independent evaluations, the IED director general did not review the report and delegated approval of this evaluation to the director of the Independent Evaluation Division 1. Venera Esenalieva and Svetlana Shakirova were the consultants appointed by ADB. John Parry was the consultant appointed by EBRD. To the knowledge of the managements of IED and EvD, the individuals preparing, reviewing, or approving this report had no conflicts of interest.

APPENDIXES

1.	Design and Monitoring Framework	28
2.	Project Cost	31
3.	Status of Compliance with Loan Covenants	33
4.	Performance of the Asian Development Bank Technical Assistance	43
5.	Summary of Physical Accomplishments	44
6.	Summary of Road Condition	45
7.	Transition Impact Analysis	48
8.	Time Taken to Cross the Border	50
9.	Economic Analysis	51
10.	Impact on Road Safety	65
11.	Photographs of the Rehabilitated Regional Road	67
12.	Lessons from the Joint Evaluation Exercise	71

Attachments:	Management Response DEC Chair Summary
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PREFACE

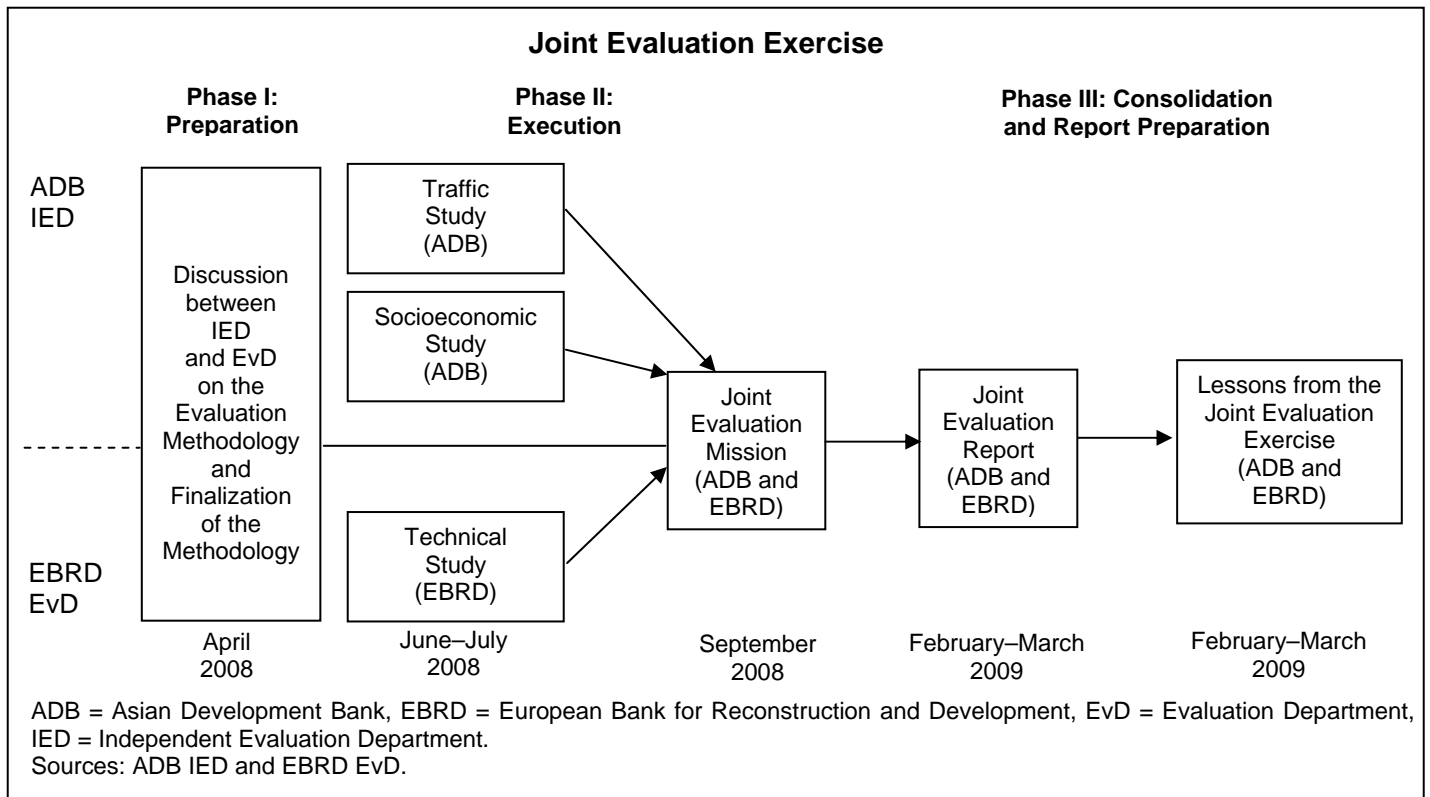
The Asian Development Bank (ADB) and European Bank for Reconstruction and Development (EBRD) provided parallel financing for the Almaty–Bishkek Regional Road Rehabilitation Project. In the spirit of fostering harmonization among multilateral development banks and to develop synergies in development evaluation practices, the two organizations agreed to carry out a joint evaluation of the Project.

In 2007, the Operations Evaluation Department (now the Independent Evaluation Department [IED]) of ADB and the Evaluation Department (EvD) of EBRD entered into a memorandum of understanding to work together to prepare the joint evaluation report (JER). This joint evaluation also contributes to the harmonization agenda under the *Paris Declaration* of 2005 and is in line with aspirations of the Evaluation Cooperation Group.

The memorandum of understanding outlines the methodology employed and the process envisioned. The joint evaluation follows the evaluation criteria developed by the Evaluation Network of the Development Assistance Committee of the Organisation for Economic Co-operation and Development; these criteria are also consistent with the ADB and EBRD evaluation guidelines and policies. However, certain deviations reflect differences in mandates, institutional practices, and history of ADB and EBRD. The JER integrates the evaluation findings and ratings of EvD and IED to provide an overall rating for the Project.

The JER is based on surveys and data collection activities carried out jointly by consultants appointed by EvD and IED during June–August 2008. Following this data collection, an EvD and IED joint evaluation mission visited Kazakhstan and the Kyrgyz Republic during August–September 2008. The outputs of these activities were included in the preparation of this JER, which intends to serve the evaluation requirements of the respective organizations. The following figure provides a description of the joint evaluation process.

The evaluation was conducted within 2 years following project completion as (i) most of the project highway was completed in 2006, providing sufficient time for the results to be visible in 2008; and (ii) traffic data collected by government agencies in 2007, which provided the basis for the project completion report, needed to be updated independently to understand the outcomes of the Project.



BASIC DATA (Asian Development Bank)
Loan 1774-KAZ: Almaty–Bishkek Regional Road Rehabilitation Project
(Kazakhstan Component)

Project Preparation and Institution Building

TA No.	TA Name	Type	Person-Months	Amount (\$'000)	Approval Date
3530-KAZ	Improvement of the Road Sector Efficiency ^a	ADTA	40	750	31 Oct 2000

Key Project Data (\$ million)	As per ADB	
	Loan Documents	Actual
Total Project Cost	112.4	122.8
Foreign Exchange Cost	58.9	77.5
Local Currency Cost	53.5	45.3
ADB Loan Amount/Utilization	65.0 ^b	49.8
ADB Loan Amount Canceled		15.2
EBRD Financed	25.0	28.5
European Union TRACECA Financed	0.4	0.4

Key Dates	Expected	Actual
	Fact-Finding	
Appraisal		14 Jun–26 Jul 1999
Loan Negotiations		4–7 Sep 2000
Board Approval		31 Oct 2000
Loan Agreement		4 Jun 2001
Loan Effectiveness	2 Sep 2001	31 May 2002
First Disbursement		20 Nov 2002
Project Completion	30 Jun 2004	1 Dec 2006
Loan Closing	30 Jun 2005	30 Jun 2007
Months (effectiveness to completion)	34	54

Economic Internal Rates of Return (%)	Appraisal	PCR	JER	
			Case 1 ^c	Case 2 ^d
Kazakhstan Component	23.7	17.9	11.7	16.8
ADB only	—	—	10.8	15.6
EBRD only	12.0	—	15.3	21.2
Overall Project	23.8	16.7	11.6	16.6

Borrower Republic of Kazakhstan
Executing Agency Ministry of Transport and Communications

Mission Data

Type of Mission	No. of Missions	No. of Person-Days
Fact-Finding	1	35
Appraisal	1	60
Project Administration		
Inception	1	16
Review	5	66
Midterm Review	1	20
Project Completion Review	1	24
Operations Evaluation	2	28

— = not calculated, ADB = Asian Development Bank, ADTA = advisory technical assistance, EBRD = European Bank for Reconstruction and Development, JER = joint evaluation report, JSF = Japan Special Fund, KAZ = Kazakhstan, PCR = project completion report, TA = technical assistance, TRACECA = Transport Corridor Europe–Caucasus–Asia.

^a Attached to Loan 1774-KAZ.

^b Reduced to \$52 million on 2 March 2001.

^c Less than optimal maintenance received.

^d Optimal maintenance received.

BASIC DATA (Asian Development Bank)
Loan 1775-KGZ(SF): Almaty–Bishkek Regional Road Rehabilitation Project
(Kyrgyz Republic Component)

Project Preparation and Institution Building

TA No.	TA Name	Type	Person-Months	Amount (\$'000)	Approval Date
3531-KGZ	Improvement of the Road Sector Efficiency ^a	ADTA	22	440	31 Oct 2000

Key Project Data (\$ million)	As per ADB	
	Loan Documents	Actual
Total Project Cost	6.7	6.2
Foreign Exchange Cost	3.7	3.8
Local Currency Cost	3.0	2.4
ADB Loan Amount and Utilization	5.0	5.4
(SDR million)	3.8	3.7

Key Dates	Expected	Actual
	Fact-Finding	
Appraisal		28 Jun–2 Jul 1999
Loan Negotiations		4–7 Sep 2000
Board Approval		31 Oct 2000
Loan Agreement		31 May 2001
Loan Effectiveness	2 Sep 2001	31 May 2002
First Disbursement		15 Mar 2004
Project Completion	30 Jun 2003	31 Dec 2007
Loan Closing	30 Jun 2004	7 Mar 2008
Months (effectiveness to completion)	22	67

Economic Internal Rates of Return (%)	Appraisal	PCR	JER	
			Case 1 ^b	Case 2 ^c
Kyrgyz Component	25.9	16.3	7.7	9.0
Overall Project	23.8	16.7	11.6	16.6

Borrower Kyrgyz Republic
Executing Agency Ministry of Transport and Communications

Mission Data

Type of Mission	No. of Missions	No. of Person-Days
Fact-Finding	1	24
Appraisal	1	25
Project Administration		
Inception	1	12
Review	5	55
Midterm Review	1	6
Special Loan Administration	1	9
Project Completion Review	1	20
Operations Evaluation	2	28

ADB = Asian Development Bank, ADTA = advisory technical assistance, JER = joint evaluation report, JSF = Japan Special Fund, KGZ = Kyrgyz Republic, PCR = project completion report, SDR = special drawing rights, SF = special fund, TA = technical assistance.

^a Attached to Loan 1775-KAZ.

^b Less than optimal maintenance received.

^c Optimal maintenance received.

BASIC DATA (European Bank for Reconstruction and Development)

General Information			
Operation Name	Kazakhstan Road Sector Development Project	Operation Leader	Ulf Hindstrom
Portfolio Class	State Sector	Country	Kazakhstan
Company/Borrower	Republic of Kazakhstan	Region	Central Asia
Type of Borrower	Public Sector	Industry Classification	Highway, Street, Bridge
Company Ownership	State	Board Document and Project Number	BDS00-126; 8072
Project Type	Public Sector Loan	Project Status	Active
Operation Type	Rehabilitation	EBRD Commitment	\$28,500,000
Operation Team	MEI	Investment Status	Repaying
Operation Appraisal, Approval, and Monitoring			
Concept Review Date	5-Apr-00	Board Review Date	28-Nov-00
Structure Review Date	1-Sep-00	Signing Date	8-Dec-00
Final Review Date	2-Oct-00	First Disbursement	3-Jul-02
Postevaluation Responsibility			
XMR Team	Ulf Hindstrom	OPER Team	Wolfgang Gruber
XMR Field Visit		OPER Field Visit	Aug/Sep-2008
Number of Days		Number of Days	
XMR Distribution Date		OPER Distribution Date	
Disbursement and Repayment Schedules			
Loan Disbursements			
	Date	Amount (\$)	Cumulative (\$)
First	2002	285,000	285,000
Second	2003	8,459,997	8,744,997
Third	2004	6,123,143	14,868,140
Fourth	2005	762,583	15,630,723
Fifth	2006	8,860,669	24,491,392
Sixth	2007	2,578,606	27,069,998
Seventh	2008	193,921	27,263,919
Loan Repayments			
	Date	Amount (\$)	Cumulative (\$)
First	28-May-04	950,000	950,000
Second	29-Nov-04	950,000	1,900,000
Third	31-May-05	950,000	2,850,000
Fourth	28-Nov-05	950,000	3,800,000
Fifth	30-May-06	950,000	4,750,000
Sixth	28-Nov-06	950,000	5,700,000
Seventh	29-May-07	950,000	6,650,000
Eighth	28-Nov-07	950,000	7,600,000
Ninth	28-May-08	950,000	8,550,000

EXECUTIVE SUMMARY

After the collapse of the former Soviet Union during the late 1980s and early 1990s, the already poor condition of physical transport infrastructure in the Central Asian republics continued to deteriorate. This hampered economic growth, national and international trade, as well as regional integration.

The Asian Development Bank (ADB) and European Bank for Reconstruction and Development (EBRD) provided parallel cofinancing for the Almaty–Bishkek Road Rehabilitation Project (the Project) to rehabilitate the 245 kilometer (km) regional road between Almaty and Bishkek. ADB funded two sections in Kazakhstan and one in the Kyrgyz Republic, while EBRD funded one section in Kazakhstan. The European Union's Transport Corridor Europe–Caucasus–Asia Program provided a parallel but linked grant for improvement of customs facilities, including equipment and training for customs officials. In addition, the Project aimed to initiate road sector reforms, address road maintenance issues, and enable cross-border activities and institution and capacity building through technical assistance.

The ministries of transport and communications (MOTCs) in the two countries implemented the Project. This included procurement and implementation of the contracts, following the respective financier's policy. Two supervision consultants were appointed for the sections in Kazakhstan and in the Kyrgyz Republic. The Project was completed in about 6 years compared with the initially envisaged 3 years. The delay was due to lack of capacity within the MOTCs and their unfamiliarity with procurement rules, which caused delays in implementing reforms. The poor performance of the contractors exacerbated the implementation delays.

The total project cost at completion was \$128.9 million, 8.2% higher than the appraisal estimate. The Kazakh component had a considerable cost overrun for the civil works components (mainly caused by poor contractor performance and due to increase in construction standards). Loan savings from other components of the EBRD assistance were used to finance the cost overruns. Similarly, the cost of the civil works for the Kyrgyz Republic section exceeded appraisal estimates. The project scope was consequently reduced to meet financial resources, resulting in the rehabilitation of only 19.3 km of the 41 km envisaged.

In general, the quality of the completed road is good although several sections have surface cracks. This is inevitable given the extreme weather conditions in Central Asia. It also highlights the importance of road maintenance to sustain project benefits. New road maintenance equipment was provided to Kazakhstan but not to the Kyrgyz Republic, although it would have been useful. The Project did not include training in either country on maintenance planning and technology. The Project upgraded the Kazakhstan customs facilities at the Akzhol–Chu border point and provided customs control equipment.

The ratification of a cross-border agreement between Kazakhstan and the Kyrgyz Republic was included as a covenant for both the ADB and EBRD loans. Due to delays in fulfilling this condition, effectiveness of the loans was delayed by almost 1 year. This also contributed to project implementation delays.

The Project was a useful partnership among ADB, EBRD, and the two client Governments since it provided learning opportunity for the multilateral development banks as well as for the Governments in rehabilitating and maintaining a cross-border road. Delays in taking decisions relating to civil works contracts in both countries indicate that project management and institutional capacity could be improved. Implementation performance of the

two MOTCs was less than satisfactory. Similarly, the performance of EBRD and ADB could have been improved. In addition, the main contractor and supervising engineer for the EBRD-financed road segment were replaced because of poor performance. On the other hand, the performance of the contractors and the supervision consultant for the ADB-financed sections in Kazakhstan was relatively satisfactory.

The joint Operations Evaluation Mission rates the Project “partly successful,” although ADB's Independent Evaluation Department (IED) and EBRD's Evaluation Department (EvD) use somewhat different rating perspectives. While the Project delivered the main targeted outputs and partly removed road transport barriers, the deficiencies in project design and implementation resulted in a large cost overrun and changes in scope reduced the overall project rating. Moreover, the uncertainty surrounding project sustainability affected the overall rating.

The Project is assessed as “relevant” as its goal and purpose were consistent with the development strategies of the Governments and the development partners. The Project is in line with ADB's Central Asia Regional Economic Cooperation program, which aims to develop an integrated and efficient transport system in support of sustainable economic growth and poverty reduction. It was found “compliant” with EBRD's transport operations policy and consistent with EBRD's strategy for Kazakhstan. However, the quality-at-entry was found to be deficient in terms of project design and imposition of unrealistic loan condition.

The Project is rated “effective” in achieving its main purpose of improving the efficiency of the regional road and “satisfactory” in fulfilling its objectives. The traffic on the project road has increased with higher vehicle speeds. However, the Project's effectiveness was reduced for two reasons. First, although the Cross-Border Agreement was ratified in 2002, no evidence on its implementation was found during the evaluation. Second, the project road relies on an old bridge at Akzhol–Chu, which was not improved as part of the Project. This has resulted in traffic congestion and longer waiting time at the border crossing.

The Project is rated “less efficient” based on the findings of an economic analysis using a 2008 traffic count and assumptions relating to operation and maintenance, vehicle operating cost savings, and travel time savings. The uncertainty surrounding the financing (through budgetary allocations by central governments) for road maintenance has increased the risk of lowering the cost and time savings in the medium to long term. This rating could be reviewed if the allocations for road maintenance from central budgets improve in the medium term.

The Project is rated “less likely to be sustainable” in view of concerns relating to lack of assurance of provision of adequate allocations, resources for road maintenance, and capacity building for concerned personnel. Even though an ADB loan covenant required use of the private sector for road maintenance and EBRD loan covenants aimed to introduce a new financial mechanism in the road sector, these have yet to be fulfilled. Moreover, neither of the countries collects load-related road taxes to generate commensurate revenue for road maintenance. While the government budgetary funds provided for maintenance have increased over the years, they are not sufficient to meet the requirements. Moreover, the absence of a system to control and charge heavy goods vehicles appropriately is likely to affect road quality in the medium term. Overall, the risk relating to provision of funds for maintenance, and the deployment of adequate human resources and equipment remains high.

The transition impact, the main EBRD mandate focus, is rated “marginal/satisfactory.” Despite the general attribution problem, the rehabilitation of the regional road can be assumed

to have substantially helped increase traffic and trade figures. The framework for markets was expected to be improved by the covenanted Road Sector Development Program adopted in 2001. Nonetheless, more ambitious attempts, i.e., to introduce private ownership or operatorship in road administration and maintenance, as well as to move to a system based on cost recovery from road users saw rather modest results.

The Project resulted in several positive socioeconomic impacts. It introduced international best practices to improve project implementation. New sources of livelihoods were opened, such as retail shops, taxi driving, car washing, roadside cafes, and hair salons. The border-crossing impact was diluted because no major change in cross-border movements resulted. Several people interviewed by the Operations Evaluation Mission stated that border crossing had become more difficult due to bureaucratic procedures on the Kazakhstan side. Despite this, trade between Kazakhstan and the Kyrgyz Republic at the Akzhol–Chu border crossing point on the Almaty–Bishkek road increased by an average annual rate of 38% from 2000 to 2007. This could also be attributed to growth in the national economies.

The joint evaluation identifies several issues and lessons that need to be addressed:

- (i) Bridge is an integral part of a road alignment. Effectiveness of the Project was reduced due to the lack of an adequate bridge on the Chu River at the international border crossing on the Almaty–Bishkek road.
- (ii) Public sector institutions responsible for roads continue to lack adequately trained human resources in the areas of project management, procurement, technical supervision, and road maintenance. Given the limited capacity of the Governments and their emergence from the centrally planned economic structure, the Project would have benefited from an assessment of implementation capability and a simpler project design structure. Taking into account the delays in decision making as well as poor contractor performance in Kazakhstan, the use of project implementation units should have been reconsidered.
- (iii) Loans to developing member countries should have realistic conditions for loan effectiveness. Moreover, loan covenants should have full ownership from within the Government to ensure implementation.
- (iv) Funding allocations for road maintenance should be based on a rigorous planning regime and be transparent. Sufficiency and continuity of funding, and human resources need to be ensured. Both countries need to comply with the loan covenant for maintenance.
- (v) Harmonizing of the project financing could be considered under the Paris Declaration to improve implementation efficiency and reduce transaction costs.

A summary of recommendations for future assistance follows.

Recommendation	Responsibility	Timing
(i) Improve the bridge on the international border. ADB and EBRD, in conjunction with the Kazakhstan and Kyrgyz Republic Governments, should work to rehabilitate the bridge on Chu River or construct a new bridge to increase the effectiveness of the Project.	ADB and EBRD to initiate	Work to start by 2011

Recommendation	Responsibility	Timing
(ii) Improve border infrastructure. Future trade facilitation efforts should include establishment of customs equipment, immigration counters, vehicle parking areas, and freight storage facilities; and training for personnel.	ADB and EBRD to initiate	Work to start by 2011
(iii) Implement the Cross-Border Agreement. ADB and EBRD should encourage the Kazakhstan and Kyrgyz Republic Governments to implement the one-window system for border clearances. In addition, further actions should be identified in the areas of road transport services, vehicle specification and control, and transit traffic.	ADB and EBRD to initiate	Implementation to begin in 2009
(iv) Improve maintenance planning and allocations. ADB and EBRD need to work closely with the Kazakhstan and Kyrgyz Republic Governments to develop maintenance regimes that are based on needs and to improve cost recovery.	ADB and EBRD to initiate	During preparation and implementation of a transport strategy and road map under the new country partnership strategy
(v) Focus on road safety and environmental impact. Future dialogue in the two countries should place stronger emphasis on road safety issues. This could be incorporated in future project designs. The possibility of a negative impact on trees located adjacent to the project road needs to be assessed to check any link with road construction and operation.	ADB and EBRD to initiate	Subsequent transport project loans presented to the ADB and EBRD boards of directors for approval

ADB = Asian Development Bank, EBRD = European Bank for Reconstruction and Development.

**KAZAKHSTAN AND
KYRGYZ REPUBLIC
ALMATY-BISHKEK
REGIONAL ROAD
REHABILITATION PROJECT**
(as implemented)



Boundaries are not necessarily authoritative.

I. INTRODUCTION

A. Background

1. The transition from the planned economy of the former Soviet Union to a market-oriented economy exposed several bottlenecks in the transport infrastructure of former member countries. In addition, during the late 1980s and early 1990s, the Central Asian republics faced problems of wear and tear of roads and inadequate road maintenance, coupled with insufficient investments. To promote regional cooperation, multilateral development banks (MDBs) supported a variety of interventions, including rehabilitation of the transport system. Contributions to cross-border road transport infrastructure within Kazakhstan and the Kyrgyz Republic was considered crucial in this context, and more so because of the landlocked nature of these countries. Kazakhstan and the Kyrgyz Republic have been active participants in these regional cooperation efforts.

2. The Almaty–Bishkek Regional Road Rehabilitation Project (the Project) focused on improving transport efficiency between Kazakhstan and the Kyrgyz Republic and their key economic centers. In addition to upgrading physical infrastructure, the Project dealt with border-crossing facilities and nonphysical barriers to trade. These mainly related to road sector reforms, including the separation of the policy and administration roles of the ministries of transport and communications (MOTCs); adoption of a road sector development program (RSDP); and road sector-related laws, policies, and procedures—notably the nonphysical barriers at the international border point of Akzhol–Chu.

B. Project Preparation

3. In 1992, following its all-mode regional traffic sector study,¹ the European Bank for Reconstruction and Development (EBRD) entered into discussions with the Kazakhstan Government to explore the possibility of financing a roads and bridges rehabilitation program. However, since the World Bank (International Bank for Reconstruction and Development [IBRD]) and Asian Development Bank (ADB) also expressed interest in the road sector, EBRD decided to focus on other investment opportunities. ADB signed its first road project in 1996, a \$50 million loan to improve sections of the road from Almaty to the country's new capital Astana. The road also benefited from an IBRD loan of \$100 million signed in 1999.²

4. During this period, the MDBs launched several technical assistance (TA) operations striving to enhance regional economic cooperation between the two countries.³ Transport initiatives included coordination of sector reforms, development of road standards, and preparation of road safety guidelines.⁴ Success of such sector reforms supported by ADB and IBRD TA enabled growth of competition within the sector with the emergence of private sector

¹ This major study was to establish the importance and state of transport infrastructure in general (transport by road, rail, air, and water) for the Russian Federation, Ukraine, Kazakhstan, and Belarus in the aftermath of the collapse of the former Soviet Union, and thus to guide EBRD regarding future investments in transport.

² This included an ADB technical assistance (\$750,000): ADB. 1996. *Technical Assistance to the Republic of Kazakhstan for Institutional Strengthening of the Road Sector*. Manila.

³ Throughout this paper, the term TA (used by ADB) is considered synonymous with technical cooperation (used by EBRD).

⁴ Separation of the sector policy and road network administration portfolio (looked after by the MOTC Committee of Roads and Road Transport) from the centralized road contractor function (taken care of by the Republican State Road Enterprise–Kazavtodor) was a milestone achieved under ADB and IBRD technical cooperation.

contractors. In 1996, ADB financed feasibility studies in Kazakhstan and the Kyrgyz Republic for the Almaty–Bishkek road to contribute to the ongoing sector assistance.⁵

5. Based on the results of this feasibility work, in 1998 ADB began preparing the Project, including a trade facilitation component. The latter was based on a cross-border agreement (CBA) between Kazakhstan and the Kyrgyz Republic becoming effective to promote free movement of people and goods at the Akzhol–Chu international border crossing.

6. The Kazakhstan Government asked EBRD to participate in the Project following EBRD's development of a strategy for development, restructuring, and commercialization of the Kazakhstan road sector in 2000. That same year, EBRD commissioned a study of road sector financing and cost-recovery highlighting that, while total revenues from road user charges were well above costs, this apparently “comfortable” position disguised the fact that actual road maintenance and investment were far below required sustainability levels. This represented an obvious gap in the financing by the Road Fund.

7. The European Union's Transport Corridor Europe–Caucasus–Asia (TRACECA) program provided additional support. TRACECA funded the equipment for an automated customs clearance system and training for its use.⁶

II. DESIGN AND IMPLEMENTATION

A. Rationale

8. Taking a wider geographic perspective, the Project aimed to provide an important link between the road corridors that connect Asia with Europe and the Fergana Valley with the Russian Federation. It is part of the East–West Corridor passing through Urumqi in the People's Republic of China (PRC) and several commercial centers in the region including Almaty, Ashgabat, Bishkek, Samarkand, Shymkent, and Tashkent. It also links two important north–south roads: Almaty–Astana and Bishkek–Osh.⁷ An ADB regional TA study⁸ confirmed that the project road was a critical section requiring improvement to permit smooth and safe traffic flow in all seasons. Appendix 1 provides the design and monitoring framework updated at postevaluation.

⁵ ADB. 1996. *Feasibility Study of Selected Priority Road Sections*. Manila (TA 2632-KAZ, for \$250,000, approved on 27 August). The Kyrgyz Republic part was financed under ADB's first road sector loan (ADB. 1996. *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 Road Rehabilitation Project*. Manila [Loan 1444-KGZ{SF}, for \$50 million, approved on 13 June]).

⁶ The TRACECA program was launched at a conference in Brussels in May 1993 (bringing together the original eight TRACECA countries, five Central Asian republics, and three Caucasian republics), with a view to implement a program of European Union-funded TA to develop a transport corridor on a west–east axis from Europe, across the Black Sea, across the Caucasus and the Caspian Sea to Central Asia in reminiscence of the ancient Silk Route becoming once again a major trade corridor. This was envisaged to support the political and economic independence of the republics by enhancing their capacity to access European and world markets through alternative transport routes to encourage regional cooperation among the partner states. In addition, the goal was to increasingly use TRACECA as a catalyst to attract the support of international financial institutions and private investors, and to link the TRACECA route with the trans-European networks.

⁷ Improvements to these two north–south roads has been given high priority by the Governments of Kazakhstan and the Kyrgyz Republic and is supported by ADB, Islamic Development Bank, Japan Bank for International Development, and World Bank.

⁸ ADB. 1996. *Technical Assistance for Regional Economic Cooperation in Central Asia*. Manila (TA 5707-REG, for \$1.15 million, approved on 8 November).

9. The rehabilitation of the project road was an integral component of ADB's strategy in Central Asia to promote economic growth and reduce poverty. ADB's 1999–2001 country strategies and programs for Kazakhstan and the Kyrgyz Republic focused on the rehabilitation and improvement of maintenance operations, and the safety standards of the transport networks. The Project was also in line with the Central Asia Regional Economic Cooperation (CAREC) program initiated in 1997.⁹

10. EBRD attributed high priority to this road rehabilitation within its Strategy for Kazakhstan. Its overarching transition rationale for the Project was to assist the Kazakhstan Government in improving overall administration and financing of the country's national road transport network. This was EBRD's first road project and it prepared the foundation for cooperation between Kazakhstan and EBRD on road transport.

B. Cost and Financing Arrangements

11. ADB, EBRD, and TRACECA provided parallel financing for the Project.¹⁰ The total project cost was \$128.9 million or 8.2% higher than appraisal estimates (Appendix 2). At appraisal, the cost of the Kazakhstan component was estimated at \$112.4 million; the actual cost was only 9.2% higher at \$122.8 million. A major cost overrun representing a 41% increase in the total base cost was caused by a 55.5% increase in civil works costs, from \$68.7 million at appraisal to \$106.9 million at completion. On a per unit basis, the cost of civil works per kilometer (km) increased by about 57.1%.

12. The cost of the Kyrgyz Republic component was initially estimated at \$6.7 million (Appendix 2); the actual cost was \$6.1 million or about 10% lower than appraisal estimates. Significant cost overruns led to a major reduction in the scope of work. Although civil works were reduced to about 19.3 km from 41 km at appraisal, the actual cost was only about 5% less than estimated at appraisal. On a per unit basis, the cost of civil works per km increased by about 100%.

13. Of the \$5 million ADB loan proceeds for the Kyrgyz Republic section, disbursements reached \$4.65 million. At completion, actual counterpart funding was estimated at about \$1.0 million.¹¹ Design changes caused by high rates of road deterioration between project preparation and award of contracts (about 4 years) resulted in considerably more extensive civil works than anticipated. Another major factor was the higher than expected price escalation for major construction inputs. For example, the cost of bitumen increased by 50% per annum during 2003–2007 and prices of steel, cement, and labor escalated significantly. Due to the longer than expected implementation, consultants required additional time. The Kyrgyz Republic loan closing date was extended by 44 months, with the loan closing in March 2008.

⁹ The strategy states that the program will develop and improve regional and international transport corridors to link production centers and markets within CAREC countries, and enhance CAREC countries' access to neighboring regions and markets. The CAREC program was at an initial stage in 2000 when the project loan was approved. As a result, although the Project's rationale was stated as regional cooperation, it did not include any mention of the CAREC program. The ADB project completion report acknowledges that the rationale follows the CAREC program goals.

¹⁰ With parallel cofinancing, a project is divided into specific, identifiable components; each is separately financed by ADB and cofinanciers. Parallel financing is often used when cofinanciers stipulate procurement policies and procedures different from those of ADB. In such a case, the cofinanciers administer their own financing (Source: ADB. 2003. *Operations Manual* OM Section E1/OP [issued on 29 October]. Manila).

¹¹ At postevaluation, the Government estimated actual counterpart funding at about \$2.0 million.

14. Of the \$65.0 million ADB loan for Kazakhstan, \$49.8 million was disbursed, the remainder was canceled (Table 1). Disbursements of the loan proceeds took 16 months longer than envisaged during appraisal due to (i) delay in loan effectiveness (para. 51), (ii) procurement delays, and (iii) delayed construction due to poor performance of contractors. The original loan closing date was extended by 24 months. The ADB loan was closed on 30 June 2007, while the EBRD loan closed on 31 July 2008, more than 4 years behind schedule. Disbursement of the counterpart funds was not delayed and closed at \$44.1 million, which was double the amount estimated at appraisal. In other words, the Government shared part of the burden of increased costs. The ADB loan amount was reduced to \$52 million through cancellation of \$13 million allocated for interest and commitment charges, and corresponding reduction of the front-end fee and unallocated amounts. Further, the undisbursed amount of \$2.2 million was cancelled in June 2007. This resulted in a change in the financing plan as shown in Table 1. The increase in cost of civil works (para. 11) on the ADB section was funded by loan contingencies and by the Government.

Table 1: Financing Plan (\$ million)

Kazakhstan	Appraisal	Actual	Kyrgyz Republic	Appraisal	Actual
ADB-financed	65.0	49.8	ADB-financed	5.0	4.6
Borrower-financed	22.0	44.1	Borrower-financed	1.3	1.0
EBRD-financed	25.0	28.5	EU TRACECA-financed	0.4	0.4
EU TRACECA-financed	0.4	0.4			
Total	112.4	122.8	Total	6.7	6.0

ADB = Asian Development Bank, EBRD = European Bank for Reconstruction and Development, EU TRACECA = European Union Transport Corridor Europe–Caucasus–Asia.

Source: ADB project completion report.

15. Cost overruns for the EBRD-financed section in Kazakhstan could be attributed to two main reasons: delays in construction and a design change (para. 20). However, these cost increases were compensated for by the savings from another project component, the small-scale road improvement component (para. 22).

C. Executing Arrangements and Scheduling

16. The Project was implemented using ADB and EBRD procurement procedures: ADB and EBRD procedures in Kazakhstan, and ADB procedures in the Kyrgyz Republic. ADB financed three contracts under the Project—two in Kazakhstan and one in the Kyrgyz Republic. EBRD financed one contract in Kazakhstan.¹² The MOTCs in the two countries implemented the activities.

17. In the case of Kazakhstan, MOTC did not set up a project implementation unit (PIU) to coordinate the Project. Discussions with MOTC indicate that it discontinued the PIU system to reduce costs, i.e., earlier PIUs were run by mostly expensive expatriate consultants; MOTC perceived this to be an unnecessary cost element. It believed that the commensurate expertise and experience was available in-house (para. 43). Independently, an ADB-funded supervision consultant was appointed to manage the entire Kazakhstan section including the ADB- and EBRD-funded sections. A separate consultant was appointed to supervise the Kyrgyz Republic section.

¹² EBRD: Contract 1 km 15.6–km 65. ADB: Contract 2: km 65–165; Contract 3: km 165–221; Contract 4: Bishkek Bypass.

18. The project design included tripartite coordination meetings involving representatives of Kazakhstan (MOTC and customs); Kyrgyz Republic (MOTC and customs); and the financiers (ADB, EBRD, and TRACECA) to be held twice a year to discuss project implementation status, resolve common problems, and ensure full implementation of the CBA.

19. The Project took about 6 years to complete as compared to the initially envisaged 3 years (loan effectiveness to project completion). Cumulative delays in the project completion totaled 20 months for the Kazakhstan component and 45 months for the Kyrgyz Republic component. This can be attributed to three main reasons. First, loan effectiveness was delayed due to the delay in signing the CBA (para. 51). Second, procurement delays were caused by (i) inexperience of the Kazakhstan MOTC with ADB and EBRD procurement procedures;¹³ (ii) frequent changes of Kazakhstan MOTC staff responsible for project management (in the absence of a defined PIU); and (iii) the award of contracts during July–August 2003, too late in the year for construction activities to be mobilized, since winter sets in by November. Third, delays resulted from poor contractor performance on the EBRD-funded section in Kazakhstan and the ADB-funded section in the Kyrgyz Republic. Only the two ADB-funded sections in Kazakhstan were completed on time. No specific procedural issue has been identified.

D. Change in Project Design

20. The physical road design parameters on the EBRD section were revised in terms of equivalent single axle load. The original project design in 2000 defined 9 tons per axle for the entire Almaty–Bishkek road. Subsequently, the Kazakhstan Government asked that the road design be upgraded to accommodate 13 ton axle load as per Russian pavement design standard. This was justified given the considerably higher traffic volumes in Almaty's periurban area. Generally, a road designed for higher axle loads is more robust, and sustains higher and heavier traffic volume over longer periods. This change resulted in higher construction costs and could lead to lower maintenance cost in the future.

21. The increased project cost caused by implementation delays led to several minor changes in scope. As compared to the original target of rehabilitating 40.8 km, the Project could complete only about 19.3 km¹⁴ in the Kyrgyz Republic, resulting in a reduction of the total length of the rehabilitated road from 245 km to 221 km. To improve implementation performance, ADB's review mission in April 2006 recommended the termination of the Kyrgyz Republic civil works contract. However, the Kyrgyz MOTC delayed acting on this recommendation. The new contractor was appointed only in April 2007.

22. EBRD assistance included a small-scale road improvement component intended to encourage local contractors to construct roads. However, this component was not implemented because the Kazakhstan Government could not identify subprojects. The loan savings from this component were used to finance cost overruns for the civil works of the main component.

¹³ In recent years, ADB procedures have been substantially harmonized with other MDBs by the introduction of standard bidding documents.

¹⁴ ADB approved the reduction through minor changes in the project scope as follows: (i) on 2 May 2003, the length of the Bishkek bypass was reduced from 24 km to 11 km as a result of a change in road design to rehabilitate the most deteriorated road sections rather than focusing on the entire length; and (ii) on 9 July 2003, the length of the Bishkek bypass was reduced to 3–4 km to include additional bridge reconstruction works that became necessary due to road safety concerns.

E. Loan Covenants and Technical Assistance

23. Appendix 3 provides the status of compliance with the loan covenants for the respective loans. ADB's loan condition required that the CBA be made effective, i.e., ratified by both countries. In addition, loan covenants included introduction of revised transport and customs documentation and procedures for cross-border road transport at the Akzhol–Chu border, and establishment of the multidisciplinary National Road Safety Council. For Kazakhstan, the agreed loan covenants addressed legal improvements, i.e., submitting a revised automobile road act to Parliament, elaborating a road safety act, and improving road maintenance. EBRD loan covenants focused on transition impact expectations (paras. 52–88).

24. Several of the ADB loan covenants were not complied with. In Kazakhstan, 5 of the 19 covenants were not complied with: (i) the joint stock company for the road equipment pool was not established; (ii) road standards and regulations have not been established; (iii) the Government did not set up a PIU; (iv) the Government and MDBs did not organize the tripartite coordination meetings during implementation; and (v) the Government did not carry out benefit monitoring and evaluation (BME) after project completion. Although the report and recommendation of the President for the Project mentioned environmental protection as a specific assurance, ADB's Kazakhstan Loan Agreement did not have any covenant in this area.

25. In the Kyrgyz Republic, 2 of the 20 ADB loan covenants were not complied with. Road standards and regulations have not been established, and the Government and MDBs did not organize tripartite coordination meetings during implementation.

26. Two ADB-funded TA projects were attached to the Project, one for each country (Appendix 4).¹⁵ The Kazakhstan TA was to (i) assist in implementing the CBA, including formulation of long-term strategies for expanded use of the CBA at the borders; (ii) improve management of road safety, including coordination with the project supervision consultants to ensure that maintenance contracts include adequate provisions relating to environmental, social mitigation, and road safety considerations; and (iii) streamline ministerial and department responsibilities, assign roles based on redefined functions, and help implement the Road Sector Policy Statement in Kazakhstan.

27. The Kyrgyz Republic TA was to (i) assist the Government in implementing the CBA, including the formulation of long-term strategies for expanding the CBA cover to interregional and intercontinental road transport across other borders; and (ii) improve the management of road safety, including coordination with construction supervision consultants for the Project, and ensure that maintenance contracts prepared by them include adequate provisions for road safety enhancement.

28. Assistance with road maintenance was limited to procurement of hardware (para. 31). Maintenance training was not provided; this could have also involved developing a concept for equipment leasing as envisaged under the Project but which did not materialize. In the absence of an effective PIU, the project design appears deficient of a training component on project monitoring and supervision for Kazakh MOTC personnel (para. 43).

¹⁵ ADB. 2000. *Technical Assistance to the Republic of Kazakhstan and the Kyrgyz Republic for the Improvement of the Road Sector Efficiency*. Manila (TA 3530-KAZ and TA 3531-KGZ, for \$750,000 and \$440,000, respectively, approved on 31 October).

III. ASSESSMENT OF PROJECT OUTPUTS AND PERFORMANCE

A. Outputs

29. According to the updated design and monitoring framework (Appendix 1) summarizing project achievements, the Project generally achieved the planned outputs and successfully fulfilled the physical objectives (Table 2). At appraisal, it intended to improve 245 km of the road between Almaty and Bishkek. At completion, the Kazakhstan component rehabilitated 206 km of roads (about 2 km above the target), including a new alignment crossing hills at Akzhol–Chu pass. Out of these 206 km, ADB funded the rehabilitation of 156 km while EBRD funded the balance 50 km. The scope of the Kyrgyz Republic component was only partly met because of the reduction of about 20 km as indicated in the change in scope. Appendix 5 provides a summary of the physical accomplishments of the Project.

30. An EBRD-funded consultant engineer completed a technical assessment of the quality of construction works for the entire ADB and EBRD network, using the framework of the Operations Evaluation Mission (OEM) (Appendix 6). As a result of the increase in axle load capacity on the section close to Almaty (para. 20), the gradual wear of road sections funded by EBRD is less than those funded by ADB. This is evidenced by the number of transverse and longitudinal cracks in the pavement surface. Whether the application of a higher axle load capacity for the entire road and higher associated cost (if it could be financed at the time) could be justified by maintenance savings and higher traffic volumes, as may be reasonably expected in the future, could be debated. The OEM arrived at the view that applying two different standards is justifiable (mainly on the grounds of the current traffic volume pattern) and future upgrading of the lower standard segments is still possible.

Table 2: Summary of Actual Project Outputs

Component	Kazakhstan	Kyrgyz Republic	Subregional Aspects
Road Rehabilitation	Achieved. About 206 km of roads rehabilitated.	Partly achieved. About 19.3 km of 40.8 km of roads rehabilitated plus bridge reconstruction works.	
Road Maintenance	Achieved. New road maintenance equipment provided.		
Customs Facilities			Achieved. Customs control equipment was provided, but only some equipment on the Kazakhstan side was seen to be operating.
Cross-Border and Institutional Components	Consultant report submitted but recommendations not yet implemented.	Consultant report submitted but recommendations not yet implemented.	Achieved. The Cross-Border Agreement was signed and made effective. Both countries adopted standardized axle-load limits. However, road design standards have not yet been harmonized.

km = kilometer.

Source: Operations Evaluation Mission.

31. The Kazakhstan Government distributed new road maintenance equipment provided by the Project¹⁶ to other parts of the country. The Kazakhstan MOTC found the equipment to be of high quality but expensive to maintain due to costly and not readily available spare parts. This

¹⁶ According to the MDB appraisal documents, ADB was to provide equipment valued at \$10.3 million (BDS00-126, Section 1.7).

raises the question of whether appropriate technology considerations, cost-saving potential, and benefits from standardizing equipment pools were adequately taken into account at project preparation.¹⁷ Since maintenance staff were not familiar with the new equipment, they required additional training (provided by the suppliers), especially since they could no longer reuse parts of defunct equipment for repairs. Lastly, the envisaged establishment of an equipment-hire system did not materialize. Higher productivity capacities often associated with “western” equipment need to be appreciated at appraisal against practicality and cost-saving considerations. In the Kyrgyz Republic, maintenance equipment was not provided under the Project, although it could have been useful. Moreover, since maintenance training was not included within the project scope for either country, the full benefits of the Project could not be received. This contributed to the sustainability concerns.

32. The Project upgraded the Kazakh customs facilities at the Akzhol–Chu border-crossing point and provided customs control equipment such as scanners and electronic tagging equipment. This equipment was found to be functional at the border-crossing point on the Kazakhstan side. In the Kyrgyz Republic, the status of similar equipment could not be assessed as the equipment was not located at the border-crossing point.

33. Kazakhstan and the Kyrgyz Republic signed the CBA (drafted with the assistance of ADB) on 15 November 1999. The agreement has limited effectiveness as customs documents have yet to be harmonized and single-window border clearance has not been implemented. Government officials in both countries were not aware of implementation of any aspect of the agreement by the time of the OEM. The customs committees of both countries were unanimous in stating that customs procedures were simplified during the last few years. However, whether this was brought about by the CBA is debatable. In the absence of adequate country ownership, such agreements are unlikely to be implemented effectively.

34. The ADB project completion report (PCR) considers the covenant relating to the approval of the CBA to be overly restrictive and to have delayed project implementation (para. 51). The covenants relating to establishment of an equipment-hire system in both countries were not fulfilled since the concept was not developed appropriately and the growth in the private sector negated the need for an equipment pool. Another covenant regarding development of a road maintenance organization was not complied with in Kazakhstan as the Government considered existing arrangements appropriate. The covenant regarding audited accounts was partly complied with at the time of PCR preparation. In the case of Kazakhstan, an independent auditor was appointed in 2007 and a report was submitted in August 2008. The benefit monitoring evaluation requirement was not completed in Kazakhstan. Appendix 3 provides the status of compliance with all the loan covenants.

B. Performance of Contractors and Supervising Consultants

35. Almost all road sections faced problems related to contractor performance resulting in significant delays (only the two ADB-funded sections in Kazakhstan were completed on time). For the EBRD section in Kazakhstan, the contractor did not own sufficient machinery and equipment to meet the related 60% requirement and thus was highly dependent on mobilizing commensurate subcontractor resources.¹⁸ In addition, slow work progress, poor work quality, varying quality of raw materials, and concerns over the safety of the contractor’s working

¹⁷ In hindsight, Road Department staff were disappointed to have to use expensive technical equipment that is difficult to operate and maintain vis-à-vis cheaper, albeit poorer quality, equipment from the PRC and the Russian Federation.

¹⁸ For instance, the contractor did not own any quarry and asphalt facilities and had to subcontract local suppliers. The quality of supplied intermediate raw material was not consistent and delivery schedules were not met.

arrangements raised complaints. After almost 3 years of increasingly aggravating discussions, the failing contractor was eventually replaced by the main contractor employed under ADB financing. This protracted process and accumulation of problems negatively reflect on EBRD's consultant-staffed monitoring system and the responsible EBRD staff supervisors (para. 49); they also reflect the absence of an effective PIU.

36. The poor contractor performance was aggravated by the fact that the contractor communicated directly with the Kazakhstan MOTC, bypassing the supervision consultant and ignoring the latter's technical advice. The Kazakhstan MOTC also ignored the communication and responsibility lines developed during project design. This, coupled with lack of technical capacity at MOTC, resulted in opaque processes that were time-consuming, costly, and inefficient. While the OEM could not identify any specific allegation of malpractice or corruption, these implementation issues reduced the overall impact of the Project in terms of transfer of knowledge and best practices.

37. ADB financed the services of the supervision consultant in Kazakhstan. The Government procured and negotiated the contract according to ADB's *Guidelines on the Use of Consultants* (as amended from time to time during implementation). The selected consultant team was dominated by regional consultants rather than international experts. The quality of their services was mixed. For the EBRD section, the performance of the supervising engineer is described as "substandard," having substantially contributed to the overall implementation problems.¹⁹ The Government shares this view. Eventually, the main contractor and supervising engineer for the EBRD-financed road segment were replaced. On the other hand, the ADB project officer did not find this criticism to be adequately justified, describing the performance of the supervision consultant on the ADB-financed sections as "satisfactory."

38. In the Kyrgyz Republic, the procurement process did not include an adequate assessment of the local contracting industry. This resulted in the contract being awarded to a local firm, Aziyadorinter JV, in a bid to boost the local contracting industry. However, the contractor did not possess sufficient experience and could not raise sufficient funds to finance its cash-flow requirements. The contract was canceled and the work completed by replacement contractor appointed in April 2007.

39. The performance of the supervision consultant in the Kyrgyz Republic faced similar issues as the one for the EBRD sections in Kazakhstan, because of the poor performance of the civil works contractor. In this case, the Kyrgyz Republic Government acknowledged unsuitability of the contractor as the main cause of the failure.

40. A general challenge for contractors and supervisors was the variety of applicable technical standards. According to the Kazdor consultants (detailed design), the Project is based on a combination of Soviet standards, American Association of State Highway and Transportation Officials standards, British Standards Institution, and others. The MOTC engineers and Kazdor consultants are generally more familiar with Soviet standards.

C. Performance of the Beneficiary Countries

41. The performance of the Kazakhstan and Kyrgyz Republic Governments in relation to the Project is rated "less than satisfactory." Loan effectiveness was mainly affected by the delay in

¹⁹ EBRD expanded monitoring report for the Kazakhstan Road Sector Development Project, April 2008. For further clarification, EBRD's Transport Team informed that, in its opinion, the replacement for the initial supervising engineer was lacking the required qualifications and, since EBRD was not party to the consultant contract, that it was not in a position to spot this deficiency at the time of replacement.

ratifying the CBA. Although signed in November 1999, the CBA's eventual effectiveness was rather limited. Government officials in both countries were not aware of any aspect of the CBA being implemented at the time of the OEM. This is a result of lack of government ownership of the concept. As a consequence of these deficiencies, contracts were awarded only during July–August 2003, too late in the year for construction activities to be mobilized, since winter sets in by November.

42. Delays in taking decisions relating to civil works contracts in both countries indicate room for improvement in terms of project management and institutional capacity, which led to less than satisfactory implementation performance of the two MOTCs. Although both countries are long-standing members of ADB and EBRD, and even though it was ADB's second and EBRD's first road project in Kazakhstan and ADB's third road project in the Kyrgyz Republic, the difficulties noted clearly point to shortcomings that need to be addressed for the benefit of future cooperation and harmonization between cofinancing MDBs.

43. These shortcomings are related to unfamiliarity of the executing agencies with international best practices as well as ADB and EBRD procedures, the absence of commensurate training by both MDBs before beginning implementation (ideally to start well ahead of loan effectiveness), and inadequate implementation support for the Kazakhstan section. The inexperience of the Kazakhstan MOTC with ADB procurement procedures was aggravated by the absence of a defined PIU and frequent changes of staff responsible for managing the Project. The decision to not set up a PIU reflects noncompliance with ADB's loan covenant. In addition, the coordination between MOTC and the Kazakhstan Ministry of Finance was not structured efficiently. This led to delays in decision making for the EBRD section. While the issue of whether a PIU is essential may be debated in the broader context of changing environments, the OEM concludes that the establishment of a functional PIU has been found to be important for public sector projects in the context of the Central Asian republics to ensure efficient decision making, better project management, and efficient coordination within the government. In the case of the Kazakhstan MOTC, a PIU could have helped improve implementation performance and the transfer of best practices.²⁰

44. In the Kyrgyz Republic, the Government set up a PIU, which functioned effectively, although some decision-making delays were observed. However, the awarding of the contract to a local firm with unproven experience (at least relating to MDB-financing) exposed the Project to greater risk.

45. The project design included tripartite coordination meetings involving the Governments and financiers to discuss project implementation status, resolve common problems, and ensure full implementation of the CBA (para. 18). The two MOTCs were to finance the costs of preparing and attending these meetings. However, meetings were only held to discuss TA progress. No meetings were organized to discuss project implementation. This is seen as a lack of performance by the Governments, and reflects negatively on the MDBs in terms of their mandates and fiduciary responsibilities.

D. Performance of the Multilateral Development Banks

46. Given the notable implementation deficiencies, the project administration of ADB and EBRD is rated "less than satisfactory." Moreover, the project design comprised a parallel cofinancing structure that could be perceived to be too complex given the limited implementation capacity available. The Project involved two MDB financiers with their own set of procedures and practices,

²⁰ This finding is reinforced by the TA completion report for TA 3530-KAZ (footnote 15), which states that project supervision by the Government could have been better.

concerned two countries or clients, required various technical and other standards to be observed, started with four contracts with construction companies that eventually became six contracts supervised by two consultant engineering companies, and generated documents in several languages and following different reporting lines. In addition, the implementation processes were to be synchronized in the two countries. The wisdom of formulating such a structure in the context of an emerging market could be questioned since a prerequisite is the availability of sufficient capacity within the two MOTCs to coordinate and manage various activities simultaneously. With the benefit of hindsight, rather than adopting a parallel-cofinancing approach, one could have considered a joint-financing approach by pooling both MDB's financial resources and with only one MDB in the lead for project implementation.²¹ Arguably, this could have also increased the leverage for bringing about the aspired development and transition impacts.

47. During implementation, ADB performance could have been improved in several areas. First, the frequent change of the ADB project officer responsible for the Project resulted in lack of sufficient monitoring and supervision. The delays in decision-making by the Kazakhstan Government for the EBRD-funded section and by the Kyrgyz Republic Government for the ADB-funded section, for instance, could have been reduced if a more proactive approach had been taken. Second, ADB did not provide enough support in guiding the Governments on the development of procurement and audit systems. Third, the coordination with other development partners could have been improved. When ADB became aware that the Governments had not initiated the tripartite review meetings, as the lead financier it should have proactively encouraged these meetings. In light of this, ADB's performance is rated "less than satisfactory."

48. The performance of the ADB-funded TA projects in both countries is rated "partly successful." This rating is primarily due to the lack of implementation of the TA outputs. ADB could have added value in the areas of institutional strengthening and capacity development. Appendix 4 provides an assessment of TA performance.

49. The Project provided an opportunity for EBRD to reenter the road sector policy dialogue with the Kazakhstan Government. Its involvement was limited to execution and implementation aspects of the Project. EBRD's general performance in terms of implementation, monitoring, and cooperation with ADB and the Kazakhstan MOTC is rated "less than satisfactory/marginal" for two main reasons—design flaws (e.g., paras. 19, 46, and 61) and massive problems with project implementation (para. 37, et al.). It must be, however, recognized that the powers of a project financier are limited.²²

50. Both ADB and EBRD did not sufficiently scrutinize the implementation capacity of Kazakhstan's MOTC during project conception. This could have been addressed through TA. In addition, the contractor and the supervision consultant on the EBRD section were replaced due to poor performance after a long delay. The EBRD expanded monitoring report, which is the equivalent of the ADB PCR, stated "The risk that the contractor and supervising engineer would fail to deliver the project as contracted was not identified." EBRD should have thoroughly assessed the contractor's capacity at the procurement stage.

²¹ In the OEM's view, potential counter-arguments pertaining to differing procurement eligibilities, MDB country strategy and sector policy differences, and the like are not unsolvable, in principal at least.

²² It may be argued whether the arms-length approach adopted by both MDBs, whereby procurement and implementation was delegated to MOTC (para. 19), was appropriate in view of MOTC's implementation weaknesses in general, the lack of a PIU, the opaque project implementation structure, and the fact that this project was EBRD's first (and ADB's second) road project in Kazakhstan. The line between what perceivably could, and what could not be expected to be done in addition by EBRD is not a clear-cut one, but the OEM believes that EBRD should have adopted a more hands-on approach, possibly with the help of a longer-term TA benefiting MOTC which would also have served for capacity building.

51. Finally, the delay in loan effectiveness was caused by the delay in signing the CBA. The appropriateness of including the CBA as a condition for loan effectiveness could be questioned as it was only indirectly linked to the physical infrastructure at stake. The MDB financing for the project road was combined with sector reforms, although the Governments did not have sufficient ownership of the reforms. The condition imposed on the loans was that they would become effective only after the CBA became effective, i.e., ratified by the countries' parliaments. The ratification of the CBA took much longer than the 90 days envisaged at appraisal. At this postevaluation, the CBA had not been implemented, indicating loss of trade benefits over and above current levels. In other words, the coupling of the CBA with the road improvement could be debated. However in the absence of such a condition, the CBA could have taken much longer to ratify.

IV. ASSESSMENT OF PROJECT OUTCOMES AND IMPACTS

A. Overall Assessment

52. ADB's PCR rated the Project "satisfactory;" this was the self-evaluation of the Project.²³ The PCR satisfactorily met the self-evaluation requirements and, considering that it was prepared prior to project completion and the loan closing date, presented a reasonably comprehensive report.²⁴ It was candid, particularly regarding ADB performance, while lessons and recommendations were well thought out and argued.

53. The EBRD's expanded monitoring report rated the Project "partly successful."²⁵ It identified the significant cost and time overrun in the wake of serious implementation deficiencies, requiring the contractor and supervising engineer to be replaced for the EBRD section, as contributing to the less-than-successful rating. The report extracted valuable lessons for future consideration.²⁶

54. This independent joint evaluation report (JER) rates the overall Project "partly successful." ADB's Independent Evaluation Department (IED) and EBRD's Evaluation Department (EvD) concluded the rating from their respective rating perspectives. IED's criteria focus more on outputs and outcomes. EvD's rating aggregates the different transition impact dimensions (Appendix 7). ADB and EBRD financed distinct parts of the Project, and this rating provides an aggregate assessment of the entire Project.²⁷ Table 3 provides a synthesis of both approaches and a summary of the underpinning constituent factors leading to the overall rating, reflecting differences of the two evaluation approaches and the MDBs' different mandates and corporate practices.

²³ ADB. 2007. *Project Completion Report on the Almaty–Bishkek Regional Road Rehabilitation Project*. Manila. The rating scale applied is highly successful, successful, partly successful, and unsuccessful. The OEM assumes that the PCR intended to rate the Project "successful" rather than "satisfactory" as actually stated in the PCR.

²⁴ ADB. 2007. *Validation Report on the Project Completion Report of the Almaty–Bishkek Regional Road Rehabilitation Project*. Manila.

²⁵ The expanded monitoring report rating scale for the overall assessment is highly successful, successful, partly successful, and unsuccessful.

²⁶ Eventual rating deviations (and different views expressed on what could be regarded comparable subjects and issues) between these two self-evaluation documents, apart from terminological differences, need to be interpreted with caution. First, these self-assessments were not carried out jointly (as was this joint evaluation report [JER]). Second, and pointing to substantive differences, (i) the ADB and EBRD project scopes were different (para. 29), and (ii) the mandate focus of ADB and EBRD is different (i.e., ADB: development impact and poverty reduction, EBRD: transition impact). As the preface to this report explains, the independent EvD–IED JER concentrates on "common ground," which is rated jointly and deals with the different mandate dimensions of EvD's operation performance evaluation review and IED's project performance evaluation report.

²⁷ For instance, the Transition Impact assessment relates to the entire (ADB and EBRD) road project.

B. Relevance

55. The Project is assessed as “relevant.” ADB and EBRD have prioritized rehabilitation of infrastructure in Central Asia in all their related country programs. The Project’s goal and purpose were consistent with the development strategies of the Governments as well as with those of the development partners.

56. The Project is “compliant” with EBRD’s existing transport operations policy, which states that EBRD will continue to support rehabilitation, upgrading, and construction of new roads where investment needs have increased in line with economic growth and a move toward greater regional integration.²⁸ It is also consistent with EBRD’s strategy for Kazakhstan.²⁹

Table 3: Rating Categories Applied by ADB and EBRD

ADB				EBRD	
Performance Assessment	Weight (%)	Score	Rating Value	Performance Indicators	Ratings
Relevance	20	2	0.4	Relevance (Project Rationale, Strategy, and Policy Compliance) [1]	Compliant
Effectiveness	30	2	0.6	Fulfillment of Objectives [2]	Satisfactory
Efficiency	30	1	0.3	Project Financial Performance	Not applicable
Sustainability	20	1	0.2	Company Financial Performance	Marginal
	100		1.5	Transition Impact on Industry and Economy as a Whole (7 Indicators) [3]	Marginal/Satisfactory
Overall	Partly Successful				
Other Assessments					
Criteria	Ratings				
Impact on Institutions	Modest			Environmental Impact	Marginal
Socioeconomic Impact					
Environmental Impact					
				Overall [6]	Partly Successful
Other Assessments					
Borrower Performance	Less than Satisfactory			Additionality ("financial"; "design and functioning") [8]	Verified in all respects
				Bank's Investment Performance	(Not rated)
ADB Performance: Less Than Satisfactory EBRD Bank Handling [7]: Marginal					
Rating Scales				Rating Scales	
Highly Successful >2.7; 2.7 ≥ Successful ≤ 1.6; 1.6 > Partly Successful ≤ 0.8; Unsuccessful < 0.8.				[1] Compliant, Noncompliant; [2] Excellent, Good, Satisfactory, Marginal, Unsatisfactory, Highly Unsatisfactory; [3] Excellent, Good, Satisfactory, Marginal, Unsatisfactory, Negative; [4] Excellent, Good, Satisfactory, Marginal, Unsatisfactory, Highly Unsatisfactory; [5] Outstanding, Substantial, Some, None, Negative; [6] Highly Successful, Successful, Partly Successful, Unsuccessful; [7] Excellent, Good, Satisfactory, Marginal, Unsatisfactory, Highly Unsatisfactory; [8] Verified in all respects, Verified at large, Verified only in part, Not verified.	

ADB = Asian Development Bank, EBRD = European Bank for Reconstruction and Development.
Source: Operations Evaluation Mission.

²⁸ EBRD. 2005. *Transport Operations Policy 2005–2008*. London.

²⁹ EBRD. 2006. *Strategy for Kazakhstan*. London.

57. The Project is in line with the CAREC program, which aims to develop an integrated and efficient transport system in CAREC countries³⁰ in support of sustainable economic growth and poverty reduction. The Project was well coordinated with other development partners (European Union TRACECA), and substantial parallel cofinancing from EBRD and ADB was mobilized. At completion, the Project remained relevant taking into account the regional focus brought by the CAREC program as well as the development plans of the countries.

58. Evaluation of the relevance of a project includes assessing the extent to which the formulation (design) adopted the correct solution for the identified problem. In the case of the Project, quality-at-entry could have been improved. For instance, deficiencies of border infrastructure (para. 61) were not addressed and maintenance training was not included (para. 31). Moreover, the parallel cofinancing structure involving two countries, various components, and multiple financiers was complex and difficult to implement (para. 46). In addition, the imposition of a loan condition relating to the CBA was not realistic. These deficiencies contributed to the lowering of the Project's rating from "highly relevant" as stated by the ADB PCR to "relevant" at this postevaluation.

C. Effectiveness

59. The Project is rated "effective" in achieving its immediate purpose (IED rating) and "satisfactory" (EvD rating) for fulfillment of objectives. The Project achieved its main purpose of improving the efficiency of the regional road between Almaty and Bishkek (Appendix 1). Traffic on the road has increased since project completion and is forecast to continue increasing with economic growth in the region. The improved quality of the road has enabled higher travel speeds, from an average of 40 km per hour to over 60 km per hour. This has had a corresponding impact on cost and time savings, and also on road safety (para. 87). Field interviews confirm that travel time between Almaty and Bishkek has been reduced by an hour due to increased average vehicle speeds.

60. On the Kyrgyz Republic section, traffic is reported to have improved from 5,000 to 6,000 vehicles per day (vpd) at appraisal to around 8,500 vpd, with heavy traffic up to the bypass to Dordoy market. In Kazakhstan, customs authorities report the number of vehicles passing through the border tripled from 1,500–2,000 vpd in 2000 to around 5,000–6,000 vpd in 2008. In Bishkek, a freight forwarder claimed that with completion of the project road, they are now shipping twice the amount of goods as before the Project.

61. The international border on the Almaty–Bishkek road is demarcated by a 57-meter long bridge on Chu River at Akzhol–Chu. It is a fairly old structure in need of maintenance. Although this bridge is narrow and reportedly has become weak, its rehabilitation was not included in the Project for reasons that remain unknown. The OEM regards this omission as a substantial design flaw of the Project, of the same magnitude as the inadequate attendance to maintenance requirements (paras. 23 and 29). Since the bridge has only two lanes, it is usually congested. The weak structure combined with congestion prompts heavy vehicles to use a separate border crossing at Ak–Tilek. This increases the travel distance by 25 km and reduces the overall effectiveness of the project road. Moreover, the Ak–Tilek border crossing does not have sufficient equipment (e.g., electronic sealing) to service high traffic volume. A survey carried out to assess the time taken to cross the Akzhol–Chu border showed that trucks typically require 3–22 hours (Appendix 8). The deficiencies have affected the overall effectiveness of the Project.

³⁰ CAREC countries include Afghanistan, Azerbaijan, People's Republic of China (focusing on Xinjiang Uygur Autonomous Region), Kazakhstan, Kyrgyz Republic, Mongolia, Tajikistan, and Uzbekistan. Further information on <http://www.adb.org/carec/>.

D. Efficiency

62. The Project is rated “less efficient” on the basis of an economic reevaluation carried out in 2008. Table 4 summarizes the economic internal rate of return (EIRR) for the Project at appraisal, completion, and postevaluation. The analysis for postevaluation includes two cases.³¹ Taking into account the lower rating for sustainability, case 1 assumes that the Project is less likely to be adequately maintained, i.e., the resources allocated for maintenance will be less than required. This results in an overall EIRR of 11.6% for the entire Project. Case 2 assumes that the Project will be maintained adequately and all the resources required will be provided. In this optimistic scenario, the overall EIRR increases to 16.6% for the Project. Table 4 also provides the breakdown of the EIRR for various project components financed by ADB and EBRD. The combined EIRR for ADB road investments in Kazakhstan and the Kyrgyz Republic under the Project is 10.7% under case 1 and 15.3% under case 2. For EBRD, the EIRR is relatively higher at 15.3% for case 1 and 21.2% for case 2. Appendix 9 provides details on the methodology and recalculation of the EIRRs.

Table 4: Recalculation of Economic Internal Rates of Return (% and \$ million)

Item	Appraisal (1999)			ADB PCR (2007)			Postevaluation (2008)				
	km	EIRR	NPV	km	EIRR	NPV	km	Case 1		Case 2	
								EIRR	NPV	EIRR	NPV
Overall Project	245	23.8	72.5	221.0	16.7	34.7	225.7	11.6	(4.2)	16.6	56.2
By Country											
Kazakhstan (ADB+EBRD)	205	23.7	68.0	201.8	17.9	39.0	206.4	11.7	(2.5)	16.8	56.2
Kyrgyz Republic (ADB)	40	25.9	4.5	19.2	16.3	1.3	19.3	7.7	(1.7)	9.0	(1.3)
By Funding Source											
EBRD section	50	26.8	—	50.0	—	—	50.4	15.3	6.4	21.2	23.4
ADB section	—	—	—	—	—	—	175.3	10.7	(10.7)	15.3	32.8
Kazakhstan	—	—	—	—	—	—	156.0	10.8	(8.9)	15.6	34.1
Kyrgyz Republic	40	25.9	4.5	40.0	16.3	1.3	19.3	7.7	(1.7)	9.0	(1.3)

— = not calculated, ADB = Asian Development Bank, EBRD = European Bank for Reconstruction and Development, EIRR = economic internal rate of return, km = kilometer, NPV = net present value, PCR = project completion report.
Source: Operations Evaluation Mission estimates.

63. Since the Kazakhstan component occupies the larger share of the project scope and cost, it has a stronger influence on the overall EIRR. ADB’s Kazakh component accounted for 91% of the total length of the improved road. The EIRR of 10.8% for this component under case 1 accounted for the lower overall project EIRR. On the other hand, since the EBRD section experienced higher growth in traffic, it resulted in an increase in the overall EIRR.

64. In both cases, the EIRR for the Kyrgyz Republic component was distinctly lower at postevaluation because of the cost overrun resulting in a reduction in the project scope from 40.8 km to 19.3 km. This led to a loss of benefits that was compounded by slow traffic growth in the Georgievka border area leading up to the bypass intersection. On the positive side, incremental benefits from the short link between the main road and the Dordoy market as well as the main road from Bishkek to the intersection have strengthened overall performance of the Kyrgyz Republic component of the Project.

³¹ This analysis may be considered conservative as a number of other project benefits were not quantified but may be potentially significant. These include time savings from cargo delay, economic benefits from improved road safety, savings due to facilitation of traffic, and trade at the Kazakhstan and Kyrgyz Republic international border. If the economics of these are included, then the rate of return may markedly increase. It is also important to note that low maintenance regime would incur low operation and maintenance cost, and at the same time result in low quality road, which will yield low economic benefits arising out of low cost savings and time savings.

65. The overall rating of “less efficient” could be revised in the future if maintenance allocations are improved and the two Governments take specific steps to channel further resources to road maintenance and in response cost and time savings increase. Table 4 presents the scenario where the EIRR could increase with improved maintenance allocation. This indicates that ADB and EBRD need to engage in further dialogue with the two Governments to improve the overall efficiency of the Project.

66. The Project was characterized by implementation delays due to several factors (para. 19). The Kyrgyz Republic section was delayed by 45 months, while the Kazakhstan section was delayed by 20 months. Most of the causes of the delays were within the control of the two Governments and could have been addressed early. The poor implementation performance contributed to the lower efficiency rating.

E. Sustainability

67. The Project was completed recently; thus predicting the sustainability of the project road and the ancillary components is difficult. However, based on experience in terms of provision of adequate funding for road maintenance as well as the status of capacity building in both countries, the Project is rated “less likely to be sustainable.” Although conditions have definitely improved over time, they do not appear to be sufficient at present, and even less likely to be so in the long run.³² Currently, the project road is under the warranty period. Ongoing civil works relate to contractor defects liability.³³

68. As part of its preparation efforts for this Project, in 2000 EBRD provided independent consultants to undertake the first review of road sector financing and road user cost recovery in Kazakhstan. However, neither country collects a load-related roads tax to generate commensurate revenue for road maintenance. Table 5 shows the annual contribution (budgetary allocation) for maintenance of the roads from the central budget in the two countries. Although the figures show a steady increase in budget allocation, the actual funds provided for road maintenance have been lower than the requirements.³⁴ Table 5 also indicates an absence of a maintenance planning mechanism in Kazakhstan—the funds required by MOTC have been constant since 2003. Good practice would ask for an annual review of road conditions before estimating the maintenance requirements.

³² The EBRD Project Team agreed to the need for revising the financial structure and continue to take steps to increase cost recovery from road users. The Team recognized that road sector finance is the most difficult area for MDBs to negotiate and enable policy changes.

³³ At the moment, the road surface is being repaired at three points: 82 km, 85 km, and 101 km from Almaty. These repair works are covered by 1-year guarantee obligations of the contractor. Road maintenance in this region is difficult due to extreme climate changes during the year: the temperature varies from -50°C up to $+50^{\circ}\text{C}$. The asphalt surface is being destroyed very quickly by cold and hot weather. Recently, all important roads are designed to have at least 60%–95% concrete (beton) in their composition.

³⁴ The following comment from ADB colleagues is reiterated here: “Typically, it is difficult for the Government to state the amount of funds to be required or allocated for a specific project or road section, since this will depend on the level of wear and tear. In light of this, the Governments need to develop a maintenance regime wherein the road roughness is measured every year and a maintenance prioritization program be developed to ensure that road roughness does not deteriorate. Till such a regime is put in place, it would be difficult to state with confidence that the Project is sustainable.”

69. A joint country portfolio review of the Kyrgyz Republic emphasized the seriousness of this issue.³⁵ ADB has provided TA to the Kyrgyz Republic to (i) improve funding and diversification of revenue sources for the road sector, (ii) prioritize road network projects, (iii) commercialize maintenance works, and (iv) carry out reforms in sector management systems.³⁶ Discussions with government officials during the OEM indicated that efforts were being made to increase allocations from the central budgets. ADB provided grant assistance to the Kyrgyz Republic Government to enable outsourcing of performance-based contracts in 2009 and to prepare a road maintenance privatization strategy.³⁷ In Kazakhstan, ADB³⁸ and EBRD are currently engaging with the Government to improve road maintenance funding and practices under the Western Europe–Western PRC Project. Such interventions could contribute to improving the sustainability of the Project in the future.

Table 5: Contribution to Road Maintenance (at current prices)

Year	Kyrgyz Republic			Kazakhstan		
	Funds needed by MOTC (Som)	Actual Funds provided by the Ministry of Finance (Som)	Allocation (%)	Funds needed by MOTC (Tenge)	Actual Funds provided by the Ministry of Finance (Tenge)	Allocation (%)
2003	694,000	255,921	37	13,285,000	2,233,429	17
2004	694,000	278,551	40	13,285,000	3,529,898	27
2005	694,000	221,674	32	13,285,000	4,383,807	33
2006	700,000	410,177	59	13,285,000	4,943,552	37
2007	900,000	899,509	100	13,285,000	6,833,552	51
2008 ^a	1,378,100	1,150,000	83	13,285,000	6,947,052	52
2009	1,700,000	To be decided		13,285,000	To be decided	
2010	1,800,000	To be decided		13,285,000	To be decided	

MOTC = Ministry of Transport and Communications.

^a Provisional.

Source: Data obtained from Kazakhstan and Kyrgyz Republic MOTCs.

70. Since heavy vehicles tend to increase the wear and tear of the road, control of vehicle axle loads is an important factor in road sustainability. In Kazakhstan, the OEM observations indicate that light vehicles traveling between Almaty and Bishkek make up most of the traffic. The border infrastructure includes a vehicle weigh bridge, with Russian equipment installed in 2004. On the Kyrgyz Republic side, vehicle weight control is premised on truckers policing themselves and other points of entry checking on axle load. A weigh bridge located near the Akzhol border point uses equipment dating back to the 1980s. Tests are random, and an overloaded truck is allowed to continue on the road after payment of a fine. Recent changes to the legislation in both countries

³⁵ A joint country portfolio review carried out by ADB, Kreditanstalt für Wiederaufbau (KfW), Islamic Development Bank, and World Bank in the Kyrgyz Republic indicates that “serious doubts” remain over the sustainability of the development impact of the roads in the country due to the lack of an effective road maintenance system. In 2000, 45% of the 5,400 km core road network (including regional corridors) met the minimum operating standards. This figure dropped to 32.8% in 2006, confirming the inefficiency of the existing resource-driven maintenance system, which remains largely unchanged since Soviet times. Source: ADB, Islamic Development Bank, KfW German Development Bank, and World Bank. 2007. *The Kyrgyz Republic: 2007 Joint Country Portfolio Review*. Bishkek.

³⁶ Source: ADB, Islamic Development Bank, KfW, and World Bank. 2007. *The Kyrgyz Republic: 2007 Joint Country Portfolio Review*. Bishkek.

³⁷ ADB. 2007. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan, Asian Development Fund Grants, and Technical Assistance Grant to the Kyrgyz Republic and Republic of Tajikistan: CAREC Regional Road Corridor Improvement Project*. Manila (Loan 2359-TAJ[SF], for \$40.9 million, approved on 24 October).

³⁸ ADB. 2008. *Report and Recommendation of the President to the Board of Directors on Proposed Multitranche Financing Facility and Administration of Loan to the Republic of Kazakhstan: CAREC Transport Corridor I (Zhambyl Oblast Section)*. Manila (Loan 2503-KAZ, for \$340 million, approved on 30 December).

have provided the legal framework for controlling vehicle overloading.³⁹ However, this needs to be enforced consistently with the use of appropriate equipment in the weigh bridges.

F. Impacts

1. Transition Impact

71. The Project's transition impact for the road sector and the economy, the prime impact focus in line with EBRD's mandate and substantially contributed through TA initiatives funded by ADB, IBRD, and European Union-Technical Assistance for the Commonwealth of Independent States, is rated "marginal/satisfactory." In this context, the OEM's view is that the transition impact potential is comparatively low from the outset for a road rehabilitation project that does not have associated clear intentions for direct and longer-term private sector involvement or privatization.⁴⁰ The EBRD transition impact methodology differentiates a set of transition impact categories, time (short versus long term) and level (entity versus sector/economy as a whole) dimensions, and risks that are likely to affect longer-term realization of the transition potential (Appendix 7).^{41,42} The majority of the sector reform initiatives can be best attributed to EBRD's transition impact dimension "frameworks for markets," although the dimensions "private ownership," "market expansion and new standards for business conduct," and "skill transfer" come into play.

72. Giving credit to major transition impact achievements in the past (i.e., the separation of the policy and administration roles of MOTC and the introduction of tendering procedures and a degree of private sector participation in the road contracting industry), EBRD's appraisal document identifies as key reform steps: "An RSDP and a set of laws and regulations covering the control of vehicle overloading, road safety, and road design and environmental standards (jointly with ADB and IBRD)." More specifically, the related covenants in its Loan Agreement (Appendix 3) stipulate that

- (i) the RSDP, which also was to "provide for financial mechanisms aiming at a stage-by-stage conversion to a system based on cost recovery from road users" be adopted no later than 30 June 2002;
- (ii) the automobiles road act be submitted to the Kazakhstan Parliament no later than 31 December 2002;
- (iii) the public motor roads design standards and regulations, and public motor roads construction specifications, each to be prepared under ADB-financed TA, be adopted no later than 1 January 2003; and

³⁹ In practice, truckers also discipline themselves particularly those plying routes to Europe. They usually need to pass through 17 or more weigh stations along their route, providing an indirect check.

⁴⁰ EBRD's Transport Team reemphasized in its comments that this was EBRD's first road project in Kazakhstan and that traditionally EBRD is keeping Transition Impact expectations in its initial projects relatively modest with a view to imposing harder targets in subsequent projects. A main point of criticism—for transition impact as well as other impacts referred to in this JER—monitoring and evaluation of the initiation and progress of impacts intended and described at appraisal is difficult since monitoring and evaluation mechanisms were not introduced as project design elements. This has resulted in monitoring and evaluation of outputs (rather than effects) only in terms of "actions taken," but not of their benefits or results.

⁴¹ The transition impact analysis matrix contained in Appendix 7 focuses on seven defined indicators (agreed upon by EBRD's Office of the Chief Economist and EvD), comprises individual ratings for each transition impact category, and distinguishes between the short-term verified impact (step 1) and the remaining potential for the longer-term (step 2) together with associated risk ratings.

⁴² The risks to transition are defined in the Board of Directors document as delays or reversals in the impetus of sector reform, partly mitigated through the EBRD loan covenants.

- (iv) the road traffic safety act—taking into account a related IBRD-financed TA to be carried out during 2001–2003—be submitted to the Kazakhstan Parliament no later than 30 June 2003.

73. Applying EBRD's transition impact methodology, all the above laws and regulations would fall under the category "frameworks for markets" and the achievement record is as follows:

- (i) The RSDP was made effective as a presidential decree at the end of November 2001, followed by a related national transport sector strategy in 2005. However, serious gaps are reported between the adopted policy and its actual implementation. With no implementation schedule or monitoring indicators and benchmarks, progress and current status is difficult to assess. Even though financial resources for the road sector (Table 5) have increased, the amount generated from road user charges as intended, let alone their sufficiency to cover proactive and adequate routine maintenance (a sustainability dimension) is not clear. According to the OEM's information gathering, the covenant-implied cost-recovery principle has not materialized. A particular case is that heavy goods vehicles (HGV), in theory at least, should pay more for road use, due to the extra costs they impose; but the Government is reluctant to introduce such rigor, concerned about the additional burden this poses on small trucking enterprises and given this group's lobby powers. In a sense, this reluctance effectively constitutes a negative cross-subsidy from the road budget for the benefit of specific road-user groups, which the Project strived to prevent. The extent to which such concerns have hindered the introduction of an effective HGV weighing program would be speculative. An agreed action plan for implementation seems to be missing. Therefore, EvD rates this dimension "marginal."
- (ii) The Automobiles Road Act was submitted to Parliament in July 2001 and ratified in January 2003 and, therefore, a rating of "good" is justified.
- (iii) The extent to which the public motor roads design standards and regulations, and the public motor roads construction specifications ambitions were achieved could be debated. While no formal regulations in these respects were adopted, more than 100 norms and standards were identified by April 2005 with the help of ADB-financed TA. Of these, more than 60 have been completed. In view of this, EBRD considers the covenant as complied with, although the OEM could not ascertain the extent to which these norms and standards are actually applied. With some benefit of doubt, therefore, the transition impact is considered best rated "satisfactory."
- (iv) Finally, the road traffic safety act eventually was deemed redundant. MOTC decided not to use the IBRD loan for this purpose and instead used its own funds in May 2003 for a related consultant assignment. Concurrently, ADB funded a TA consultant to assist MOTC with various road sector issues including safety. As a result, EBRD agreed that a new road traffic safety act was not needed. In addition, on 30 December 2000, the Government passed a decree establishing "The Program for improvement of a state system of providing and ensuring road safety for passenger and cargo transportation. The Government also passed various other minor pieces of secondary road traffic safety legislation based on the 1996 act, and additional legislation with a road safety component under the Motor Vehicle Act of July 2003." The component is rated "satisfactory." However, it is associated with negative implications (para. 87).

74. Expectedly, the road rehabilitation led to significantly increased travel speeds (para. 59). While this has increased benefits to road users in terms of savings of travel time and vehicle operating cost (VOC), it unfortunately has had a negative impact on road safety (para. 87). In absolute figures, the number of accidents increased significantly after road improvement.⁴³

75. Although not specifically addressed in EBRD's appraisal document, the following transition impact aspects are identified:

- (i) **Private ownership.** ADB had covenanted that the Kazakhstan MOTC should "establish a state joint stock company to manage the road equipment pool (procured under the Project), including renting out such equipment on a commercial basis." This could have provided a formidable initiative for an unbundling of MOTC in that its road maintenance division would have eventually become a separate corporative entity operating according to commercial principles. In addition, it would have provided other local construction companies with access to better equipment and may thus have brought about a more vivid competitive market in the road maintenance subsector with potential spillover effects to neighboring countries. Unfortunately, this initiative was not supported by the Government and therefore should be rated "marginal" although some limited subcontracting reportedly is ongoing.
- (ii) **Market expansion and new standards for business conduct.** Using subcontractors during construction meant that backward-linkages were established benefiting small- and medium-sized enterprises in the construction industry. Indirectly, through the quality and processing standards stipulated under the main ADB and EBRD-financed road construction contracts, those subcontractors were obliged to adhere to project standards. On the other hand, the cancellation of EBRD's small-scale road improvement component (para. 22) prevented further outreach. A rating of "satisfactory" is assigned.
- (iii) **Skill transfer.** Skill transfer can be assumed to have happened before and during the implementation phase in the context of procurement processes and construction works. However, the cancellation of EBRD's project-linked small-scale road component (para. 22), the abandonment of the previously existing PIU with foreign consultant participation (para. 17), and the absence of a maintenance training project component (para. 31) reduced skill transfer potential. Therefore, this aspect is rated "marginal."

2. Impact on Institutions

76. The Project contributed to introducing international best practices for international procurement rules and project implementation.⁴⁴ In terms of the private sector, the Project contributed to the development of the road construction industry in the region; local contractors learned new techniques from international contractors. This impact could have been greater if project implementation had been smoother (para. 19). In general, ADB and EBRD could have added value in the areas of institutional strengthening and capacity development. Overall, the impact on institutions is rated "modest."

77. The TA project in the Kyrgyz Republic did not have any institutional development component. The TA project in Kazakhstan included a component intended to streamline

⁴³ The rate of growth of the number of fatalities and injuries is lower than the rate of growth of the traffic (Appendix 10).

⁴⁴ For example, the use of international competitive bidding for the consulting and civil works contracts exposed the executing agencies and local contractors to international standards for better access to advanced technologies.

ministerial and departmental responsibilities to assign roles based on redefined functions and to help implement the Road Sector Policy Statement. The Kazakhstan MOTC carried out a major reorganization in 2007 to separate out planning, procurement, administration, and finance from execution. However, this reorganization was not linked to the outputs of the TA.

3. Socioeconomic impact

78. When analyzing the socioeconomic impact of the Project, consideration must be given to the fact that the Almaty–Bishkek road was functional (albeit in rather poor physical condition) before the ADB and EBRD-funded interventions. In other words, the net incremental impact of the road improvement should be assessed. This is difficult as the national economies of the two countries have improved in recent years indicating that the socioeconomic impact could be attributed to several other factors in addition to road improvement. Overall, the socioeconomic impact was modest and focused mainly on trade improvement.

79. The socioeconomic survey carried out by the OEM identified three main positive impacts: (i) New sources of livelihoods were opened such as retail shops, taxi driving, car washing, roadside cafes, and hair salons. (ii) The number of trips made per day is higher on the Kyrgyz Republic section as the road is used for daily transportation relating to employment, education, trading, and so on. On the other hand, the weekly and monthly trips on the Kazakhstan side are higher since the road is used for weekly visits to the markets. The number of trips in both cases increased since road improvement because of shorter travel time and improved transport services. Related to this is the impact on tourism in the Kyrgyz Republic, which received a boost due to the improved Almaty–Bishkek road. An increased number of tourists are visiting Lake Issyk–Kul in the Kyrgyz Republic. As a result, the gross domestic product of the Issyk–Kul oblast grew by 131.6% in 2007 from 2006.⁴⁵ (iii) The majority of those surveyed reported an increase in awareness of sexually transmitted diseases through mass media. This could also be attributed to parallel government interventions. On the other hand, the former Soviet Union countries currently have the highest incidence rate of HIV/AIDS in the world, and roads are proven “vectors” for increased incidence. While no data were collected and there was no causal link apparent between the construction of this road and an increase in HIV/AIDS, based on global experience an assumption of a linkage between infrastructure development and an increase in HIV/AIDS is reasonable. The Project did require the dissemination of information regarding sexually transmitted diseases and prevention (Appendix 3, Table A3.1), but no apparent assessment was made either during the Project related to changes in incidence or subsequent to the Project related to prevalence.

80. Most of the areas along the road are uninhabited. Three large villages are located between Almaty and the international border: Chemolgan, Kaskelen, and Akzhol–Chu. On the Kyrgyz Republic side, the road between Bishkek and the international border passes through a periurban area comprising Alamedin and Leninskoe villages. The OEM included these areas in the socioeconomic survey. The Project had a negative impact during road construction as people living in the vicinity encountered traffic congestion, dust, and noise. Due to implementation delays, these issues were prolonged.

⁴⁵ Source: <http://www.24.kg/community/2008/02/01/75445.html>.

4. Cross-Border Impact and Trade

81. The border-crossing impact was diluted as no major changes were made to facilitate cross-border movements. Several people interviewed by the OEM stated that border crossing had become more difficult because of bureaucratic procedures on the Kazakhstan side. Almost all the Kyrgyz Republic respondents crossing the border to Kazakhstan highlighted the need to simplify customs and border procedures. In addition, the customs and border control for passengers and freight needs to be separated to improve efficiency. Moreover, the congestion caused by insufficient border infrastructure (para. 61) creates a barrier to cross-border movement on both sides.

82. Trade between Kazakhstan and the Kyrgyz Republic across the Akzhol–Chu border crossing on the Almaty–Bishkek road increased by an average annual rate of 38% from 2000 to 2007 (Table 6). One of the factors helping the rapid increase in the value of goods traded is the appreciation of the Kazakhstan currency (tenge) against the dollar. The share of trade through the Akzhol–Chu border crossing on the Almaty–Bishkek road vis-à-vis total trade between Kazakhstan and the Kyrgyz Republic was almost uniform every year until 2006 when it started rising. This coincides with the completion of the various road sections.

Table 6: Trade on Almaty–Bishkek Road through the Akzhol–Chu Border Crossing

Year	Value of Trade through the	Trade through Akzhol–Chu/Total Trade
	Akzhol–Chu Border Crossing (\$ million)	between Kazakhstan and Kyrgyz Republic (%)
2000	18.5	20
2001	26.1	22
2002	35.2	23
2003	58.9	26
2004	75.9	26
2005	63.8	22
2006	100.8	28
2007	153.6	30

Sources: Customs Control Committee, Government of Kazakhstan; total trade volumes obtained from the International Monetary Fund Direction of Trade Statistics CD ROM; and Customs Control Committee, Government of Kazakhstan.

83. Table 7 shows the impact on trade between Kazakhstan and Turkey using the Almaty–Bishkek road. The road sector continues to face competition from the railway sector as evidenced by the fact that the road sector carried smaller-sized goods that have larger values.

Table 7: Regional Trade Using the Almaty–Bishkek Road

Year	Kazakhstan (Almaty)–Turkey Trade by Road		Kazakhstan (Almaty)–Turkey Total Trade	
	Tons Carried	Value (\$ million)	Tons Carried	Value (\$ million)
2004	87,151	228	828,157	489
2005	102,675	272	851,491	557
2006	149,551	428	1,445,796	907
2007	186,149	670	2,143,523	1,893

Source: Union of International Road Carriers of Kazakhstan.

5. Poverty Impact

84. As per the loan agreements between ADB and Kazakhstan and ADB and the Kyrgyz Republic, the respective MOTCs should have collected baseline data before project implementation, and BME after project completion. However, these were not undertaken in Kazakhstan. With the Government facing funding and resourcing constraints, BME could not be given high priority. In addition, the impact on poverty at the project level needs to be monitored on a sample basis only.⁴⁶ In view of this, the requirement for BME to be undertaken by the Governments could be difficult to fulfill. Requiring a BME after project completion was a standard clause in loan agreements when the Project was processed. The risk is high that such loan covenants will not be complied with. Greater recognition needs to be given to the fact that executing agencies do not wish to allocate their scarce resources for such studies, as their day-to-day operations do not require such data. While ADB placed priority on monitoring project impacts on poverty for every project, the executing agencies did not feel that this was the most appropriate way to spend their limited budget. Sector and country impact evaluations would yield an adequate understanding of the socioeconomic benefits of road projects. At the institutional level, ADB now recognizes the considerable costs and problems in establishing clear linkages between project inputs and impacts.

6. Environmental Impact

85. The OEM did not include a specific environmental assessment, as the potential for environmental performance and change (other than health and safety) was rather limited in this Project apart from some minor road realignment in the remote mountain area of Kazakhstan. At appraisal, the Project was classified category B (ADB classification) and category B/O (EBRD classification). Although no environmental impact assessment was required, ADB carried out an initial environmental examination during the feasibility study and loan preparation (footnote 5). Similarly, EBRD carried out an environmental assessment. These assessments did not systematically record any environmental data (biodiversity, air quality, accident rates), thus no baseline information is available. This indicates limited capacity within the Governments for monitoring environmental impacts. Due to the increase in traffic volume and consequent higher pollution, the vulnerability to negative environmental impact has increased. In addition, the OEM observed that some of the trees located adjacent to the project road had dried up. An assessment needs to be carried out to check whether this impact is attributed to road construction or to road operation. Future ADB or EBRD assistance could include such an analysis. Appendix 11 includes pictures of the trees located less than 5 meters from the project road.

86. In summary, IED rates the impact on environment “modest.” EvD rates the Project “satisfactory” for environmental performance but “negative” for environmental change, resulting in an environmental impact rating of “marginal.”⁴⁷ Little to no positive measurable impact is associated with improved accident contingency planning, emergency response units, or social infrastructure such as safe crossing points. Negative impacts are likely to have occurred involving trees, pollution, number of accidents, and HIV/AIDS.

⁴⁶ As per ADB. 2004. *Review of ADB's Poverty Reduction Strategy*. Manila, establishing a clear linkage between project inputs and results is costly and difficult, and poverty effects at the project level are monitored on a sample basis only.

⁴⁷ EvD has been pilot testing a combined indicator. Given that this is a preexisting road, the potential for environmental change is assessed to be 1. This assessment is also given to environmental performance and environmental change.

7. Road Safety

87. The road rehabilitation led to significantly increased travel speeds (para. 59). While this increased the benefits to road users from travel time and VOC savings, it had a negative impact on road safety. The number of accidents has increased distinctly after road improvement. The number of accidents on the project road in the Zambyl and Almaty oblasts of Kazakhstan increased from 89 in 2000 to 489 in 2007, an increase in absolute terms which corresponds to significantly increased traffic volumes over the same period. In the Kyrgyz Republic, since the project road is a periurban road, the accident statistics tend to be part of the urban data. Appendix 10 provides a summary of the impact on road safety.

88. Although the Project included several policy-level interventions for road safety, interventions at the project level have been limited. The absence of a dual carriage way on ADB sections is seen as detrimental to road safety, i.e., the pavement needs to be widened and a road divider installed along the entire section. Given the relatively low volume of traffic on the ADB section, building a dual carriage way may not have been economical in 2000. However, with growth in economic activity along the road, road widening could be considered in the future.

V. ISSUES, LESSONS, AND FOLLOW-UP ACTIONS

A. Border Infrastructure

89. **Issue.** Exclusion by the Project of a bridge over the Chu River at the international border crossing on the Almaty–Bishkek road reduced its effectiveness. The current bridge is weak and cannot sustain high HGV traffic volume. This causes congestion at peak times on both sides of the border. The deviation of some HGV traffic via another border-crossing point increases the travel distance by 25 km. In light of this, the existing bridge should be rehabilitated or a new one built. In addition, border infrastructure needs to be improved in terms of customs equipment, immigration counters, vehicle parking areas, freight storage facilities, and other logistic facilities for freight handling. Currently, road users face long waiting times to cross the border owing to inadequate border-crossing facilities e.g. immigration counters and freight clearance areas.

90. **Lesson.** Project design of physical infrastructure projects need to adopt a more holistic approach that understands the logistics chain rather than just a road section. In other words, complementary projects should be implemented in parallel or sequentially to ensure that overall trade costs are reduced and thus full benefits of the road infrastructure can be realized.

B. Lack of Capacity of Implementing Institutions

91. **Issue.** The lack of adequately trained resources in the public sector continues to be an issue. This is particularly true for road maintenance in both countries where road project implementation and monitoring capacity is lacking. For example, the absence of a dedicated and adequately staffed PIU within the Kazakhstan MOTC and frequent staff changes indicate strains in institutional capacity to implement complex projects. The incremental difficulties presented by this complex project strained the existing capacity further. It also highlighted the need for training at the appraisal stage for MOTC staff. The difficulties and delays in procurement activities indicate that such training could have been beneficial. They also highlight the importance of verifying the credentials and expertise of contractors during the procurement process. The experience with the civil works contractor on the EBRD section showed that although no formal procurement failures were identified, the procurement process cannot by itself ensure that shortlisted candidates have sufficient capacity to mobilize funds, equipment,

and human resources in the country.⁴⁸ Institutional capacity in terms of implementing and monitoring environmental safeguards needs to be strengthened.

92. **Lesson.** Quality-at-entry standards need to ensure that the institutional analysis is of sufficient quality to identify risks and establish appropriate mitigation measures. To address the gaps in institutional capacity, TA support should be appropriately structured during project preparation.

C. Adequacy of Loan Covenants

93. **Issue.** The ratification of the CBA was a condition for loan effectiveness. This resulted in a delay in effectiveness followed by a delay in implementation. However, if this had not been a loan condition, the CBA ratification could have been prolonged. While this condition was helpful, it also resulted in a delay. However, the insistence on the ratification was not followed up by implementation of the CBA by the two Governments. In other words, the costs in terms of delays in loan effectiveness did not yield the expected benefits of the CBA.

94. **Lesson.** A loan covenant needs to be realistic, i.e., ownership within the Government must be strong to ensure its implementation. In the absence of adequate ownership, implementation of such agreements is delayed and unlikely to be fully implemented.

D. Importance of Sufficient Maintenance Allocations

95. **Issue.** Lack of adequate allocation of funds is a major issue facing both countries. The current allocations from the Governments' central budgets are not sufficient to fulfill the maintenance requirements. ADB initiated policy and institutional measures to address this issue (para. 69). An earlier IED review in Kazakhstan highlighted this issue.⁴⁹ Although the loan covenants of both MDBs included road maintenance topics, no quantitative or qualitative requirements were agreed. In the loan covenant between EBRD and Kazakhstan, the focus was rather on a future system based on cost recovery from road users than on the adequacy of a road maintenance budget in the first place.

96. **Lesson.** Project sustainability hinges on the provision of sufficient resources (financial and personnel), presence of skills, and supply of equipment for routine and periodic maintenance. Strong commitment of the benefiting government needs to be ensured in this respect. This requires productive and sustained dialogue with the respective Government to enable policy and institutional change.

E. Project Financing

97. **Issue.** The use of parallel financing created implementation issues in Kazakhstan, since the Government was required to comply with two different sets of implementation procedures (para. 46). This contributed to delays and higher transaction costs.

98. **Lesson.** Harmonization in project financing could be considered under the Paris Declaration.

⁴⁸ EBRD's Transport Team comments that "EBRD has become more mindful of the burden that project implementation puts on project teams once things start go wrong. Thus, EBRD has now established a Business Group Directorate specifically dedicated to monitoring. However, this valuable resource was not available to the Transport Team during the implementation of this project."

⁴⁹ ADB. 2005. *Project Performance Evaluation Report on the Road Rehabilitation Project*. Manila.

F. Follow-Up Actions

99. Based on the evaluation findings, several follow-up actions are proposed for consideration by ADB and EBRD:

100. **Improve the Bridge on the International Border.** ADB and EBRD, in conjunction with the Kazakhstan and Kyrgyz Republic Governments, need to include border infrastructure improvement in future assistance (para. 61). The rehabilitation of the existing bridge or construction of a new bridge is crucial to increasing the effectiveness of the Project.

101. **Improve Border Infrastructure.** Future trade facilitation efforts should include establishment of customs equipment, immigration counters, vehicle parking areas, and freight storage facilities. The CBA, which includes the development of such infrastructure, needs to be put into action. In 2004, ADB approved a loan for the Regional Customs Modernization and Infrastructure Development Project.⁵⁰ This is a positive step and needs to be followed-up with specific assistance to rehabilitate the Akzhol–Chu border post.

102. **Implement the Cross-Border Agreement.** The simplification of border procedures is an important input to trade facilitation. The CBA signed in 2000 and subsequently ratified included a broad spectrum of activities designed to regulate and ease the movement of people, goods, and vehicles across the border. This agreement needs to be implemented using a definite action plan. The intention to introduce one-window customs clearance is a first step. This should be followed-up by ADB and EBRD assisting the Governments to implement such a plan. In addition, actions should be identified in the areas of road transport services, vehicle specification and control, and transit traffic.

103. **Improve Maintenance Planning and Allocations.** Sustainability of transport infrastructure is crucial for the overall success of development assistance. The Kazakhstan and Kyrgyz Republic Governments have recognized the need to improve the sustainability of transport infrastructure. However, much work is needed to develop maintenance regimes based on needs, achieve a balanced distribution of public funds, and improve cost recovery (para. 68). These are the opportunities and areas where development partners can add value in terms of policy dialogue and transfer of knowledge from other countries. ADB and EBRD need to work closely with the Governments to enable these changes and encourage harmonization with the other development partners.

104. **Road Safety and Impact on the Environment.** Improvement of roads has a direct correlation with deterioration of road safety. This is aptly demonstrated by the experience with the Almaty–Bishkek road. ADB and EBRD should emphasize road safety issues in future assistance to these countries.⁵¹ Although the legal framework exists, the enforcement of rules has not been adequate. For example, use of seatbelts and prohibition of drunken driving should be strictly enforced. In addition, the Governments need to establish quality control procedures for imported vehicles to ensure that the impact on environment, safety, and reliability is not compromised. Finally, public awareness needs to be improved through national and local

⁵⁰ ADB. 2004. *Report and Recommendation of the President to the Board of Directors on Proposed Loans and Technical Assistance Grants to the Kyrgyz Republic and the Republic of Tajikistan for the Regional Customs Modernization and Infrastructure Development Project*. Manila (Loan 2113-VIE[SF], for \$7.5 million, approved on 26 November).

⁵¹ In fact, road safety needs to become a consistent feature of future project designs.

media, including schools and community centers. ADB and EBRD could design specific TA to address such deficiencies.

105. Given the issue of dead trees identified by the OEM (para. 85), a specific assessment is recommended along the Almaty–Bishkek road as part of future ADB or EBRD assistance to check for any link between road construction and operation and the deterioration of the trees. If the trees have indeed been affected by the road construction or operation, then ADB and EBRD should initiate follow-up actions to replant the trees.

106. The JER also identified lessons, which are presented in Appendix 12.

DESIGN AND MONITORING FRAMEWORK

Item	Performance Indicators	Assessment	Project Achievements		
			Kazakhstan		Kyrgyz Republic
			EBRD	ADB	ADB
Impact: Improved regional transport link to promote economic growth	Subregional economic growth and development	Achieved Significant	<ul style="list-style-type: none"> Total trade between Kazakhstan and the Kyrgyz Republic increased from \$120.8 million in 2001 to \$517 million in 2007. Kyrgyz Republic exports to Kazakhstan increased from \$39 million in 2001 to \$204.6 million in 2007. Imports increased from \$81.8 million in 2001 to \$312.4 million in 2007. Rapid economic development, in particular urban development, in the road influence areas. 		
	Increased cross-border movement across the Kazakhstan (Akzhol–Chu)–Kyrgyz Republic (Georgievka) border	Achieved Significant	<ul style="list-style-type: none"> Forty-three percent of traffic from km 22 to Kazakhstan border is international 	<ul style="list-style-type: none"> Average number of people crossing estimated at 6,731 per day in 2008 compared with an average of 5,436 per day during 2005–2007 Average number of vehicles crossing the border around 1,600 vpd during 2005–2008 Buses and trucks account for 9% of total traffic Forty-three percent of traffic from km 22 to Kazakhstan border is international 	<ul style="list-style-type: none"> Eighty-five percent of traffic from the Kyrgyz Republic border to Bishkek is international Fifty-nine percent of traffic between Dordoy market and the Bishkek bypass intersection is international
Outcome: Improved efficiency and safety of an important regional transport link	Increased vehicle traffic	Achieved Mixed results	<ul style="list-style-type: none"> Traffic from Almaty to Kaskelen increased from 9,655 vpd in 1998 to 45,732 vpd in 2008 	<ul style="list-style-type: none"> Traffic from Uzunagach to border increased from 3,143 vpd in 1998 to 6,833 vpd in 2008 	<ul style="list-style-type: none"> Traffic from border to the Bishkek bypass intersection (link 2) increased from 7,064 vpd in 1998 to 8,352 vpd in 2008 Traffic from Bishkek bypass intersection to Maevka (link 3A) increased from 7,606 vpd in 1998 to 14,671 vpd in 2008
	VOC reduced	Achieved	<ul style="list-style-type: none"> Incremental VOC savings between 12% and 18% 	<ul style="list-style-type: none"> Incremental VOC savings between 12% and 18% 	<ul style="list-style-type: none"> Incremental VOC savings between 8% and 15%
			<ul style="list-style-type: none"> Operating cost of buses reduced, but did not translate into fare reduction since tariff is negotiated reflecting supply and demand 		
	Vehicle speed improved	Achieved Mixed results	<ul style="list-style-type: none"> Almaty–km 21: No change in vehicle speed Km 22–km 65: Average vehicle speed improved from 35 kph–80 kph to 50–90 kph depending on vehicle type 	<ul style="list-style-type: none"> Km 66–Kazakhstan border: Average vehicle speed improved from 35–80 kph to 50–90 kph depending on vehicle type 	<ul style="list-style-type: none"> Kyrgyz Republic border to Bishkek: No change in vehicle speed
	Travel time reduced	Achieved	<ul style="list-style-type: none"> Almaty to km 21: No travel time savings Km 22 to Km 62: Average travel time savings of 0.28 hours–1.7 hours depending on vehicle type 	<ul style="list-style-type: none"> Km 66–Kazakhstan border: Average travel time savings of 0.28 hours–1.7 hours depending on vehicle type 	<ul style="list-style-type: none"> Kyrgyz Republic border to Bishkek: No travel time savings
	IRI reduced from 6/7 m per km to less than 3 m per km	Achieved	<ul style="list-style-type: none"> IRI reduced from 8 m per km to about 2 km 	<ul style="list-style-type: none"> IRI reduced from 8 m per km to about 2 km 	<ul style="list-style-type: none"> IRI reduced from 6 m per km to about 2.5 km
	Axle-load limits harmonized	Achieved Mixed results	<ul style="list-style-type: none"> In Kazakhstan side, border infrastructure includes vehicle weighbridge with Russian equipment installed in 2004. In Kyrgyz Republic side, vehicle weight control premised on truckers policing themselves and other points of entry checking load. Weighbridge near border point uses equipment dating back to 1960s 		

Item	Performance Indicators	Assessment	Project Achievements		
			Kazakhstan		Kyrgyz Republic
			EBRD	ADB	ADB
	Unofficial payments reduced	Partly achieved	<ul style="list-style-type: none"> The OEM survey indicates that these may be incurred everywhere and are, therefore, provided for in drivers' budgets. This avoids unnecessary problems or delays. Unofficial payments in 2000 were reported as lower. Some drivers are reported to pay unofficial payments to avoid lines or to pass the border without inspection. 		
	Road accidents reduced		<ul style="list-style-type: none"> Long-term data for the Kazakhstan section show a general increase in the frequency of road accidents. Accident statistics also point out that many of these reported accidents do not involve bodily harm. Consequently, mixed results are taken in terms of the severity and intensity of increased road accidents. Only national road accident statistics are available in the Kyrgyz Republic, none are specific for the Almaty–Bishkek road. Country data reflect the present problem of increased road accidents. The ratio of fatal accidents has progressively increased, as has the ratio of injured persons per accident. 		
Nonphysical barriers to movement of goods and people mitigated in the Kazakhstan and the Kyrgyz Republic side of the borders of the project road	Customs and transport policies, procedures, and documents streamlined at Georgievka border	Not achieved yet	<ul style="list-style-type: none"> Increased border traffic compared with 2000 has led to traffic jams and the need to divide the traffic between cars, buses, and vehicles. Traffic jams are created during the entry to Kazakhstan. Border procedures have been adjusted and passing through the Kyrgyz Republic is faster. Kazakhstan seem slower as they apply a stricter approach to procedures, e.g., check more cars, and selective inspections of passenger's private luggage continue. For outbound traffic, estimated processing and queuing times to cross the border (trucks, buses, cars) is almost the same on both sides of the border. For inbound trucks, estimated processing time taken to cross the border is shorter in the Kyrgyz Republic. For inbound buses, estimated processing and queuing times to cross the border is shorter in the Kyrgyz Republic. For inbound cars, estimated queuing time is shorter in the Kyrgyz Republic. In general, customs service procedures have not changed but enforcement appears to have become more strict making each crossing more complicated and requiring more time. Steps in immigration processing on the Kazakhstan side remain the same, except for extension of migration card expiration from 5 days in 2000 to 14 days in 2003 and 90 days in 2008. Steps in processing of customs documentation has been the same since 2000. In the Kyrgyz Republic, steps in processing immigration and customs documentation have been the same since 2000. In Kazakhstan, document processing, immigration services, customer services, vehicle inspection, epidemic service, veterinary service, and phytosanitary service have been available since 2000. In the Kyrgyz Republic, document processing and customer services have been available since 2000. A new building for document processing was completed in June 2008. Vehicle inspection was introduced in 2006 and phytosanitary service from 2005. Checking of weight and overall dimensions including levying of fines for overloading were introduced in 2006. A parking zone has been available in Kazakhstan since 2000. The parking zone in the Kyrgyz side is always closed. 		
	Reduced number of control points	Achieved	<ul style="list-style-type: none"> The number of police checkpoints reduced to two, i.e., on turn to Otar and to Uzunagach. Random checks are conducted along the route to border by traffic and immigration police. 		—
Outputs Rehabilitate about 245 km of the Almaty–Bishkek road	Civil works completed in 2004	Achieved	<ul style="list-style-type: none"> EBRD rehabilitated 13.4 km of 27 km from Almaty City to Kaskelen, and 37 km from Kaskelen to Uzunagach. 	<ul style="list-style-type: none"> ADB rehabilitated 156 km of 160 km route from Uzunagach (via Otar) to border. 	<ul style="list-style-type: none"> ADB rehabilitated 19.3 km comprising (i) 16.3 km along links 1 and 2 (Bishkek to border via the bypass intersection), and (ii) 3 km along link 3A (bypass intersection to Maevka).
Improve customs facilities at the Akzhol–Chu border	Equipment provided	Achieved Mixed results	—	<ul style="list-style-type: none"> Twenty-two units of customs control-related equipment provided comprising for example scanners and electronic tagging equipment. This equipment was found to be functional at the border-crossing points. 	<ul style="list-style-type: none"> Twenty-four units of customs control-related equipment (including x-ray equipment, server, metal detector) was provided. The status of this equipment could not be assessed as equipment was not located at the border-crossing

Item	Performance Indicators	Assessment	Project Achievements		
			Kazakhstan		Kyrgyz Republic
			EBRD	ADB	ADB
					point.
				<ul style="list-style-type: none"> The demarcation bridge at the border is narrow and needs maintenance. Aside from congestion because of the bridge having only two lanes, its weak structure prompts heavy vehicles to use a separate border closing hence reducing the Project's effectiveness. 	
Road maintenance equipment for Kazakhstan	Equipment provided	Achieved	—	<ul style="list-style-type: none"> Road maintenance equipment provided was of high quality although considered to be expensive to operate and maintain. 	—
CBA	CBA signed and made effective	Achieved	—	<ul style="list-style-type: none"> Aside from road rehabilitation, ADB value addition lies in the signing of the CBA by the two countries in November 1999. Yet, the CBA has limited effectiveness. Government officials in both countries are not aware of any aspect of the CBA having been implemented to date. 	
Advisory TA to implement the CBA and road sector initiatives	Kazakhstan's road sector institution organized, i.e., ministerial and departmental functions defined	Partly achieved	—	<ul style="list-style-type: none"> The TA for Improvement of the Road Sector Efficiency had a modest impact in assisting the Ministry of Transport and Communications in streamlining its divisions. The TA did not have a specific link to the key 2007 reorganization in MOTC, which separated planning, procurement, administrative, and financial functions from execution. 	—
	Equipment pool	Not achieved	—	<ul style="list-style-type: none"> This initiative was not supported by the Government and became irrelevant. 	—
	Private sector able to hire equipment from the pool	Not achieved	—	<ul style="list-style-type: none"> No equipment pool was set up. 	—
	Maintenance works awarded to private contractors	Not achieved	—	<ul style="list-style-type: none"> The Government has attempted to outsource periodic maintenance to the private sector on a competitive basis but this has not succeeded so far. 	—
	National Safety Road Council (NSRC) and Secretariat and Road Safety Acts	Not achieved yet	—	<ul style="list-style-type: none"> NSRC were established in 2004. While it is operational, further support is needed to ensure their effectiveness. The Road Safety Act is currently being enacted. While formally complied with, there is no specific framework that has been prepared or implemented. 	—

ADB = Asian Development Bank, CBA = cross-border agreement, EBRD = European Bank for Reconstruction and Development, IRI = international roughness index, km = kilometer, kph = kilometer per hour, m = meter, OEM = Operations Evaluation Mission, TA = technical assistance, VOC = vehicle operating cost, vpd = vehicles per day.

Source: Operations Evaluation Mission.

PROJECT COST

Table A2.1: Comparison of Project Cost at Appraisal and Actual

Item	Appraisal Estimate (\$ million)			Actual (\$ million)			Actual/ Appraisal (%)
	Foreign	Local	Total	Foreign	Local	Total	
A. Kazakhstan Component							
1. Base Cost							
a. Civil Works	25.80	42.90	68.70	63.13	43.72	106.85	155.5
b. Equipment	10.60	0.20	10.80	5.97	0.98	6.95	64.4
c. Consulting Services	2.40	2.05	4.45	4.04	0.56	4.60	103.4
Subtotal (A1)	38.80	45.15	83.95	73.14	45.26	118.40	141.0
2. Contingencies							
a. Physical	2.30	4.45	6.75	0.00	0.00	0.00	0.0
b. Price	2.15	3.90	6.05	0.00	0.00	0.00	0.0
Subtotal (A2)	4.45	8.35	12.80	0.00	0.00	0.00	0.0
3. Interest Charge, Front-End Fee	15.65	0.00	15.65	4.39	0.00	4.39	27.5
Subtotal (A3)	58.90	53.50	112.40	77.53	45.26	122.79	109.2
B. Kyrgyz Republic Component							
1. Base Cost							
a. Civil Works	2.57	2.35	4.92	3.58	1.07	4.65	94.5
b. Equipment	0.30	0.00	0.30	0.30	0.00	0.30	100.0
c. Consulting Services ^a	0.40	0.20	0.60	1.03	0.00	1.03	171.7
Subtotal (B1)	3.27	2.55	5.82	4.91	1.07	5.98	102.7
2. Contingencies							
a. Physical	0.20	0.25	0.45	0.00	0.00	0.00	0.0
b. Price	0.13	0.20	0.33	0.00	0.00	0.00	0.0
Subtotal (B2)	0.33	0.45	0.78	0.00	0.00	0.00	0.0
3. Interest Charge, Front-End Fee	0.10	0.00	0.10	0.09	0.00	0.09	90.0
Subtotal (B3)	3.70	3.00	6.70	5.00	1.07	6.07	90.6
Total			119.10			128.86	108.2

^a Includes project management, construction supervision, project audit, and European Union Transport Corridor–Europe–Caucasus–Asia.

Sources: Asian Development Bank (ADB). 2000. *Report and Recommendation of the President to the Board of Directors on Proposed Loans and Technical Assistance Grants to the Republic of Kazakhstan and to the Kyrgyz Republic for the Almaty–Bishkek Regional Road Rehabilitation Project*. Manila; ADB loan financial information system, executing agencies project completion reports, and European Bank for Reconstruction and Development.

Table A2.2: Appraised and Actual Road Construction Costs per Kilometer

Item	Unit	Appraisal	Actual	Actual/ Appraisal (%)
A. Kazakhstan Component				
1. Cost of Civil Works	\$ million	68.70	106.85	155.53
2. Road Length	kilometer	204.00	206.40	101.18
3. Cost per Kilometer	\$ per kilometer	336,764.71	517,684.11	153.72
B. Kyrgyz Republic Component				
1. Cost of Civil Works	\$ million	4.92	4.65	94.51
2. Road Length	kilometer	40.80	19.30	47.30
3. Cost per Kilometer	\$ per kilometer	120,588.24	240,932.64	199.80

Source: Asian Development Bank. 2001. *Project Completion Report on the Almaty–Bishkek Regional Roads Rehabilitation Project*. Manila.

STATUS OF COMPLIANCE WITH LOAN COVENANTS

Table A3.1: Compliance with Asian Development Bank Loan Covenants with Kazakhstan

Covenants Reference to Loan Agreement	Status of Compliance	
	PCR	JER
A. Sector Covenants Policy and Regulatory Framework 1. The Borrower shall submit to the Parliament for its consideration a revised Automobiles Road Act taking into account the recommendations under TA 2631-KAZ and the transport policy adviser engaged under the advisory TA (3530-KAZ) (Loan Agreement (LA), Schedule 6, para. 3).	Complied with in 2001. Revisions were made in 2004. Transport code has been prepared and currently under Parliament's consideration.	Complied with.
Cross-Border Issues 2. The Borrower shall take all actions required to enable effective implementation of the Cross-Border Agreement (CBA) with the Kyrgyz Republic (LA, Schedule 6, para. 4).	Complied with. CBA is under implementation.	Being complied with. Kazakhstan and Kyrgyz customs officials state that customs procedures have been simplified in recent years but this was implemented as part of the bilateral dialogue. The CBA did not contribute to this. An agreement on the Joint Control at the Kazakh–Kyrgyz border was signed in July 2006. However, this agreement has not yet been implemented.
3. The Borrower shall introduce revised transport and customs documentation and procedures for cross-border road transport at the Akzhol–Chu border crossing, in accordance with the CBA and taking into account the recommendations of the ADTA (LA, Schedule 6, para. 5).	Complied with. Kyrgyz and Kazakh customs use harmonized transport and customs documentation and significant work is ongoing under CAREC's customs Cooperation Committee work.	Being complied with. Kazakhstan and Kyrgyz customs officials state that customs procedures have been simplified in recent years but this was implemented as part of the bilateral dialogue. The CBA did not contribute to this. An agreement on the Joint Control at the Kazakh–Kyrgyz border was signed in July 2006. However, this agreement has not yet been implemented.
Road Transport Regulations 4. The Borrower shall (i) introduce the necessary regulations to control the movement of overweight vehicles, and (ii) implement the vehicle weights and dimensions control as indicated in the Annex of the CBA (LA, Schedule 6, para. 6).	Complied with. The Committee for Transport Control under CTID monitors vehicle weights and dimensions at the border and inland facilities. CTID collects fines for oversized and overloaded vehicles.	Formally complied with, but not implemented or effective.
Road Safety and Maintenance and Road Standards 5. The Borrower shall, taking into account the recommendations of the ADTA, prepare and submit to its Parliament the amendments to the Borrower's	Complied with. The Road Safety Act is currently being	Formally complied with, however, for road safety,

Covenants Reference to Loan Agreement	Status of Compliance	
	PCR	JER
Road Safety Act to promote safe driving, safety audit of road design, safety education, road safety publicity, vehicle safety standards, road safety research, and emergency assistance to accident victims (LA, Schedule 6, para. 7a).	enacted.	no specific framework has yet been prepared or implemented.
6. The Borrower shall establish a state joint stock company to manage the road equipment pool, including renting out such equipment on a commercial basis (LA, Schedule 6, para. 7b).	Not complied with. This initiative was not supported by the Government and became irrelevant. Kazavtodor's Almaty and Zhambyl oblast road maintenance units are fully equipped and prepared to undertake the maintenance and keep the project road operational.	Not complied with.
7. The Borrower shall ensure that contracts for road maintenance for the project road are awarded on a competitive bidding basis. The Borrower shall also, in consultation with ADB, establish appropriate supervision, monitoring, and reporting procedures for such road maintenance (LA, Schedule 6, para. 7c).	Not yet due, but periodic road maintenance and repairs are contracted to the private sector on a competitive basis.	Not complied with. The Government attempted to outsource periodic maintenance to the private sector on a competitive basis but this has not succeeded so far.
8. The Borrower shall adopt the Public Motor Roads: Design Standards and Regulation and Public Motor Roads: Construction Specifications prepared under RETA 5733 (LA, Schedule 6, para. 7d).	Not complied with. However, harmonized standards have been introduced in 2003 which are partly based on international standards (AASHTO, BS, etc.) and mostly on former Soviet Union standards.	Not complied with.
B. Social Covenants 9. The Borrower shall ensure that (i) measures are taken to reduce the risk of sexually transmitted diseases, including HIV/AIDS, (ii) MOTC assists the supervision consultants and the civil works contractors in organizing training and disseminating publicity materials targeted to road construction workers and users, and (iii) such information is also disseminated to transport operators, through MOTC, during operation of the project road (LA, Schedule 6, para. 9b).	Complied with.	Complied with.
Gender and Development 10. The Borrower shall ensure that women are actively involved in the job opportunities directly, or indirectly, arising from the Project. The Borrower shall ensure that ADB's Policy on Gender and Development is followed during project implementation (LA, Schedule 6, para. 10).	Complied with.	Complied with.
C. Financial Covenants Cofinancing 11. In case the Borrower is unable to obtain the TRACECA grant and/or the EBRD loan within 12 months of the effective date, the Borrower shall (i) enter into other arrangements to obtain the required	Cofinancing was made available. EBRD loan and TRACECA grants are fully disbursed.	ADB and EBRD are carrying out a joint evaluation study on the Almaty-Bishkek Road

Covenants Reference to Loan Agreement	Status of Compliance	
	PCR	JER
additional funding necessary for timely and effective implementation of the Project, or (ii) provide additional counterpart funds to finance any shortfall which results from the Borrower's inability to obtain the TRACECA grant and/or the EBRD loan (LA, Schedule 6, para. 8).		Rehabilitation Project.
Audit of Accounts 12. Proceeds of the loan may be used to finance expenditure for private sector auditors and translation of auditor's reports into English for the purpose of complying with the submission of audited financial statements under the Project, provided that (i) such auditors have qualifications, expertise, and terms of reference acceptable to ADB; and (ii) the recruitment process is acceptable to ADB (LA, Schedule 6, para. 14).	Partly complied with. MOTC did not submit financial audit report for FY2006.	Partly complied with. The audit report for FY2006 was submitted in August 2008. The report for the subsequent year is pending.
D. Others 13. Established, staffed, and operating PMU/PIU (LA, Schedule 6, para. 1a).	Not complied with. PIU was not established. The Government abolished all PIUs funded by external loans in 2001 and consolidated them under the sectoral project implementation divisions.	Not complied with.
Fielding of Consultants 14. The consultants shall be selected and engaged by the Borrower in accordance with para. 3, Schedule 5 of the Loan Agreement (LA, Schedule 5, para. 3).	Complied with in 2002.	Complied with.
15. Establish an adequately staffed Maintenance Supervision Unit (MSU) headed by a Maintenance Manager with qualifications and expertise acceptable to ADB (LA, Schedule 6, paras. 1b and 1c).	Not complied with. Establishment of MSU under PIU was not considered necessary by MOTC. Kazavtodor performed intended functions and Almaty and Zhambyl oblast level road maintenance units are fully equipped and prepared to undertake the maintenance and keep the project road operational.	Not complied with.
16. Maintaining the Project Steering Committee (PSC) for the duration of the project implementation period (LA, Schedule 6, para. 2).	Complied with. PSC has established under the chairmanship of Vice-Minister of Transport.	Complied with.
Tripartite Coordination Meeting 17. The Borrower shall ensure MOTC and representatives of the Borrower's customs authorities meet with the Project Executing Agency for the Kyrgyz Component and the external financial institutions concerned (ADB, EBRD, and TRACECA) twice a year, alternately in Almaty and Bishkek, to discuss the project implementation status, resolve common problems, and in particular, ensure full implementation of the CBA (LA, Schedule 6, para. 11).	Complied with. Meetings were held during the implementation of TA 3530-KAZ: Improvement of Road Sector Efficiency.	Partially complied with. No meetings took place to monitor project implementation progress.

Covenants Reference to Loan Agreement	Status of Compliance	
	PCR	JER
Midterm Review (LA, Schedule 6, para. 12).	Complied with on 11–16 October 2004.	Complied with.
Monitoring and Evaluation 18. The Borrower shall ensure that MOTC, with the assistance of the supervision consultants recruited under the Project, carried out benefit monitoring and evaluation of the Kazakh component of the Project (LA, Schedule 6, para. 13).	Not complied yet. CTID will submit BME report.	Not complied with yet. The BME requirement was not completed.
19. EA should seek ADB's prior approval for contract variations exceeding \$100,000.	Complied with.	Complied with.

AASHTO = American Association of State Highway and Transportation Officials, ADB = Asian Development Bank, ADTA = advisory technical assistance, BME = benefit monitoring and evaluation, BS = British Standards, CAREC = Central Asia Regional Economic Cooperation, CTID = Committee of Transport Infrastructure Development, EA = executing agency, EBRD = European Bank for Reconstruction and Development, KAZ = Kazakhstan, HIV/AIDS = human immunodeficiency virus/acquired immunodeficiency syndrome, MOTC = Ministry of Transport and Communications, PCR = project completion report, PIU = project implementation unit, PMU = project monitoring unit, JER = joint evaluation report, RETA = regional technical assistance, TA = technical assistance, TRACECA = Transport Corridor Europe–Caucasus–Asia.

Sources: Operations Evaluation Mission and Asian Development Bank. 2007. *Project Completion Report on the Almaty–Bishkek Regional Road Rehabilitation Project (Kazakhstan and Kyrgyz Republic)*. Manila.

Table A3.2: Compliance with Asian Development Bank Loan Covenants with the Kyrgyz Republic

Covenants Reference to Loan Agreement	Status of Compliance	
	PCR	JER
1. The Borrower shall take all actions required to enable effective implementation of the Cross-Border Agreement (CBA) with Kazakhstan (Loan Agreement (LA), Schedule 6, para. 3).	Complied with. CBA is under implementation.	Being complied with. CBA ratified but not yet fully implemented.
2. The Borrower shall introduce revised transport and customs documentation and procedures for cross-border road transport at the Akzhol–Chu border crossing in accordance with the CBA and taking into account the recommendations of the ADTA (3531-KGZ: Improvement of the Road Sector Efficiency (LA, Schedule 6, para. 4).	Complied with. The Kyrgyz Republic signed on international transport and customs agreements including (i) Agreement on International Certification of Weighting of the Vehicles in the Territories of CIS; (ii) joining the TIR Convention; (iii) joining the Road Traffic and Road Signs and Signals Conventions; (iv) Agreement on the Joint Control at the Kazakh–Kyrgyz Border to provide smooth customs control (signed on 4.07.2006 and became effective on 1 November 2005 for border crossings at “Ak-Tilek” and “Akzhol–Chu”).	Being complied with. Kazakhstan and Kyrgyz customs officials state that customs procedures have been simplified in recent years but this was implemented as part of the bilateral dialogue. The CBA did not contribute to this.
3. Road Transport Regulations. The Borrower shall (i) introduce the necessary regulations to control the movement of overweight vehicles, and (ii) implement the vehicle weights and dimensions control as indicated in the Annex of the CBA (LA, Schedule 6, para. 5).	Complied with. <ul style="list-style-type: none"> According to the Government Decree 1025–1111 of 2.06.2006, the order of fee collection and distribution to control the movement of overweight and large vehicles was approved. Thirteen control points have been identified. Four weighbridges were purchased; one was already installed and functioning. Two were purchased on September 2006 and installed on October 2006 (on Osh–Sary Tash road and Bishkek–Tougart road), and other five in 2007. 	Complied with.
4. Road Safety and Maintenance and Road Standards. The Borrower shall, taking into account the recommendations of the ADTA (3531-KGZ: Improvement of the Road Sector Efficiency), establish a multidisciplinary National Road Safety Council (NRSC) to assist in preparing safety action plans, improving collection and processing of road accident data, and coordinating and implementing road safety initiatives. The Borrower shall also ensure that the NRSC is supported by a full-time Secretariat (LA, Schedule 6, para. 6a).	Complied with. <ul style="list-style-type: none"> The NSRC, initially established on 30 November 1998 was revised on 28 August 2004 (changes in Commission staff but no changes in their functions) due to changes in Government of the Kyrgyz Republic. Under the NSRC, a Road Safety Secretariat (RSS) was formed on 25 February 2004 under Government Decree 104 comprising three persons (executive director, road safety engineer, and office manager). The RSS has prepared (i) a national road safety program for 2006–2012, which was revised 	Complied with.

Covenants Reference to Loan Agreement	Status of Compliance	
	PCR	JER
	incorporating comments received from concerned government's ministries. The agreed program is under review of the Prime Minister's office since January 2006. It was not approved. And the revised coordinated program was submitted to Government on 12 December 2006.	
5. Amendments to the Road Safety Act (RSA) will be considered following the findings and the recommendations of the ADTA (3531-KGZ: Improvement of the Road Sector Efficiency). A schedule for amending and submitting the RSA to parliament will be provided to ADB before 1 January 2004 (LA, Schedule 6, para. 6b).	Complied with. <ul style="list-style-type: none"> The draft Decree of the Prime Minister on Guidelines on the Road safety in the Kyrgyz Republic was already agreed with related ministries and agencies and currently is under Prime Minister's Office consideration. The Law of the Kyrgyz Republic on Alterations and Amendments to the Code of the Kyrgyz Republic on Managerial Responsibility was approved on 5.03.2007, No. 32. A paper concerning new members of NSRC was approved on 5.04.06 by the Government decree. 	Complied with.
6. The Borrower shall ensure that contracts for road maintenance for the project road are awarded on competitive bidding basis by December 2004. The Borrower shall also establish appropriate supervision, monitoring, and reporting procedures for such road maintenance (LA, Schedule 6, para. 6c).	Not yet due. Completion of rehabilitation works is expected in December 2007.	Not complied with. The Government attempted to outsource periodic maintenance to the private sector on a competitive basis but this has not succeeded.
7. The Borrower shall adopt the Public Motor Roads: Design Standards and Regulations and the Public Motor Roads: Construction Specifications prepared under the ADB-financed RETA 5733 (LA, Schedule 6, para. 6d).	Not complied with. However, new standards have been introduced in 2006, which are partly based on international standards (AASHTO, BS, etc.) and mostly on former Soviet Union standards. <ul style="list-style-type: none"> The design standards Snip KR 32-01-2006 "Summary of typical technical rules on construction and repair of auto roads" are being used since 1 July 2006. 	Not complied with.
A. Environmental		
8. The Borrower shall (i) ensure that appropriate environmental protection and safety measures are included in the design of the project facilities; and (ii) construct, operate, and maintain the project facilities in accordance with the findings and recommendations of the Initial Environmental Examination prepared for the Project and ADB's Environmental Guidelines for Selected Infrastructure Projects (LA, Schedule 6, para. 7a).	Complied with. <ul style="list-style-type: none"> Incorporated in the design and contracts and monitored by the supervision consultants. 	Complied with.

Covenants Reference to Loan Agreement	Status of Compliance	
	PCR	JER
<p>B. Social</p> <p>9. The Borrower shall ensure that (i) measures are taken to reduce the risk of socially transmitted diseases, including HIV/AIDS, (ii) MOTC assists the supervision consultants and the civil works contractors in organizing training and disseminating publicity materials targeted to road construction workers and users, and (iii) such information is also disseminated to transport operators, through MOTC, during operation (LA, Schedule 6, para. 7b).</p>	<p>Complied with.</p> <ul style="list-style-type: none"> In road rehabilitation area, the syringe exchange office was opened by the Chyi regional center "AIDS." The periodical works with drivers on route Bishkek–Georgievka is going on (HIV/AIDS preventive measures information documents distribution). 	<p>Complied with.</p>
<p>10. The Borrower shall ensure that women are actively involved in the job opportunities directly, or indirectly, arising from the Project. The Borrower shall ensure that ADB's Policy on Gender and Development is followed during project implementation (LA, Schedule 6, para. 8).</p>	<p>Complied with.</p>	<p>Complied with.</p>
<p>C. Financial</p> <p>Audit of Accounts</p> <p>11. Proceeds of the loan may be used to finance expenditure for private sector auditors and translation of auditor's reports into English for the purpose of complying with the submission of audited financial statements under the Project, provided that (i) such auditors have qualifications, expertise, and terms of reference acceptable to ADB; and (ii) the recruitment process is acceptable to ADB (LA, Schedule 6, para. 12).</p>	<p>Complied with.</p> <ul style="list-style-type: none"> ADB approved on 17 March 2004 the utilization of surplus loan proceeds for the auditing of the project accounts for FY2003, 2004, and 2005. As requested by the Borrower, ADB has approved variation in amount of \$4,939 to the contract for auditing of project account for FY2006 on 18 November 2005. 	<p>Complied with.</p>
<p>12. Furnish to ADB certified copies of audited accounts and financial statements and the report of the auditors relating thereto, including the auditor's opinion on the use of the loan proceeds and compliance with the covenants of the Loan Agreement as well as on the use of the procedures for statement of expenditures (LA, Section 4.06[b]).</p>	<p>Complied with. The Audit of Project Accounts for FY2004 has been done and report was sent to ADB on 5 August 2005.</p> <p>The audit report for FY2005 was completed and sent to ADB on 27 April 2006.</p> <p>The audit report for FY2006 was completed and sent to ADB on 12 July 2007.</p>	<p>Complied with.</p>
<p>13. Established, Staffed, and Operating PMU/PIU. The Borrower shall ensure that (i) the existing PIU and its staff shall be responsible for the day-to-day implementation of the Kyrgyz Component of the Project, and (ii) the PIU remains adequately staffed at all times throughout project implementation and shall be assisted by the consultants to be engaged for detailed design and construction supervision (LA, Schedule 6, paras. 1a and 1b).</p>	<p>Complied with. PIU adequately staffed and is being assisted by the supervision consultants. ADB will be notified about all staff changes in PIU and MOTC.</p>	<p>Complied with.</p>

Covenants Reference to Loan Agreement	Status of Compliance	
	PCR	JER
14. Fielding of Consultants. The consultants shall be selected and engaged by the Borrower in accordance with the procedures set forth in Schedule 5 of the Loan Agreement (LA, Schedule 5).	Complied with. Contract was signed on 7 June 2002 and services commenced on 18 June 2002.	Complied with.
15. Maintaining the Project Steering Committee (PSC) for the duration of the project implementation period (LA, Schedule 6, para. 2).	Complied with. By the Government decree, new members of PSC were approved on 18 August 2007.	Complied with.
16. Tripartite Coordination Meeting. The Borrower shall ensure that MOTC and representatives of the Borrower's customs authorities meet with the Project Executing Agency for Kazakh Component and the external financial institutions concerned (ADB, EBRD, and TRACECA) twice a year, alternately in Almaty and Bishkek, to discuss the project implementation status, resolve common problems and in particular, ensure full implementation of the CBA (LA, Schedule 6, para. 9).	Partly complied with. Two stakeholders meetings were held in September 2003 during the implementation of the ADTA but since then, no meetings have been held.	Partly complied with. No meetings took place to monitor project implementation progress.
17. Midterm Review. The Borrower shall ensure that MOTC carries out, jointly with ADB and the Project Executing Agency for the Kazakh component, a midterm review of the implementation of the Kyrgyz component towards the end of 2002 (LA, Schedule 6, para. 10).	Complied with. Midterm review for the Kyrgyz component was undertaken in August 2005 while for the Kazakhstan component in October 2004.	Complied with.
18. Monitoring and Evaluation. The Borrower shall ensure that MOTC, with the assistance of the supervision consultants recruited under the Project, carries out benefit monitoring and evaluation of the Kyrgyz component of the Project (LA, Schedule 6, para. 11).	Pending compliance. Baseline data was received on 20 September 2005 but periodic monitoring was not done for all the agreed indicators. Final report is expected to be submitted in November 2007.	Complied with.
19. The Borrower shall furnish or cause to be furnished to ADB quarterly reports on the carrying out of the Project and on the operation of the project facilities (Section 4.07[b]).	Complied with.	Complied with.
20. Submission by the Borrower of project completion report not later than 3 months after the physical completion of the Project or such later date as may be agreed between the Borrower and ADB (Section 4.07[c]).	Complied with. Physical works are expected to be completed in December 2007. Borrower provided draft completion report to ADB.	Complied with.

ADB = Asian Development Bank, ADTA = advisory technical assistance, CIS = Commonwealth of Independent States, EBRD = European Bank for Reconstruction and Development, JER = joint evaluation report, KGZ = Kyrgyz Republic, HIV/AIDS = human immunodeficiency virus/acquired immunodeficiency syndrome, MOTC = Ministry of Transport and Communications, PCR = project completion report, PIU = project implementation unit, PMU = project monitoring unit, RETA = regional technical assistance, TRACECA = Transport Corridor Europe–Caucasus–Asia.
Sources: Operations Evaluation Mission and Asian Development Bank. 2008. *Project Completion Report on the Almaty–Bishkek Regional Road Rehabilitation Project (Kazakhstan and Kyrgyz Republic)*. Manila.

Table A3.3: Compliance with the European Bank for Reconstruction and Development Loan Covenants with Kazakhstan

Covenants Reference to Loan Agreement ^a	Status of Compliance EBRD ^b
Article III Execution of the Project	
Section 3.01. Other Affirmative Project Covenants (...) <i>the Borrower shall (...)</i>	
1. Take all action necessary to provide adequate funds for the completion of the Project and pay its share of expenditures under Project in due time;	Achieved. The budget allocation significantly increased from \$95 million in 2000 to \$408 million in 2001 and \$650 million in 2007.
2. Prepare and adopt the Road Sector Development Program by no later than 30 June 2002, having taken into account the Bank's recommendations before finalizing the said program;	Achieved. The Road Sector Development Program was made effective as a presidential decree signed on 28 November 2001. The program includes mechanisms aiming at a staged conversion to a financial system based on cost-recovery from road users. The comprehensive Road Sector Development Program was approved in 2005, and the National Transport Sector Strategy in 2006. However, serious gaps remain between the adopted policy papers and actual implementation.
3. Under the Road Sector Development Program , provide for financial mechanism aiming at a stage-by-stage conversion to a system based on cost-recovery from road users;	
4. Prepare and submit to the Parliament of the Borrower by no later than 31 December 2002 the Automobiles Road Act ;	Achieved. The Automobiles Road Act was submitted to Parliament in July 2001 and ratified in January 2003. The Parliament approved the new Road Traffic Act in March 2008.
5. Prepare and submit to the Parliament of the Borrower by no later than 30 June 2003 the amendments to the Road Traffic Safety Act taking into account the study to be prepared in the years 2001 to 2003 under the technical assistance program financed by the World Bank;	Achieved. ADB technical cooperation-funded consultants who reviewed traffic safety issues concluded that a new road traffic safety act is not needed. This covenant was considered met based on the following: (i) on 30 December 2000 a decree was passed establishing the program for improvement of a state system of providing and ensuring road safety for passenger and cargo transportation, (ii) the Government had passed various other minor pieces of secondary road traffic safety legislation based on the 1996 act, and (iii) the Government had passed additional legislation with a road safety component under the Motor Vehicle Act of July 2003.
6. Adopt by no later than 1 January 2003 the Public Motor Roads Design Standards and Regulations to be prepared by the consultants financed under the technical assistance program provided by the Asian Development Bank (ADB);	Achieved. As of April 2005, 117 norms were identified, of which 62 have been completed. Those selected for review and modification were those needing the most urgent attention. ADB technical cooperation helped develop these standards. Furthermore, international consultants confirmed that in the case of many of the remaining standards, urgent changes are not needed to any extent.
7. Adopt by no later than 1 January 2003 the Public Motor Roads Construction Specifications to be prepared by the consultants financed under the technical assistance program provided by ADB.	
Section 3.04 Environmental Covenants	
1. Carry out the Project in accordance with environmental regulations and standards in effect from time to time in the jurisdiction in which the Project is located and with environmental standards existing in the European Union on the date hereof (or, in the event that such standards do not exist in the European Union, as set forth in the applicable environmental guidelines of the World Bank Group);	Partly achieved. The Borrower has complied with the environmental policies of EBRD, but the environmental reports were submitted late. The report for 2007 is still outstanding.

Covenants Reference to Loan Agreement^a	Status of Compliance EBRD^b
2. Ensure that appropriate environmental protection and safety measures are included in the design of the project facilities, and thereafter construct, operate, and maintain the project facilities in accordance with the recommendations of the Initial Environmental Examination prepared for the project, ADB's Environmental Examination prepared for the Project, ADB's Environmental Guidelines for Selected Infrastructure Projects and EBRD's Environmental Procedures.	Report not received.
Section 4.01 Financial Records and Reports	
1. The Borrower shall, in respect of the departments or agencies of the Borrower responsible for carrying out the Project or any part thereof, maintain procedures, records and accounts adequate to reflect, in accordance with internationally accepted accounting standards consistently applied, the operations, resources and expenditures relating to the Project and to monitor and record the progress of the Project (including its costs and the benefits to be derived from it).	No specific statement available.
2. The Borrower shall:	
(i) have the records and accounts referred to in Section 4.01(a) for each fiscal year audited by independent auditors acceptable to the Bank in accordance with internationally accepted auditing principles and standards;	No specific statement available.
(ii) furnish to the Bank as soon as available, but in any case not later than 6 months after the end of each fiscal year, the report of such audit by such auditors of such scope and in such detail as the Bank may reasonable request; and	The report was received late on 2 May 2007.
(iii) furnish to the Bank such other information concerning such records and accounts, and the audit thereof, as the Bank may from time to time reasonably request.	No specific statement available.

EBRD = European Bank for Reconstruction and Development.

^a Loan Agreement of the Road Sector Development Project between Kazakhstan and the European Bank for Reconstruction and Development dated 8 December 2000.

^b EBRD documents include the Expanded Monitoring Report and the latest available Monitoring Report dated 8 February 2008.

Source: Operations Evaluation Mission.

PERFORMANCE OF THE ASIAN DEVELOPMENT BANK TECHNICAL ASSISTANCE

1. Two advisory technical assistance (TA) projects were approved along with the two loans. The Kazakhstan TA¹ intended to (i) assist in implementing the Cross-Border Agreement (CBA), including formulating long-term strategies for expanded use of the CBA at the borders; (ii) improve management of road safety, including coordination with the project supervisory consultants to ensure that maintenance contracts include adequate provisions relating to environmental, social mitigation, and road safety considerations; and (iii) streamline the ministerial and departmental responsibilities, assign roles based on redefined functions, and help implement the Road Sector Policy Statement in Kazakhstan. The TA completion report rates the TA as successful as the consultants submitted reports for the first two phases. Due to lack of time, the completion report justified the lack of achievement of the third phase. However, at postevaluation the CBA was determined to have not been implemented adequately and several areas of ambiguity remain about how it can be implemented. The second phase was not successful as no specific framework was prepared and implemented to address road safety issues. Safety on the project road has worsened. Moreover, maintenance continues to be handled by the public sector authorities, i.e., maintenance contracts, have not yet been awarded. The third phase did not yield any specific benefit in institutional development or capacity building. The TA contributed to the analysis of the current status of the road safety institutions and prepared a road map for implementation. Follow up on these two items is needed. The Kazakhstan TA is rated “partly successful.”

2. The TA for the Kyrgyz Republic² intended to (i) assist the Government in implementing the CBA, including the formulation of the long-term strategies for expanding the CBA cover, including for interregional and intercontinental road transport across other borders; and (ii) improve the management of road safety, including coordination with the construction supervision consultants for the Project and ensure that the maintenance contracts prepared by them include adequate provisions for road safety enhancement. Similar to the Kazakhstan TA, the consultants submitted their reports to the Government without any implementation of the CBA. It could be argued that implementation of the CBA was not the responsibility of ADB or the consultants. However, the fact that the CBA has not been implemented negates the overall impact of the TA. For the second component, the consultants submitted a road map, which has not been implemented. The Kyrgyz Republic Government is currently developing a policy for road safety. However, this is still at the inception stage and the frequent change in government staff hinders the continuity of the process. The Ministry of Transport and Communications and the State Traffic Police found the training provided under the TA to be useful. In addition, a safety audit of the Bishkek–Georgievka road was carried out, which resulted in the improvement of two bridges under the Almaty–Bishkek Regional Road Rehabilitation Project. The Kyrgyz Republic TA is rated “partly successful.”

¹ ADB. 2005. *Technical Assistance Completion Report on the Improvement of the Road Sector Efficiency (Kazakhstan)*. Manila (TA 3530-KAZ, for \$750,000, approved on 31 October 2000).

² ADB. 2005. *Technical Assistance Completion Report on the Improvement of the Road Sector Efficiency (Kyrgyz Republic)*. Manila (TA 3531-KGZ, for \$440,000, approved on 31 October 2000).

SUMMARY OF PHYSICAL ACCOMPLISHMENTS

Item	Unit	Appraisal	Actual
A. Road Rehabilitation		244.8	225.7
1. Kazakhstan	km	204.0	206.4
2. Kyrgyz Republic	km	40.8	19.3
B. Road Maintenance Equipment			
1. Multifunctional Truck for All Seasons Maintenance	unit		19
2. Crack Repair (Sealing and Filling) Equipment	unit		14
3. Road Marking Machine (Thermo Plastic)	unit		2
4. Vibratory Tandem Roller, 1,500 kg Operating Weight	unit		53
5. 4 x 4 Pickup	unit		15
6. Radio Communication System	unit		14
7. Vibratory Combined Roller (7 tons)	unit		15
C. Customs Control Equipment (Kyrgyz Republic)			
1. Cargo Screening System (Rapiscan 532H)	unit		1
2. X-Ray Equipment (Rapiscan 528 EPX with TIP)	unit		1
3. Metal Detector Frame (Metor 200)	unit		1
4. Hand Metal Detector (Metor 28)	unit		4
5. Dosimeter-Radiometer (Polimaster PM1402)	unit		8
6. Double Action Scanner (IOSCAN 400 B)	unit		1
7. Server (HP Proliant ML350T03) including Windows 2003 (Russian)	unit		1
8. Computer (HP Compaq EVO D310) including Windows XP Pro (Russian)	unit		6
9. Router for Net (Bintec IP)	unit		1
D. Customs Control Equipment (Kazakhstan)			
1. Rapiscan 532 H Cargo X-Ray Screening System	unit		1
2. SCANTRAK Portable X-Ray System	unit		1
3. HP Proliant ML 350T01 Server including Windows 2003 Server (Russian)	unit		2
4. HP Proliant ML 350T03 Server including Windows 2003 Server (Russian)	unit		2
5. HP Compaq EVO D310 including Windows XP Pro Server (Russian)	unit		10
6. HP Compaq EVO N1020 Notebook including Windows XP Pro (Russian)	unit		6

km = kilometer.

Sources: Asian Development Bank (ADB). 2000. *Report and Recommendation of the President to the Board of Directors on Proposed Loans and Technical Assistance Grants to the Republic of Kazakhstan and the Kyrgyz Republic for the Almaty-Bishkek Regional Road Rehabilitation Project*. Manila; and ADB. 2007. *Project Completion Report on the Almaty-Bishkek Regional Road Rehabilitation Project (Kazakhstan and Kyrgyz Republic)*. Manila.

SUMMARY OF ROAD CONDITION

1. The joint evaluation team of the Asian Development Bank (ADB) and the European Bank for Reconstruction and Development (EBRD) commissioned an independent review of the engineering aspects of the Almaty–Bishkek Road Rehabilitation Project. The results of document reviews and site inspection (on physical rehabilitation work envisaged at appraisal vis-à-vis as performed during project implementation) are detailed in this appendix.

2. **Road Roughness.** The international road transport specialist (road engineer) concluded that surface roughness generally is not to the standard expected (Table A6). This was blamed on poor work by all the contractors, except Dogus Eksen. The entire length includes some rough sections that do not detract from the overall service provided to any great degree. For example, vehicles experience “bumping” over the joints between the concrete slabs on some bridge decks. This is not good for the vehicles or bridges. These expansion joints are filled with a bitumen mixture, which has already deformed, instead of purpose-made rubber joints.

Table A6: Engineering Summary

Contract Number	Road Section	Site Inspection Result
Contract 1 (km 11.6 to km 62)	Almaty–Kaskelen (13.4 km, EBRD)	The surface is sound and generally of an acceptable roughness, with a few rough patches and defects. The many cracks reported by Kazdor Project have been covered by the strengthening overlay.
	Kaskelen– Uzunagach (37 km, EBRD)	The EBRD draft report on current project status (November 2005) indicates that Road Note 29, an old design manual by the United Kingdom Road Research Laboratory, was used to specify this overlay with a thickness of 6.5 cm. The few cracks now visible (and mostly sealed) could be reflection cracks from the Transtroy asphalt layer below or be only as deep as the Eksen overlay. Cores taken through the asphalt layers, as on contract 2, could determine this. Almost all of this section is of dual carriageway, the part near to Almaty is very heavily trafficked. Roads Committee engineers commented that a move is being made to extend the dual carriageway to Bishkek. However strengthening only this length of dual carriageway is questionable as the majority of heavy vehicles are said to travel much further to Bishkek and other towns. Of course, beyond the dual carriageway, all traffic uses only one lane in each direction and so imposes a heavier load than on the strengthened dual carriageway, which has two lanes in each direction.
Contract 2 (km 65 to km 165)	Uzunagach– Otar–Georgievka (156 km, ADB)	<p>Much of this section has a weak base or subbase layer and resultant severe cracking in the asphalt surfacing. This takes the form of transverse shrinkage cracks and longitudinal and block cracking, mostly in the center of the lane in both directions. (Many vehicles tend to roll with two wheels on the center line and two wheels midlane.)</p> <p>The base material has compressed, leaving a slight longitudinal depression midlane and insufficient support for the asphalt surfacing. Most of these cracks were sealed by the contractor with bitumen, but this sealing may not last long and more cracks are appearing that have not been sealed. These will permit the ingress of water, which will weaken the unbound base and subbase material. An estimated 80% of this 100 km section is affected and will require extensive full depth patching in the future if the surface is not properly sealed against rain. It appears that after opening to traffic, the base or subbase material has been compressed due to incomplete compaction during construction or to the use of substandard material.</p> <p>The most cost-effective solution would be to apply a single surface treatment or a slurry seal soon. Constant patching over the life of the highway for the next 7 or so years would be far more expensive and less effective, and result in a rough surface and a poor ride. (As assumed in the design, a maintenance overlay is expected to be placed over the whole length of this road, perhaps half way through the nominal 15-year design life.) Should a decision be made to strengthen the pavement on this section as has been done on the contract 1 length, this, if correctly applied, would also provide the necessary seal</p>

Contract Number	Road Section	Site Inspection Result
		over the existing cracks. An accurate traffic count, axle-load survey, and deflection survey are needed to properly design the strengthening overlay, the thickness of which might be less than the 6.5 cm applied to the contract 1 section.
Contract 3 (km 165 to km 221)	Uzunagach– Otar–Georgievka (156 km, ADB)	This section has the worst roughness, despite the considerable lengths of replaced asphalt. Very little cracking is evident to date. Vehicles experience some bumping and slight rolling, but although disappointing for a newly rehabilitated pavement, this does little to detract from the fine service of this road through the mountain section. However, the 5% gradients do challenge heavily loaded vehicles, which use the climbing lanes very slowly and descend the hills very slowly, where no dedicated lane is available for slow vehicles. This causes risky overtaking maneuvers, but the traffic police were observed to keep strict control of speed through this section when they were in attendance. The escape lanes appeared rather hazardous.
Contract 4 (km 4+150 to km 20+322)	KGZ link1: Bishkek– Bypass Intersection (5.1 km, ADB) KGZ link 2: Border– Bypass Intersection (11.2 km, ADB) KGZ link 3A: Bypass Intersection to Maevka (3 km, ADB)	The road into Bishkek from the border is mostly four lanes with no division between the directions of travel. The asphalt layer was applied one lane at a time and the joints in the asphalt were poorly made. An excess of bitumen was used in an attempt to seal these joints and some cracks. Some of the surfacing is rough and the main bridge deck requires attention. The work on the Bishkek bypass is ongoing. One lane was being surfaced by a subcontractor, while many heavy vehicles went by. A traffic count and axle-load survey should be carried out on this bypass just to the west of the junction with the main road from the border crossing into the city to assess the actual expected life of this pavement.

ADB = Asian Development Bank, cm = centimeter, EBRD = European Bank for Reconstruction and Development, KGZ = Kyrgyz Republic, km = kilometer.
Source: Operations Evaluation Mission.

3. **Quality of Materials Used.** Several reports from 2003 onward describe the replacement of substandard materials for contracts 1, 3, and 4, which are assumed to have resulted in base and subbase layers acceptable to the supervising engineers. The extensive cracking reported on contract 1 before the 6.5-centimeter strengthening overlay was applied, and the very visible cracking now apparent on contract 2 would suggest that base or subbase materials were not to specification.¹ The international consultant undertook comprehensive attempts to commission the digging of three test pits and analysis of the extracted materials.² This was to verify that appropriate standards of material specifications and application were adhered to. An analysis of in-situ pavement materials would be of interest to the maintenance department, and might be used when selecting contracting and consulting companies in the future.³

4. **Pavement Design and Deterioration.** The consultant reported that no record was kept of the original detailed designs prepared by Louis Berger. These were to be prepared by the contractors and approved by the clients and the supervising engineers. The only designs produced for this engineering review appear in the project completion report prepared by or on behalf of the Kazakhstan Roads Committee. These are general cross-sections through the pavement with no indication of where each was applied. The more detailed drawings prepared by the contractors were assumed to have been verified and approved by competent consulting

¹ On contract 2, the Roads Committee (November 2007) reports that the “as dug” subbase material distributed on the road did not meet the required grading envelope, so oversized rocks were handpicked and discarded. This is not a generally approved method of correcting the gradation of subbase materials. The report also says that the compaction standards for base and subbase were “easily achieved.” Unfortunately, the current condition of the surfacing does not bear this out (comments on contract 2 in Table A6.1).

² These included one each at kilometer (km) 39 and km 143 from Almaty, and one on the Bishkek bypass 500 meters west of the intersection with the main road from Bishkek to the border crossing.

³ Nonetheless, test pits reveal information only where they are located. A deflection survey would provide data concerning materials along the whole length of a road and so might be even more useful in this regard.

engineers, who also supervised their application on the road. As expected, modifications and extra work resulted as problem areas were encountered.

5. Flexible roads sustain damage from the environment and from traffic. Sunlight and air cause oxidation of bitumen at the surface; it becomes brittle and more susceptible to cracking. Polymer-modified bitumen, that was at first specified for this road, was replaced by cheaper and more easily available penetration grade bitumen. Repeated stressing of the pavement eventually causes damage. It could not be ascertained whether a deflection survey was carried out to obtain data on the strength of the existing pavement.

6. The layer thicknesses for the original pavement in the EBRD report are similar to the design in Overseas Road Note 31⁴ for pavements on a subgrade of the 5% California bearing ratio⁵ intended to carry 17–30 million equivalent single axle loads during the design life. However, traffic volume of about 40 equivalent single axle loads may or may not be reached in 15 years. Classified traffic counts must be conducted at least annually at key locations on the highways.

7. A visual inspection shows that the bridge beams are adequate. A few ditch inverts are not deep enough but that may be due to poor construction rather than poor design.

8. **Other.** The Kazakhstan Government reported continuing weakness in the work of the supervising consultant. However, the ADB project officer refuted this observation. While large foreign companies were linked with small local companies, the foreign input was very limited. Rather, at least one full-time employee of the main contractor (typically the lead company in a consortium) should be charged with the project in question. In addition, supervising consultants are typically caught between the government and the contractor. In this case, the contractor successfully lobbied the Government on many occasions to contradict orders from the supervising engineer. The same supervision consultant performed adequately on the ADB-funded section where the civil works contractors performed well. This indicates that the poor performance of a contractor is an important factor governing the performance of a project.

9. Road designs typically assume that the structure will be protected by maintenance. For instance routine maintenance is required to keep the drainage structures clear, while periodic maintenance is needed to prevent water penetration through the worn running surface. In addition, and as a general estimate, the road in question will need at least one surface protection about half way through the design life and a major strengthening at the end of the design life. This falls under periodic maintenance and will require appropriate allocation from the budget.

⁴ Overseas Road Note 31 "A guide to the structural design of bitumen-surfaced roads in tropical and subtropical countries" (Transport Research Laboratory, Crowthorne, Berkshire, United Kingdom) was published in 1993 when designing pavements for extremely high traffic was far from an exact science. Overseas Road Note 31 supplies design data only for traffic up to the category of 17 to 30 million equivalent single-axle loads. More intricate design procedures, which can forecast beyond 30 million equivalent single-axle loads, have been developed in the United States, United Kingdom, Russian Federation, Germany, and France; but no indication has yet been found during this review of the use of any design procedure other than Road Note 29 (chapter 2, contract 1).

⁵ The California bearing ratio (CBR) is a simple test that compares the bearing capacity of a material with that of a well-graded crushed stone (thus, a high-quality crushed stone material should have a CBR @ 100%). CBR is basically a measure of strength. It is primarily intended for, but not limited to, evaluating the strength of cohesive materials with maximum particle sizes less than 0.75 inches (American Association of State Highway and Transportation Officials 2000). It was developed by the California Division of Highways around 1930 and was subsequently adopted by numerous states, counties, United States federal agencies, and internationally. Most agency and commercial geotechnical laboratories in the United States are equipped to perform CBR tests.

TRANSITION IMPACT ANALYSIS

Kazakhstan Road Sector Development Project

Transition Impact Checklist Category	Steps of Rating Transition Impact	Short-Term Verified Impact Rating ^a	Longer-Term Transition Impact Potential Rating ^b	Risk to Potential Transition Impact Rating ^c
	Step I: Change by the Project at Corporate (KAZ MOTC) Level			
3	Private ownership. Involve the private sector in project construction activities. One ADB loan covenant with the Government was that the Borrower would establish a state joint stock company to manage the road equipment pool on a commercial basis. The covenant was not complied with.	Marginal	Satisfactory	Medium
5	Skill transfer. The foreseen technical cooperation from EBRD could not be implemented. The outputs of ADB-provided technical assistance were not implemented. The performance of the TA (as the one in the Kyrgyz Republic) is rated partly successful. The MDBs could—or should—have added value in the areas of institutional strengthening and capacity development. Also, the abandonment by the Kazakh authorities of a (previously existing) PIU with foreign consultant support reduced skill transfer potential.	Marginal	Marginal	Medium
6	Demonstration effects. (Step II: Transition Impact at the Level of the Industry and the Economy as a Whole)			
7	New standards for business conduct. Partly complied with EBRD environmental covenants. Valuable experience with international public procurement methods and contract supervision was gained. Improvements were made in road financing.	Satisfactory	Satisfactory	Low
	Step II: Transition Impact at the Level of the Industry and the Economy as a Whole	Rating	Rating	Rating
1	Competition. The road Project did not introduce any concession or PPP system that could enhance potential competition among companies tendering for the concession of PPP.			
2	Market expansion. Backward-linkages benefited small- and medium-sized enterprises in the construction industry, introducing international standards stipulated under the MDB financed road construction.	Good	Satisfactory	Medium
3	Private ownership. The state-owned Kazavtodor still holds the monopoly for routine maintenance.	Marginal	Marginal	High

	Step II: Transition Impact at the Level of the Industry and the Economy as a Whole	Rating	Rating	Rating
4	Frameworks for markets. The transition objectives related to (i) legislative aspects (such as automobiles road act and road traffic safety act), (ii) road sector financing (provide sufficient budgetary allocation to the road sector and improvement to cost recovery), and (iii) some technical aspects (such as motorway design and standards). The related detailed discussion in the main text shows that the corresponding rating of the different TI constituents is rather mixed; the assigned rating is therefore a composite covering a rating range from “marginal” to “good” with less favorable subratings considered as having a heavier weight.	Marginal/ Satisfactory	Marginal/ Satisfactory	Medium
5	Skills transfers. Skill transfer, particularly reaching beyond the Project, was not specifically targeted under the Project (Step I)			
6	Demonstration effects.			
7	New standards for business conduct. From anecdotal evidence collected by the OEM, subcontractors appear to have benefited from contract-imposed strict construction standards and norms, although this should be reassessed to determine if the improved business conduct implied is holding true for the benefit of other ongoing MDB-financed road construction work.	Satisfactory	Satisfactory	Low
	Summary of verified potential and risk ratings	Satisfactory	Satisfactory	Low to Medium
	Overall transition impact rating:^d	Marginal/Satisfactory		

ADB = Asian Development Bank, EBRD = European Bank for Reconstruction and Development, KAZ = Kazakhstan, MDB = multilateral development bank, MOTC = Ministry of Transport and Communications, OEM = Operations Evaluation Mission, PIU = project implementation unit, PPP = public–private partnership, TA = technical assistance.

^a This range is excellent, good, satisfactory, marginal, unsatisfactory, negative.

^b This range is excellent, good, satisfactory, marginal, unsatisfactory, negative.

^c This range is low, medium, high, excessive.

^d This range is excellent, good, satisfactory, marginal, unsatisfactory, negative.

Source: European Bank for Reconstruction and Development.

TIME TAKEN TO CROSS THE BORDER

1. The joint evaluation mission of the Asian Development Bank and European Bank for Reconstruction and Development carried out a border-crossing point survey of drivers, border service staff, customs service staff, and transport control service of both Kazakhstan and the Kyrgyz Republic.

2. The survey includes time taken to cross the border based on the three major vehicle classes using the border (i.e., trucks with cargo, buses with passengers, and cars). Table A8 summarizes the study results in terms of the estimated time taken to cross the border including queuing and processing times.

Table A8: Total Time to Cross the Border (hours)

Item	Trucks			Buses ^a		
	Inbound	Outbound	Total	Inbound	Outbound	Total
Kazakhstan from the Kyrgyz Republic						
Total time to cross the border	2.0–17.0	1.0–5.0	3.0–22.0	1.0–6.0	0.5–6.0	1.5–12.0
of which: queuing time	1.0–15.0 ^b	0.3–5.0 ^b	1.3–20.0	0.2–1.0	0.2–3.0	0.3–4.0
processing time	1.0–5.0 ^c	1.0–2.0	2.0–7.0	0.7–5.0	0.3–3.0	1.0–8.0
Kyrgyz Republic from Kazakhstan						
Total time to cross the border	2.0–15.0	1.0–5.0	3.0–18.0	0.4–3.0	0.3–5.0	0.8–8.0
of which: queuing time	1.0–15.0 ^b	0.5–5.0 ^b	1.5–20.0	0.1–0.5	0.2–2.5	0.3–3.0
processing time	0.3–2.0	1.0–3.0	1.3–5.0	0.3–5.0	0.3–5.0	0.7–10.0
Item	Cars					
	Inbound	Outbound	Total			
Kazakhstan from the Kyrgyz Republic						
Total time to cross the border	0.7–5.0	0.2–4.0	0.8–9.0			
of which: queuing time	0.2–1.0	0.1–3.0	0.3–4.0			
processing time	0.5–1.0 ^d	0.1–1.0 ^d	0.6–2.0			
Kyrgyz Republic from Kazakhstan						
Total time to cross the border	0.5–1.0	0.3–3.0	0.8–4.0			
of which: queuing time	0.2–0.3	0.2–2.0	0.3–2.3			
processing time	0.3–1.0 ^c	0.2–0.7 ^c	0.5–1.7			

^a Depends on the size of the bus.

^b includes time to wait for the firm representative who gets the customs clearance.

^c Minimal time is taken for domestic cars. More time is required for cars from distant foreign countries and for Russian cars.

Source: Operations Evaluation Mission.

3. For all three vehicle classes covered, the cross-border survey indicates that the amount of time taken to cross the border was almost the same on both sides of the border. Respondents thought that more time was required for incoming traffic to enter Kazakhstan as compared with the Kyrgyz Republic. For inbound trucks, the estimated processing time taken to cross the border is shorter in the Kyrgyz Republic, while queuing time is almost the same on both sides of the border. For buses, both estimated queuing and processing times are shorter for the Kyrgyz Republic side. For cars, estimated queuing time is shorter in the Kyrgyz Republic, while processing time is almost the same on both sides of the border. Overall, custom service procedures did not change but enforcement appears to have become more strict making each crossing more complicated and requiring more time than before.

ECONOMIC ANALYSIS

1. The economic analysis was carried out on the basis of a comparison of the with- and without-project scenarios and using the world price numeraire. The basic methodology follows the *Guidelines for the Economic Analysis of Projects* (1997) of the Asian Development Bank (ADB). The Almaty–Bishkek Road Rehabilitation Project was evaluated to 2027, allowing a 6-year implementation period (due to actual delays) starting in 2002, followed by a benefit period of 20 years (which was the economic life assumed at appraisal and completion). All benefits and costs are expressed in constant 2008 prices. Project benefits are assumed to have commenced in 2008.

2. The reevaluation covers improvement of 225.7 kilometers (km) of roads, mostly on the international corridor linking the cities of Almaty and Bishkek.¹ The economic internal rate of return (EIRR) was recalculated for the

- (i) 50.4 km portion of the Kazakhstan component (km 11.6–km 62) financed by the European Bank for Reconstruction and Development (EBRD),
- (ii) 156 km section (km 65–km 221) financed by ADB, and
- (iii) Kyrgyz Republic component comprising 16.3 km of the Bishkek to Georgievka road (links 1 and 2) and 3 km from the Bishkek bypass intersection to Maevka (link 3A).²

3. The parameters to carry out the economic analyses are broadly consistent with appraisal and project completion assessments. The analysis for postevaluation includes two cases.³ Taking into account the lower rating for sustainability, case 1 assumes that the Project is less likely to be adequately maintained, i.e., the resources allocated for maintenance will be less than required. Case 2 assumes that the Project will be maintained adequately and all the resources required will be provided.

A. Actual and Projected Traffic Growth

4. Traffic forecasts for “with” and “without” project conditions were updated by the joint ADB–EBRD evaluation team based on current observations.⁴ Traffic data was obtained from a traffic survey carried out by a national consultant between late June and early July 2008. Five-day, 18-hour traffic counts were conducted at four selected points along the project road. These were situated

- (i) 21 km from Almaty City (KAZ 1),
- (ii) 61 km from Almaty City (KAZ 2),
- (iii) 2 km from border in the Kyrgyz Republic side (KGZ 1), and
- (iv) 0.5 km from the bypass intersection or 2 km from Dordoy Bazaar (KGZ 2).

¹ The total length of the road is based on field data gathered by the Operations Evaluation Mission consultants. The project completion report (PCR) reported a slightly lower figure of 221 km of the regional roads rehabilitated (including 19.2 km for the Kyrgyz Republic component).

² The PCR does not clearly state whether the recalculated economic rates of return are based on the reduced project scope.

³ The present analysis may be considered conservative as a number of other project benefits have not been quantified but may be potentially significant. These include time savings from cargo delay, economic benefits from improved road safety, savings due to facilitation of traffic, and trade at the Kazakhstan and Kyrgyz Republic international border. If the economics of these are included, then the rate of return may markedly increase.

⁴ The evaluation team could not validate earlier traffic forecasts under “without” project conditions in the absence of information from ADB project documents.

5. Traffic growth was estimated in three road sections each in Kazakhstan and the Kyrgyz Republic. Annual average daily traffic was assumed to increase uniformly over the project life, e.g., at 6.7% per year from Kaskelen to the Kazakhstan border and 6% from the border in the Kyrgyz Republic to Bishkek. This is consistent with ADB assessments in its project completion report (PCR) circulated in December 2007.⁵

6. Except for the Almaty to Kaskelen section, recent traffic estimates are generally in line with appraisal targets. This first section of the EBRD-financed project road showed rapid growth due to local city traffic and additional traffic generated in Kaskelen. Urban traffic will stay high because of strong market and residential development in the area. Maximum traffic volume of about 49,000 vehicles per day (vpd) was assumed based on initial EBRD estimates for the area. Traffic in the second EBRD section is more stable and assumed to grow at the same pace as the ADB sector.

Table A9.1: Comparison of Total Traffic
(annual average daily traffic)

Road Section	Sample TC	Year	Appraisal (1999)		JER (2008)		Assumptions (2008–2027)
			Without	With	Without	With	
Almaty–Kaskelen (13.4 km, EBRD)	KAZ 1	1998	9,655	9,655	9,655	9,655	Without: Uniform increase of 4% per year With: Uniform increase of 3.65% per year
		2005		11,314	15,416		
		2008			17,341	45,732	
		2014		17,417	21,942	46,743	
		2024		26,379	32,480	48,477	
Kaskelen– Uzunagach (37 km, EBRD)		1998	4,631	4,631	4,631	4,631	Without: Uniform increase of 2% per year With: Uniform increase of 6.7% per year
		2005		5,556	4,881	6,421	
		2008			5,180	8,033	
		2014		9,887	5,833	11,853	
		2024		16,109	7,111	22,672	
Uzunagach– Otar–Georgievka (156 km, ADB)	KAZ 2	1998	3,143–3,797	3,143–3,797	3,143	3,143	Without: Increase uniformly by 3.2% per year With: Increase uniformly by 6.7% per year
		2005		3,779–4,665	3,278		
		2008			3,382	6,833	
		2014		6,944–8,584	4,080	10,083	
		2024		11,643–13,543	5,577	19,286	
KGZ Link 1: Bishkek–Bypass Intersection (5.1 km, ADB)		1998	9,342	9,342	9,342	9,342	Without and With conditions: Prorated with traffic growth observed in link 3A
		2005		11,632	11,131		
		2008			11,639	17,829	
		2014		17,867	12,727	21,601	
		2024		29,140	14,770	29,742	
KGZ Link 2: Border–Bypass Intersection (11.2 km, ADB)	KGZ 1	1998	7,064	7,064	7,064	7,064	Without: Uniform increase of 2.9% per year With: Uniform increase of 6% per year
		2005		8,818	6,327		
		2008			6,124	8,352	
		2014		13,586	7,260	11,847	
		2024		22,229	9,639	21,217	
KGZ Link 3A: Bypass Intersection to Maevka (3 km, ADB)	KGZ 2	1998	7,606	7,606	7,606	7,606	Without: Uniform increase 1.5% per year With: Uniform increase of 3.25% per year
		2005		9,512	9,159		
		2008			9,577	14,671	
		2014		14,699	10,472	17,775	
		2024		24,123	12,154	24,474	

ADB = Asian Development Bank, EBRD = European Bank for Reconstruction and Development, KAZ = Kazakhstan, KGZ = Kyrgyz Republic, JER = joint evaluation report, TC = traffic count, without = without project, with = with project. Sources: ADB project documents and Operations Evaluation Mission estimates.

⁵ The PCR does not provide traffic forecasts under “with” conditions. The evaluation team assumes that these were consistent with appraisal forecasts. Based on current observations, the evaluation team considers traffic growth assumptions used by the PCR to be sound.

7. In the Kyrgyz Republic, traffic between Bishkek and the bypass intersection was estimated by prorating this with traffic growth at link 3A (bypass intersection to Maevka), i.e., multiplying projected growth by a factor of 1.215 in line with appraisal assumptions. The origin–destination survey indicates that 41% of traffic at link 3A (from Dordoy market along the bypass) is national and most may originate from Bishkek. Table A9.1 summarizes projected growth of total traffic.

8. Forecast traffic was divided into normal and generated traffic. Normal traffic, which comprises traffic already using the road and natural traffic growth, was estimated by dividing total traffic by 1.12 (i.e., generated or induced traffic was assumed at 8%–16% of normal vehicle traffic). Table A9.2 shows the projected annual average daily traffic in each of the project road sections.

Table A9.2: Normal and Generated Traffic (2008, 2010, 2015, and 2024)
(number of vehicles)

Year	KAZ 1		KAZ 2		KGZ Link 1		KGZ Link 2		KGZ Link 3A	
	NT	GT	NT	GT	NT	GT	NT	GT	NT	GT
2008	40,832	4,900	6,101	732	15,919	1,910	7,457	895	13,099	1,572
2010	41,131	4,936	6,946	833	16,970	2,036	8,379	1,005	13,964	1,676
2015	41,887	5,026	9,606	1,153	19,913	2,390	11,213	1,346	16,386	1,966
2020	42,657	5,119	13,285	1,594	23,366	2,804	15,005	1,801	19,227	2,307
2024	43,441	5,213	18,373	2,205	27,418	3,290	20,080	2,410	22,562	2,707

GT = generated traffic, KAZ = Kazakhstan, KGZ = Kyrgyz Republic, NT = normal traffic.

Source: Operations Evaluation Mission estimates.

9. Table A9.3 compares traffic mix assumptions in each of the project road sections.

Table A9.3: Comparison of Vehicle Mix (2008–2027)

Vehicle Type	Appraisal ^a	JER		Appraisal ^a	JER	
		Without	With		Without	With
		KAZ 1			KAZ 2	
Cars	86.95	86.12	83.01	82.63	76.69	77.13
Bus	3.83	4.56	7.14	6.33	9.84	8.91
Light and Medium Trucks	7.23	6.49	6.01	6.96	8.60	6.41
Heavy and Articulated Trucks	1.99	2.83	3.84	4.08	4.87	7.55
		KGZ 1			KGZ 2	
Cars	88.81	74.83	74.60	89.19	81.70	81.69
Bus	2.24	17.50	17.64	1.04	9.98	9.98
Light and Medium Trucks	5.67	5.05	5.06	6.35	4.72	4.72
Heavy and Articulated Trucks	3.28	2.62	2.70	3.42	3.60	3.61

JER = joint evaluation report, KAZ = Kazakhstan, KGZ = Kyrgyz Republic.

^a Based on forecast traffic trucks for 2005, 2014, and 2024 (comprising private cars, buses, light and medium-sized trucks, and heavy trucks).

Source: Operations Evaluation Mission estimates.

B. Benefits

10. The main source of economic benefits will be from savings in (i) vehicle operating costs (VOCs) for normal and generated traffic, and (ii) travel time because of the improved alignment. No maintenance cost savings are expected from the Project.

11. Roughness values used at postevaluation refine estimates made by the national consultant during fieldwork. Based on the recent trend of road maintenance allocations in the

project countries, case 1 for the analysis assumes a relatively weak maintenance regime. In particular, maintenance allocation received is not enough to keep the roads at their after project completion condition through their economic life.⁶ Case 2 is an optimistic scenario and assumes that the Project will be maintained adequately and all the resources required will be provided. Table A9.4 provides a summary of average roughness values used for cases 1 and 2.

Table A9.4: Comparison of Roughness Values (2002 and 2008–2027)
(period average, meters per kilometer)

Year	Case 1: Less than Optimal Maintenance Received				Case 2: Optimal Maintenance Received			
	KAZ		KGZ		KAZ		KGZ	
	Without	With	Without	With	Without	With	Without	With
2002	8.0	8.0	6.0	6.0	8.0	8.0	6.0	6.0
2003	5.0	8.0	4.5	6.0	5.0	8.0	4.5	6.0
2008	9.5	2.0	9.0	2.5	9.5	2.0	9.0	2.5
2009	5.0	2.8	4.5	2.9	5.0	2.2	4.5	2.7
2014	8.5	7.0	8.5	5.0	8.0	3.0	8.0	3.5
2015	5.5	3.0	5.0	3.0	5.0	2.5	4.5	2.5
2020	9.0	7.5	9.0	5.5	8.5	3.0	8.5	3.5
2021	6.0	3.0	5.0	3.0	5.0	2.5	4.5	2.5
2026	9.5	8.0	9.5	6.0	9.0	3.0	9.0	3.5
2027	6.0	3.0	5.0	3.0	5.0	2.5	4.5	2.5
Period Average								
2008–2012	6.7	3.7	6.4	3.3	6.6	2.3	6.2	2.8
2013–2017	7.0	5.0	6.7	4.0	6.5	2.7	6.2	3.0
2018–2022	7.5	5.4	7.1	4.3	6.8	2.8	6.6	3.0
2023–2027	8.0	5.8	7.5	4.7	7.2	2.8	7.0	3.1

KAZ = Kazakhstan, KGZ = Kyrgyz Republic.

Source: Operations Evaluation Mission estimates.

12. The value of VOC savings was calculated using the Road Economic Decision (RED) model, calibrated to local (Kazakhstan and the Kyrgyz Republic) conditions. The unit VOCs (i.e., at roughness level per vehicle for each vehicle type) were reestimated using its VOC module. Table A9.5 presents incremental VOC savings (in terms of \$ per vehicle-km for flat and rolling terrain) applied for representative vehicle classes using the project road.

Table A9.5: Incremental Vehicle Operating Costs
(average, \$ per vehicle-kilometer)

Vehicle Type	Kazakhstan			Kyrgyz Republic		
	Appraisal	Case 1	Case 2	Appraisal	Case 1	Case 2
Cars	0.01–0.04	0.01	0.03	0.01	0.01	0.02
Bus	0.02–0.33	0.02–0.14	0.04–0.23	0.02	0.02–0.09	0.05–0.11
Light and Medium Trucks	0.01–0.11	0.05–0.08	0.08–0.13	0.02	0.02–0.05	0.03–0.06
Heavy Trucks	0.01–0.15	0.14	0.24	0.03	0.10	0.12

Source: Operations Evaluation Mission estimates.

13. Similar assumptions on traffic volume were used for the case 1 and case 2 scenarios.⁷ Normal traffic benefits were calculated by applying the difference between estimated VOCs in the “with” and “without” project conditions to incremental changes in normal traffic in the “with”

⁶ The PCR assumptions assume that maintenance interventions (including winter maintenance) will be performed to sustain the roughness index at around 2–3 meters per km.

⁷ Case 1 road conditions may still allow for a generally comfortable ride although at reduced vehicle speeds and time savings.

and “without” project conditions. Generated traffic was assumed at 12% of normal traffic. VOC savings benefits from generated traffic are estimated at half the value of normal traffic.

14. Total annual VOC benefits for normal (incremental) and generated traffic were derived from incremental VOC benefits and assumptions on average trip distance. Table A9.6 shows estimated average travel distance applied for vehicles using the project road.

Table A9.6: Distance Traveled
(kilometer)

Location	Road Length	Average Trip Distance
KAZ: Almaty–Kaskelen	13.4	13.4
KAZ: Kaskelen–Uzunagach	37.0	29.6
KAZ: Uzunagach–Georgievka	156.0	124.8
KGZ: Link 1	5.1	5.1
KGZ: Link 2	11.2	11.2
KGZ: Link 3A	3.0	3.0

KAZ = Kazakhstan, KGZ = Kyrgyz Republic.
Source: Operations Evaluation Mission estimates.

15. Benefits from passenger travel time savings were estimated for the EBRD-financed section from Kaskelen to Uzunagach⁸ and the ADB-financed sector from Uzunagach to the Kazakhstan border.⁹ No travel time savings are expected for the Kyrgyz Republic portion due to enforcement of the speed limit. Tables A9.7 and A9.8 define the parameters for estimating the time saving benefits in the two case scenarios.

Table A9.7: Value of Time Savings Benefits
(Case 1: Less than Optimal Maintenance Received)

Road Section/ Vehicle Type	Vehicle Capacity (number)	Vehicle Occupancy Rate (%)	Average Trip Km	Estimated TT Savings (hour)	TT Savings per Km	Total TT Savings (hour)	Total TT Saved per Pax (\$)
KAZ 1							
Car	5	30	30	0.28	0.000455	0.01	0.03
Light Bus, Van	10–12	40	30	0.71	0.001138	0.03	0.08
Medium Bus	19–23	50	30	1.13	0.001820	0.05	0.13
Heavy Bus	55–60	50	30	1.13	0.001820	0.05	0.13
Truck	2	50	30	1.67	0.002763	0.08	0.20
KAZ 2							
Car	5	40	125	0.28	0.000910	0.11	0.27
Light Bus, Van	10–12	50	125	0.71	0.002275	0.28	0.68
Medium Bus	19–23	50	125	1.13	0.003640	0.45	1.09
Heavy Bus	55–60	50	125	1.13	0.003640	0.45	1.09
Truck	2	50	125	1.67	0.005525	0.69	1.65

hr = hour, km = kilometer, pax = passenger, TT = travel time.
Source: Operations Evaluation Mission estimates.

⁸ The first section from km 11.5 to km 25 is highly urban. No significant time savings benefit is seen as traffic growth has been rapid in the area during the last few years. Travel time and vehicle speed would have been affected by traffic jams. The second section from km 26 to km 60 would have experienced similar time savings realized from the ADB-financed road in Kazakhstan.

⁹ The speed limit is 70 km/hour from km 0 to km 33 from Almaty to Kaskelen, 90 km/hr from km 33 to km 220 on the highway, and 50 km/hour within settlements or along dangerous turns and passes.

Table A9.8: Value of Time Savings Benefits
(Case 2: Optimal Maintenance Received)

Road Section/ Vehicle Type	Vehicle Capacity (number)	Vehicle Occupancy Rate (%)	Average Trip Km	Estimated TT Savings (hour)	TT Savings per Km	Total TT Savings (hour)	Total TT Saved per Pax (\$)
KAZ 1							
Car	5	30	30	0.28	0.00070	0.02	0.05
Light Bus, Van	10–12	40	30	0.71	0.00175	0.05	0.12
Medium Bus	19–23	50	30	1.13	0.00280	0.08	0.20
Heavy Bus	55–60	50	30	1.13	0.00280	0.08	0.20
Truck	2	50	30	1.67	0.00425	0.13	0.30
KAZ 2							
Car	5	40	125	0.28	0.00140	0.17	0.42
Light Bus, Van	10–12	50	125	0.71	0.00350	0.44	1.05
Medium Bus	19–23	50	125	1.13	0.00560	0.70	1.68
Heavy Bus	55–60	50	125	1.13	0.00560	0.70	1.68
Truck	2	50	125	1.67	0.00850	1.06	2.55

hr = hour, km = kilometer, pax = passenger, TT = travel time.

Source: Operations Evaluation Mission estimates.

C. Costs

16. Project costs included the resource cost of road improvement and maintenance. The financial benefits and costs were converted to economic benefits and costs by applying a standard conversion factor of 0.9 to the nontraded components. Capital costs were taken from the most recent loan disbursement data available from ADB's internal loan financial information system. The capital cost stream for the EBRD-financed portion is based on disbursement data (as of October 2008) provided by EBRD staff.

17. Table A9.9 shows the assumptions used for maintenance costs, i.e., routine and periodic maintenance. Case 2 assumes an optimal maintenance scenario. Because of substantially different technical standards, varying assumptions were used for the EBRD (dual) and ADB (single) road sections. The dual section is assumed to be double that of the ADB section. Maintenance costs for the Kyrgyz Republic roads are assumed to be 80% of cost (e.g., 3 centimeters asphalt surface treatment would cost at least 15,000–20,000/km if done properly). Maintenance spending for case 1 is assumed to be 55% of case 2 estimates for Kazakhstan and 80% of case 2 estimates for the Kyrgyz Republic. Periodic maintenance to keep the project road sections at an acceptable level of service is assumed in 2014, 2020, and 2026.

Table A9.9: Maintenance Unit Costs, 2008–2027
(average \$ per kilometer)

Item	Kazakhstan						Kyrgyz Republic		
	KAZ 1		KAZ 2		PCR		JER		
	PCR	JER	PCR	JER	Case 1	Case 2	Case 1	Case 2	
Routine Maintenance	—	2,200	4,000	1,700	1,100	2,000	1,700	1,280	1,600
Periodic Maintenance	—	33,000	60,000	30,000	16,500	30,000	30,000	19,200	24,000

— = not calculated, KAZ = Kazakhstan, JER = joint evaluation report, PCR = project completion report.

Source: Operations Evaluation Mission estimates.

D. Economic Internal Rate of Return

1. Overall Project

18. Taking into account future risks on sustainability, the Project is partly efficient on the basis of this economic reevaluation. Case 1 results in an overall EIRR of 11.6% for the entire Project or just below the 12% benchmark rate in terms of opportunity cost of capital¹⁰ (Table A9.10).

Table A9.10: Almaty–Bishkek Road Rehabilitation Project
Case 1: Recalculation of Economic Internal Rate of Return (ADB and EBRD)
(\$ million in constant 2008 prices)

Year	Costs				Benefits						Net Benefits
	Capital Costs	O&M Costs		Total Costs	VOC Savings			Time Savings	Total Benefits		
		Periodic	Routine		Normal	Generated	Total				
2002	1.17	0.00	0.00	0.00	1.18			0.00		0.00	(1.18)
2003	32.85	0.00	0.00	0.00	32.85			0.00		0.00	(32.85)
2004	42.72	0.00	0.00	0.00	42.73			0.00		0.00	(42.73)
2005	50.98	0.00	0.00	0.00	50.98			0.00		0.00	(50.98)
2006	17.69	0.00	0.00	0.00	17.69			0.00		0.00	(17.69)
2007	6.77	0.00	0.00	0.00	6.78			0.00		0.00	(6.78)
2008	0.37	0.00	0.28	0.28	0.64	30.82	3.49	34.31	5.88	40.19	39.55
2009	0.00	0.00	0.28	0.28	0.28	8.80	1.44	10.24	6.12	16.35	16.08
2010	0.00	0.00	0.28	0.28	0.28	8.79	1.40	10.19	6.53	16.71	16.44
2011	0.00	0.00	0.28	0.28	0.28	9.21	1.43	10.64	6.97	17.60	17.33
2012	0.00	0.00	0.28	0.28	0.28	9.59	1.45	11.04	7.43	18.48	18.20
2013	0.00	0.00	0.28	0.28	0.28	9.30	1.39	10.69	7.93	18.62	18.34
2014	0.00	2.07	0.00	2.07	2.07	9.51	1.40	10.91	8.46	19.37	17.30
2015	0.00	2.07	0.00	2.07	2.07	15.06	2.20	17.26	9.03	26.29	24.22
2016	0.00	0.00	0.28	0.28	0.28	15.29	2.17	17.46	9.63	27.10	26.82
2017	0.00	0.00	0.28	0.28	0.28	15.49	2.14	17.63	10.28	27.91	27.63
2018	0.00	0.00	0.28	0.28	0.28	15.33	2.08	17.41	10.97	28.38	28.10
2019	0.00	0.00	0.28	0.28	0.28	14.98	2.01	16.98	11.70	28.69	28.41
2020	0.00	2.07	0.00	2.07	2.07	14.45	1.91	16.35	12.49	28.84	26.77
2021	0.00	2.07	0.00	2.07	2.07	27.42	3.61	31.03	13.32	44.35	42.28
2022	0.00	0.00	0.28	0.28	0.28	27.24	3.50	30.74	14.22	44.95	44.68
2023	0.00	0.00	0.28	0.28	0.28	26.89	3.37	30.26	15.17	45.43	45.16
2024	0.00	0.00	0.28	0.28	0.28	25.66	3.17	28.83	16.19	45.02	44.74
2025	0.00	0.00	0.28	0.28	0.28	24.04	2.93	26.97	17.27	44.24	43.97
2026	0.00	2.07	0.00	2.07	2.07	22.02	2.65	24.67	18.43	43.09	41.02
2027	0.00	2.07	0.00	2.07	2.07	41.74	5.05	46.79	19.66	66.45	64.38
Economic Internal Rate of Return =											11.6%
Net Present Value (\$ Million) =											(4.2)

() = negative, ADB = Asian Development Bank, EBRD = European Bank for Reconstruction and Development, O&M = operation and maintenance, VOC = vehicle operating cost.

Source: Operations Evaluation Mission estimates.

19. This partly efficient performance could be improved in the future if maintenance allocations are improved and specific steps are taken by the two governments to channel more resources to road maintenance. In the optimistic scenario under case 2, the overall EIRR increases to 16.6% for the Project (Table A9.11).

¹⁰ A sensitivity analysis of case 1 was carried out to assess the impact of a slower growth in traffic. This showed that a 20% drop in total traffic will reduce the overall EIRR to 8.4%. This indicates that the Project is at risk if the maintenance is not carried out efficiently.

Table A9.11: Almaty–Bishkek Road Rehabilitation Project
Case 2: Recalculation of Economic Internal Rate of Return (ADB and EBRD)
(\$ million in constant 2008 prices)

Year	Costs				Benefits						Net Benefits
	Capital Costs	O&M Costs		Total Costs	VOC Savings			Time Savings	Total Benefits		
		Periodic	Routine		Normal	Generated	Total				
2002	1.17	0.00	0.00	0.00				0.00		0.00	(1.18)
2003	32.85	0.00	0.00	0.00				0.00		0.00	(32.85)
2004	42.72	0.00	0.00	0.00				0.00		0.00	(42.73)
2005	50.98	0.00	0.00	0.00				0.00		0.00	(50.98)
2006	17.69	0.00	0.00	0.00				0.00		0.00	(17.69)
2007	6.77	0.00	0.00	0.00				0.00		0.00	(6.78)
2008	0.37	0.00	0.49	0.49	0.86	30.82	3.49	34.31	9.04	43.35	42.50
2009	0.00	0.00	0.49	0.49	0.49	11.17	1.83	12.99	9.41	22.41	21.92
2010	0.00	0.00	0.49	0.49	0.49	14.24	2.27	16.51	10.04	26.55	26.06
2011	0.00	0.00	0.49	0.49	0.49	17.24	2.69	19.93	10.72	30.65	30.16
2012	0.00	0.00	0.49	0.49	0.49	20.61	3.15	23.76	11.44	35.19	34.70
2013	0.00	0.00	0.49	0.49	0.49	24.90	3.73	28.63	12.20	40.83	40.34
2014	0.00	3.68	0.00	3.68	3.68	29.14	4.28	33.42	13.02	46.44	42.77
2015	0.00	3.68	0.00	3.68	3.68	14.88	2.19	17.06	13.89	30.95	27.28
2016	0.00	0.00	0.49	0.49	0.49	20.07	2.88	22.95	14.82	37.77	37.28
2017	0.00	0.00	0.49	0.49	0.49	25.98	3.65	29.63	15.82	45.45	44.96
2018	0.00	0.00	0.49	0.49	0.49	32.65	4.49	37.14	16.87	54.01	53.52
2019	0.00	0.00	0.49	0.49	0.49	40.14	5.42	45.56	18.01	63.57	63.08
2020	0.00	3.68	0.00	3.68	3.68	48.56	6.44	55.00	19.21	74.21	70.54
2021	0.00	3.68	0.00	3.68	3.68	22.48	2.99	25.47	20.50	45.97	42.29
2022	0.00	0.00	0.49	0.49	0.49	31.44	4.09	35.53	21.87	57.40	56.91
2023	0.00	0.00	0.49	0.49	0.49	41.66	5.31	46.97	23.34	70.31	69.82
2024	0.00	0.00	0.49	0.49	0.49	53.20	6.67	59.87	24.90	84.77	84.28
2025	0.00	0.00	0.49	0.49	0.49	66.20	8.16	74.36	26.57	100.93	100.44
2026	0.00	3.68	0.00	3.68	3.68	80.82	9.81	90.63	28.35	118.98	115.31
2027	0.00	3.68	0.00	3.68	3.68	34.23	4.18	38.41	30.25	68.65	64.98
Economic Internal Rate of Return =											16.6%
Net Present Value (\$ million) =											56.2

() = negative, ADB = Asian Development Bank, EBRD = European Bank for Reconstruction and Development, O&M = operation and maintenance, VOC = vehicle operating cost.

Source: Operations Evaluation Mission estimates.

20. Table A9.12 compares EIRR results at appraisal, project completion review, and postevaluation. It also presents the two scenarios wherein the EIRR could increase with improved maintenance allocations. This indicates that ADB and EBRD need to engage in further dialogue with the two governments to improve overall efficiency of the Project.

2. By Country and Funding Source

21. **Kazakhstan Component.** Table A9.12 provides the breakdown of the EIRR by country. The combined EIRR for ADB and EBRD road investments in Kazakhstan under the Project is 11.7% under case 1 and 16.8% under case 2. Since the Kazakhstan component occupies the larger share of the project scope (i.e., 91% of the total length of the improved road) and hence the project cost, it has stronger influence on the overall EIRR. Despite its shorter coverage (24.4% of the total length of the improved road), the relatively more robust performance of the EBRD section has led to a higher overall EIRR. In terms of impact, it provides a clear measure of success for the Project. The two EBRD road sections witnessed higher growth in traffic. The combined EIRR for the EBRD road sections was 15.3% under case 1 and 21.2 % under case 2¹¹ (Tables A9.13 and A9.14).

¹¹ The initial EIRR estimate for the EBRD component could not be confirmed. While the EIRR was initially reported at 26.8%, the stream of project cost and benefits indicate a more modest return of 12% and a net present value of zero (EBRD Recommendation from the President for the Kazakhstan Road Sector Development Project, Annex 7, page 3).

Table A9.12: Recalculation of Economic Internal Rates of Return (% and \$ million)

Item	Appraisal (1999)			ADB-PCR (2007)			Operations Evaluation (JER) (2008)				
	km	EIRR	NPV	km	EIRR	NPV	Case 1		Case 2		
							km	EIRR	NPV	EIRR	NPV
Overall Project	245	23.8	72.5	221	16.7	34.7	225.7	11.6	(4.2)	16.6	56.2
By Country											
Kazakhstan (ADB+EBRD)	205	23.7	68.0	202	17.9	39.0	206.4	11.7	(2.5)	16.8	57.5
Kyrgyz Republic (ADB)	40	25.9	4.5	19	16.3	1.3	19.3	7.7	(1.7)	9.0	(1.3)
By Funding Source											
EBRD section	50	26.8	—	50	—	—	50.4	15.3	6.4	21.2	23.4
ADB section	—	—	—	—	—	—	175.3	10.7	(10.7)	15.3	32.8
Kazakhstan	—	—	—	—	—	—	156.0	10.8	(8.9)	15.6	34.1
Kyrgyz Republic	40	25.9	4.5	40	16.3	1.3	19.3	7.7	(1.7)	9.0	(1.3)

— = not calculated, () = negative, ADB = Asian Development Bank, EBRD = European Bank for Reconstruction and Development, EIRR = economic internal rate of return, JER = joint evaluation report, KM = kilometer, NPV = net present value, PCR = project completion report.

Source: Operations Evaluation Mission estimates.

**Table A9.13: Kazakhstan
Recalculation of Economic Internal Rate of Return
EBRD Case 1: Almaty City–Kaskelen–Uzunagach (\$ million in constant 2008 prices)**

Year	Costs					Benefits					Net Benefits
	Capital Costs	O&M Costs			Total Costs	VOC Savings			Time Savings	Total Benefits	
		Periodic	Routine	Total		Normal	Generated	Total			
2002	0.37	0.00	0.00	0.00	0.37			0.00		0.00	(0.37)
2003	10.20	0.00	0.00	0.00	10.20			0.00		0.00	(10.20)
2004	6.90	0.00	0.00	0.00	6.90			0.00		0.00	(6.90)
2005	0.86	0.00	0.00	0.00	0.86			0.00		0.00	(0.86)
2006	9.83	0.00	0.00	0.00	9.83			0.00		0.00	(9.83)
2007	2.75	0.00	0.00	0.00	2.75			0.00		0.00	(2.75)
2008	0.19	0.00	0.10	0.10	0.29	13.39	1.39	14.78	0.64	15.42	15.12
2009	0.00	0.00	0.10	0.10	0.10	3.93	0.82	4.75	0.65	5.40	5.30
2010	0.00	0.00	0.10	0.10	0.10	3.70	0.76	4.46	0.69	5.15	5.05
2011	0.00	0.00	0.10	0.10	0.10	3.65	0.74	4.40	0.74	5.13	5.03
2012	0.00	0.00	0.10	0.10	0.10	3.59	0.72	4.31	0.79	5.10	5.00
2013	0.00	0.00	0.10	0.10	0.10	3.28	0.66	3.94	0.84	4.78	4.68
2014	0.00	0.75	0.00	0.75	0.75	3.17	0.63	3.80	0.89	4.70	3.95
2015	0.00	0.75	0.00	0.75	0.75	5.26	1.08	6.34	0.95	7.29	6.55
2016	0.00	0.00	0.10	0.10	0.10	5.07	1.02	6.10	1.02	7.11	7.01
2017	0.00	0.00	0.10	0.10	0.10	4.88	0.96	5.85	1.09	6.93	6.83
2018	0.00	0.00	0.10	0.10	0.10	4.60	0.90	5.50	1.16	6.66	6.56
2019	0.00	0.00	0.10	0.10	0.10	4.28	0.83	5.11	1.24	6.35	6.25
2020	0.00	0.75	0.00	0.75	0.75	3.93	0.75	4.68	1.32	6.00	5.26
2021	0.00	0.75	0.00	0.75	0.75	7.90	1.55	9.45	1.41	10.86	10.11
2022	0.00	0.00	0.10	0.10	0.10	7.54	1.45	8.99	1.50	10.49	10.39
2023	0.00	0.00	0.10	0.10	0.10	7.16	1.33	8.49	1.60	10.10	10.00
2024	0.00	0.00	0.10	0.10	0.10	6.56	1.21	7.77	1.71	9.48	9.38
2025	0.00	0.00	0.10	0.10	0.10	5.90	1.07	6.97	1.83	8.80	8.70
2026	0.00	0.75	0.00	0.75	0.75	5.16	0.93	6.09	1.95	8.04	7.29
2027	0.00	0.75	0.00	0.75	0.75	10.41	1.93	12.33	2.08	14.41	13.66
	Economic Internal Rate of Return =										15.3%
	Net Present Value (\$ million) =										6.4

() = negative, EBRD = European Bank for Reconstruction and Development, O&M = operation and maintenance, VOC = vehicle operating cost.

Source: Operations Evaluation Mission estimates.

Table A9.14: Kazakhstan
Recalculation of Economic Internal Rate of Return
EBRD Case 2: Almaty City–Kaskelen–Uzunagach (\$ million in constant 2008 prices)

Year	Costs					Benefits					Net Benefits
	Capital Costs	O&M Costs			Total Costs	VOC Savings			Time Savings	Total Benefits	
		Periodic	Routine	Total		Normal	Generated	Total			
2002	0.37	0.00	0.00	0.00	0.37			0.00		0.00	(0.37)
2003	10.20	0.00	0.00	0.00	10.20			0.00		0.00	(10.20)
2004	6.90	0.00	0.00	0.00	6.90			0.00		0.00	(6.90)
2005	0.86	0.00	0.00	0.00	0.86			0.00		0.00	(0.86)
2006	9.83	0.00	0.00	0.00	9.83			0.00		0.00	(9.83)
2007	2.75	0.00	0.00	0.00	2.75			0.00		0.00	(2.75)
2008	0.19	0.00	0.18	0.18	0.38	13.39	1.39	14.78	0.98	15.76	15.38
2009	0.00	0.00	0.18	0.18	0.18	5.00	1.04	6.04	1.00	7.04	6.86
2010	0.00	0.00	0.18	0.18	0.18	6.07	1.26	7.33	1.06	8.39	8.21
2011	0.00	0.00	0.18	0.18	0.18	7.01	1.44	8.45	1.13	9.58	9.40
2012	0.00	0.00	0.18	0.18	0.18	8.00	1.64	9.64	1.21	10.85	10.66
2013	0.00	0.00	0.18	0.18	0.18	9.25	1.89	11.14	1.29	12.43	12.25
2014	0.00	1.36	0.00	1.36	1.36	10.39	2.10	12.49	1.38	13.87	12.51
2015	0.00	1.36	0.00	1.36	1.36	5.21	1.08	6.29	1.47	7.76	6.40
2016	0.00	0.00	0.18	0.18	0.18	6.74	1.38	8.12	1.57	9.69	9.50
2017	0.00	0.00	0.18	0.18	0.18	8.38	1.69	10.08	1.67	11.75	11.57
2018	0.00	0.00	0.18	0.18	0.18	10.15	2.03	12.18	1.78	13.96	13.78
2019	0.00	0.00	0.18	0.18	0.18	12.06	2.38	14.45	1.90	16.35	16.17
2020	0.00	1.36	0.00	1.36	1.36	14.13	2.76	16.89	2.03	18.92	17.56
2021	0.00	1.36	0.00	1.36	1.36	6.45	1.29	7.75	2.17	9.92	8.55
2022	0.00	0.00	0.18	0.18	0.18	8.74	1.71	10.45	2.31	12.77	12.59
2023	0.00	0.00	0.18	0.18	0.18	11.24	2.16	13.40	2.47	15.87	15.68
2024	0.00	0.00	0.18	0.18	0.18	13.96	2.64	16.61	2.63	19.24	19.06
2025	0.00	0.00	0.18	0.18	0.18	16.95	3.16	20.11	2.81	22.92	22.74
2026	0.00	1.36	0.00	1.36	1.36	20.23	3.71	23.94	3.00	26.94	25.58
2027	0.00	1.36	0.00	1.36	1.36	8.48	1.60	10.09	3.20	13.28	11.92
Economic Internal Rate of Return =											21.2%
Net Present Value (\$ million) =											23.4

() = negative, EBRD = European Bank for Reconstruction and Development, O&M = operation and maintenance, VOC = vehicle operating cost.

Source: Operations Evaluation Mission estimates.

22. For the EBRD component, economic returns from urban traffic along the 13.4 km stretch between Almaty and Kaskelen (km 11.6–km 25) is highly robust. The economic boom in the country and within the Central Asia region has resulted in rapid traffic growth in recent years. The estimated vehicle traffic of around 45,000 vpd in 2008 far exceeds EBRD forecasts of 29,100 vpd in 2010 and 49,000 vpd in 2020. Even if additional benefits from the 37 km section from Kaskelen to Uzunagach are to be excluded, the recalculated EIRR is acceptable at 14.1% under case 2 (but less so at 8.4% under case 1). Traffic from Almaty to km 25 is not likely to increase rapidly without future investments. Vehicle speed and travel time will be affected by traffic jams in the area. Yet, even with limited prospects for traffic growth, sensitivity analysis shows the EIRR to be healthy at 15.1% under case 1 and 21% under case 2, even if traffic is held constant at its 2008 level over the project life.

23. Despite the absence of any major urban traffic along ADB sections, road investments generated a modest EIRR estimated at 10.8% under case 1 and 15.6% under case 2 for the ADB section. (Tables A9.15 and A9.16). A key reason for this is that total traffic has more than doubled, increasing by about 8.1% per year between 1998 and 2008. Yet, in contrast to the first of two EBRD sectors, the origin–destination survey indicates that 43% of traffic here is international. As Kazakhstan accounted for about 89% of the road improved by ADB under the Project, this performance is evident in the overall performance of the ADB components.

**Table A9.15: Kazakhstan Recalculation of Economic Internal Rate of Return
ADB Case 1: Uzunagach–Otar–Georgievka (\$ million in constant 2008 prices)**

Year	Costs				Benefits						Net Benefits
	Capital Costs	O&M Costs			Total Costs	VOC Savings			Time Savings	Total Benefits	
		Periodic	Routine	Total		Normal	Generated	Total			
2002	0.72	0.00	0.00	0.00	0.72			0.00		0.00	(0.72)
2003	21.74	0.00	0.00	0.00	21.75			0.00		0.00	(21.75)
2004	33.89	0.00	0.00	0.00	33.89			0.00		0.00	(33.89)
2005	47.75	0.00	0.00	0.00	47.75			0.00		0.00	(47.75)
2006	6.97	0.00	0.00	0.00	6.97			0.00		0.00	(6.97)
2007	3.48	0.00	0.00	0.00	3.49			0.00		0.00	(3.49)
2008	0.00	0.00	0.15	0.15	0.15	16.78	1.84	18.62	5.24	23.86	23.70
2009	0.00	0.00	0.15	0.15	0.15	4.69	0.58	5.27	5.47	10.74	10.59
2010	0.00	0.00	0.15	0.15	0.15	4.83	0.58	5.41	5.84	11.25	11.10
2011	0.00	0.00	0.15	0.15	0.15	5.19	0.61	5.80	6.23	12.03	11.88
2012	0.00	0.00	0.15	0.15	0.15	5.50	0.63	6.13	6.65	12.77	12.62
2013	0.00	0.00	0.15	0.15	0.15	5.35	0.60	5.95	7.09	13.04	12.89
2014	0.00	1.16	0.00	1.16	1.16	5.48	0.61	6.09	7.57	13.66	12.50
2015	0.00	1.16	0.00	1.16	1.16	9.42	1.05	10.47	8.07	18.54	17.38
2016	0.00	0.00	0.15	0.15	0.15	9.67	1.06	10.73	8.62	19.34	19.19
2017	0.00	0.00	0.15	0.15	0.15	9.87	1.06	10.93	9.19	20.12	19.97
2018	0.00	0.00	0.15	0.15	0.15	9.77	1.04	10.81	9.81	20.62	20.46
2019	0.00	0.00	0.15	0.15	0.15	9.50	1.00	10.50	10.47	20.96	20.81
2020	0.00	1.16	0.00	1.16	1.16	9.10	0.95	10.04	11.17	21.21	20.05
2021	0.00	1.16	0.00	1.16	1.16	18.89	1.97	20.86	11.92	32.78	31.62
2022	0.00	0.00	0.15	0.15	0.15	18.79	1.93	20.73	12.71	33.44	33.29
2023	0.00	0.00	0.15	0.15	0.15	18.52	1.88	20.41	13.57	33.97	33.82
2024	0.00	0.00	0.15	0.15	0.15	17.54	1.77	19.31	14.47	33.78	33.63
2025	0.00	0.00	0.15	0.15	0.15	16.26	1.62	17.88	15.44	33.33	33.17
2026	0.00	1.16	0.00	1.16	1.16	14.64	1.45	16.10	16.48	32.58	31.42
2027	0.00	1.16	0.00	1.16	1.16	30.36	3.01	33.37	17.58	50.95	49.79
Economic Internal Rate of Return = 10.8%											
Net Present Value (\$ million) = (8.9)											

() = negative, ADB = Asian Development Bank, O&M = operation and maintenance, VOC = vehicle operating cost.
Source: Operations Evaluation Mission estimates.

**Table A9.16: Kazakhstan Recalculation of Economic Internal Rate of Return
ADB Case 2: Uzunagach–Otar–Georgievka (\$ million in constant 2008 prices)**

Year	Costs				Benefits						Net Benefits
	Capital Costs	O&M Costs			Total Costs	VOC Savings			Time Savings	Total Benefits	
		Periodic	Routine	Total		Normal	Generated	Total			
2002	0.72	0.00	0.00	0.00	0.72			0.00		0.00	(0.72)
2003	21.74	0.00	0.00	0.00	21.75			0.00		0.00	(21.75)
2004	33.89	0.00	0.00	0.00	33.89			0.00		0.00	(33.89)
2005	47.75	0.00	0.00	0.00	47.75			0.00		0.00	(47.75)
2006	6.97	0.00	0.00	0.00	6.97			0.00		0.00	(6.97)
2007	3.48	0.00	0.00	0.00	3.49			0.00		0.00	(3.49)
2008	0.00	0.00	0.28	0.28	0.28	16.78	1.84	18.62	8.07	26.68	26.40
2009	0.00	0.00	0.28	0.28	0.28	5.97	0.74	6.71	8.42	15.13	14.85
2010	0.00	0.00	0.28	0.28	0.28	7.87	0.95	8.82	8.98	17.80	17.52
2011	0.00	0.00	0.28	0.28	0.28	9.81	1.16	10.96	9.58	20.55	20.26
2012	0.00	0.00	0.28	0.28	0.28	12.02	1.39	13.41	10.23	23.64	23.36
2013	0.00	0.00	0.28	0.28	0.28	14.86	1.69	16.55	10.91	27.46	27.18
2014	0.00	2.11	0.00	2.11	2.11	17.75	1.99	19.74	11.64	31.39	29.28
2015	0.00	2.11	0.00	2.11	2.11	9.28	1.04	10.32	12.42	22.74	20.64
2016	0.00	0.00	0.28	0.28	0.28	12.76	1.41	14.17	13.25	27.42	27.14
2017	0.00	0.00	0.28	0.28	0.28	16.77	1.82	18.59	14.14	32.73	32.45
2018	0.00	0.00	0.28	0.28	0.28	21.37	2.29	23.66	15.09	38.75	38.46
2019	0.00	0.00	0.28	0.28	0.28	26.61	2.82	29.43	16.10	45.53	45.25
2020	0.00	2.11	0.00	2.11	2.11	32.57	3.41	35.98	17.18	53.16	51.06
2021	0.00	2.11	0.00	2.11	2.11	15.40	1.61	17.01	18.33	35.34	33.23
2022	0.00	0.00	0.28	0.28	0.28	21.73	2.25	23.97	19.56	43.53	43.25
2023	0.00	0.00	0.28	0.28	0.28	28.99	2.96	31.96	20.87	52.83	52.54
2024	0.00	0.00	0.28	0.28	0.28	37.28	3.77	41.06	22.27	63.33	63.04
2025	0.00	0.00	0.28	0.28	0.28	46.71	4.69	51.40	23.76	75.15	74.87
2026	0.00	2.11	0.00	2.11	2.11	57.39	5.71	63.10	25.35	88.45	86.34
2027	0.00	2.11	0.00	2.11	2.11	24.77	2.46	27.23	27.05	54.28	52.17
Economic Internal Rate of Return = 15.6%											
Net Present Value (\$ million) = 34.1											

() = negative, ADB = Asian Development Bank, O&M = operation and maintenance, VOC = vehicle operating cost.
Source: Operations Evaluation Mission estimates.

24. **Kyrgyz Republic.** Based on the cumulative net benefits of ADB investments in links 1, 2, and 3A, the EIRR is recalculated at 7.7% under case 1 and 9.0% under case 2 (Tables A9.17 and A9.18). The result shows a noticeable drop from the PCR estimate of 16.3%. A key reason for the lower EIRR is a cost overrun that resulted in a reduction in the project scope from 40 km to 19.3 km. It led to a loss of benefits that was further compounded by slow traffic growth in the Georgievka border area leading up to the bypass intersection. This resultant loss of benefits was compounded by lackluster long-term traffic growth in the main Georgievka border to the bypass intersection (link 2), which accounted for around 58% of the road alignment for improvements. Traffic increased by only 1.7% per year from 7,064 vpd in 1998 to 8,352 vpd in 2008.¹²

**Table A9.17: Kyrgyz Republic Recalculation of Economic Internal Rate of Return
ADB Case 1: Links 1, 2, and 3A (\$ million in constant 2008 prices)**

Year	Costs				Benefits						Net Benefits
	Capital Costs	O&M Costs			Total Costs	VOC Savings			Time Savings	Total Benefits	
		Periodic	Routine	Total		Normal	Generated	Total			
2002	0.08	0.00	0.00	0.00	0.09			0.00		0.00	(0.09)
2003	0.91	0.00	0.00	0.00	0.91			0.00		0.00	(0.91)
2004	1.93	0.00	0.00	0.00	1.93			0.00		0.00	(1.93)
2005	2.37	0.00	0.00	0.00	2.38			0.00		0.00	(2.38)
2006	0.89	0.00	0.00	0.00	0.89			0.00		0.00	(0.89)
2007	0.53	0.00	0.00	0.00	0.54			0.00		0.00	(0.54)
2008	0.17	0.00	0.02	0.02	0.20	0.65	0.26	0.91	0.0	0.91	0.72
2009	0.00	0.00	0.02	0.02	0.02	0.17	0.04	0.21	0.0	0.21	0.19
2010	0.00	0.00	0.02	0.02	0.02	0.25	0.06	0.31	0.0	0.31	0.29
2011	0.00	0.00	0.02	0.02	0.02	0.36	0.08	0.44	0.0	0.44	0.42
2012	0.00	0.00	0.02	0.02	0.02	0.50	0.10	0.61	0.0	0.61	0.58
2013	0.00	0.00	0.02	0.02	0.02	0.67	0.13	0.80	0.0	0.80	0.78
2014	0.00	0.17	0.00	0.17	0.17	0.86	0.16	1.02	0.0	1.02	0.85
2015	0.00	0.17	0.00	0.17	0.17	0.39	0.07	0.45	0.0	0.45	0.29
2016	0.00	0.00	0.02	0.02	0.02	0.55	0.09	0.64	0.0	0.64	0.62
2017	0.00	0.00	0.02	0.02	0.02	0.74	0.12	0.86	0.0	0.86	0.83
2018	0.00	0.00	0.02	0.02	0.02	0.95	0.15	1.10	0.0	1.10	1.08
2019	0.00	0.00	0.02	0.02	0.02	1.20	0.18	1.38	0.0	1.38	1.36
2020	0.00	0.17	0.00	0.17	0.17	1.42	0.20	1.62	0.0	1.62	1.46
2021	0.00	0.17	0.00	0.17	0.17	0.63	0.09	0.72	0.0	0.72	0.55
2022	0.00	0.00	0.02	0.02	0.02	0.90	0.12	1.02	0.0	1.02	1.00
2023	0.00	0.00	0.02	0.02	0.02	1.21	0.16	1.37	0.0	1.37	1.34
2024	0.00	0.00	0.02	0.02	0.02	1.56	0.20	1.76	0.0	1.76	1.73
2025	0.00	0.00	0.02	0.02	0.02	1.88	0.23	2.12	0.0	2.12	2.09
2026	0.00	0.17	0.00	0.17	0.17	2.21	0.27	2.48	0.0	2.48	2.31
2027	0.00	0.17	0.00	0.17	0.17	0.98	0.12	1.09	0.0	1.09	0.92
Economic Internal Rate of Return =											7.7%
Net Present Value (\$ million) =											(1.7)

() = negative, ADB = Asian Development Bank, O&M = operation and maintenance, VOC = vehicle operating cost.
Source: Operations Evaluation Mission estimates.

¹² But still, the origin–destination survey indicates that 85% of traffic between Bishkek and the border is international traffic. By itself, this reinforces the economic significance of this cross-border or regional project.

**Table A9.18: Kyrgyz Republic Recalculation of Economic Internal Rate of Return
ADB Case 2: Links 1, 2, and 3A (\$ million in constant 2008 prices)**

Year	Costs					Benefits					Net Benefits
	Capital Costs	O&M Costs			Total Costs	VOC Savings			Time Savings	Total Benefits	
		Periodic	Routine	Total		Normal	Generated	Total			
2002	0.08	0.00	0.00	0.00	0.09			0.00		0.00	(0.09)
2003	0.91	0.00	0.00	0.00	0.91			0.00		0.00	(0.91)
2004	1.93	0.00	0.00	0.00	1.93			0.00		0.00	(1.93)
2005	2.37	0.00	0.00	0.00	2.38			0.00		0.00	(2.38)
2006	0.89	0.00	0.00	0.00	0.89			0.00		0.00	(0.89)
2007	0.53	0.00	0.00	0.00	0.54			0.00		0.00	(0.54)
2008	0.17	0.00	0.03	0.03	0.20	0.65	0.26	0.91	0.0	0.91	0.71
2009	0.00	0.00	0.03	0.03	0.03	0.19	0.05	0.24	0.0	0.24	0.21
2010	0.00	0.00	0.03	0.03	0.03	0.30	0.07	0.36	0.0	0.36	0.34
2011	0.00	0.00	0.03	0.03	0.03	0.43	0.09	0.52	0.0	0.52	0.50
2012	0.00	0.00	0.03	0.03	0.03	0.59	0.12	0.71	0.0	0.71	0.68
2013	0.00	0.00	0.03	0.03	0.03	0.79	0.15	0.94	0.0	0.94	0.91
2014	0.00	0.21	0.00	0.21	0.21	1.00	0.18	1.18	0.0	1.18	0.98
2015	0.00	0.21	0.00	0.21	0.21	0.39	0.07	0.45	0.0	0.45	0.24
2016	0.00	0.00	0.03	0.03	0.03	0.57	0.10	0.67	0.0	0.67	0.64
2017	0.00	0.00	0.03	0.03	0.03	0.83	0.13	0.96	0.0	0.96	0.94
2018	0.00	0.00	0.03	0.03	0.03	1.13	0.17	1.30	0.0	1.30	1.28
2019	0.00	0.00	0.03	0.03	0.03	1.47	0.22	1.69	0.0	1.69	1.66
2020	0.00	0.21	0.00	0.21	0.21	1.86	0.27	2.12	0.0	2.12	1.91
2021	0.00	0.21	0.00	0.21	0.21	0.63	0.09	0.72	0.0	0.72	0.51
2022	0.00	0.00	0.03	0.03	0.03	0.97	0.13	1.10	0.0	1.10	1.07
2023	0.00	0.00	0.03	0.03	0.03	1.43	0.19	1.62	0.0	1.62	1.59
2024	0.00	0.00	0.03	0.03	0.03	1.95	0.25	2.20	0.0	2.20	2.17
2025	0.00	0.00	0.03	0.03	0.03	2.54	0.32	2.86	0.0	2.86	2.83
2026	0.00	0.21	0.00	0.21	0.21	3.21	0.39	3.60	0.0	3.60	3.39
2027	0.00	0.21	0.00	0.21	0.21	0.98	0.12	1.09	0.0	1.09	0.88

Economic Internal Rate of Return = 9.0%
Net Present Value (\$ million) = (1.3)

() = negative, ADB = Asian Development Bank, O&M = operation and maintenance, VOC = vehicle operating cost.
Source: Operations Evaluation Mission estimates.

25. On the positive side, incremental benefits from the short link (link 3A) between the main road and the Dordoy market (i.e., national traffic) as well as the main road from Bishkek to the intersection (link 1) have strengthened overall performance of the Kyrgyz component. In particular, traffic at link 3A doubled from 7,606 vpd in 1998 to 14,671 vpd in 2008. Perhaps drawn by the success of the Dordoy market, traffic has increased by an average of 6.8% per year.

26. In both cases, the EIRR for the Kyrgyz component was distinctly lower at postevaluation. While this in part may indicate a premature evaluation of progress, it emphasizes the need to develop traffic by encouraging increased cross-border movement.

E. Benefits Distribution

27. Table A9.19 summarizes the net economic benefits for Kazakhstan and the Kyrgyz Republic from the Project. Benefits and costs are expressed in economic terms and discounted by a 12% rate. The Project's economic viability is largely driven by the larger Kazakhstan component. Kazakhstan is receiving around 97% of the total benefits while contributing about 95% of the cost. Based on the recalculated EIRRs and benefit-cost ratios, the Kazakhstan

component is more cost efficient and benefits more from the Project than the Kyrgyz component.

Table A9.19: Benefit Distribution of the Almaty–Bishkek Road Rehabilitation Project
(\$ million and %)

Item	KAZ		KGZ		Project	
	Case 1	Case 2	Case 1	Case 2	Case 1	Case 2
Economic Cost	160.7	172.9	8.2	8.5	168.9	181.5
Economic Benefits	627.2	1,073.2	20.9	25.3	648.1	1,098.4
Net Economic Benefits	466.5	900.2	12.7	16.7	479.2	916.9
Benefit-Cost Ratio	3.9	6.2	2.5	3.0	3.8	6.1
EIRR	11.7	16.8	7.7	9.0	11.6	16.6
NPV of Economic Costs	101.4	103.2	4.7	4.8	106.1	108.0
NPV of Economic Benefits	98.9	160.7	3.0	3.5	101.9	164.1
NPV of Net Economic Benefits	(2.5)	57.5	(1.7)	(1.3)	(4.2)	56.2
Benefit-Cost Ratio	1.0	1.6	0.6	0.7	1.0	1.5

() = negative, EIRR = economic internal rate of return, KAZ = Kazakhstan, KGZ = Kyrgyz Republic, NPV = net present value.

Source: Operations Evaluation Mission estimates.

IMPACT ON ROAD SAFETY

1. The Almaty–Bishkek Road is a well-designed road with good sight distances, but is relatively dangerous to drive because of driver behavior and the presence of local fauna. Before 9:00 a.m. on the day of the road inspection by the evaluation team, two fatal accidents were reported on the road. Improving the surface, widening the road, and smoothing the curves encourage faster driving. They are ways of reducing journey times—not of reducing accidents. Increased speed alone may or may not increase the number of accidents but it undoubtedly increases their severity.

2. Attempts have been made to reduce the number of accidents. Overhead lighting has been installed at the approaches to major junctions. Along the dual carriageway, the central reservation is maintained at intersections for about 400 meters on either side of the junctions, making drivers maneuvering onto or off the main road encounter only one direction of traffic at a time. This initiative from the traffic police is perceived to reduce collisions. However, the most effective control of dangerous driving observed during the inspection was the respect shown to the presence of traffic police. The 40 kilometers per hour speed limit on gently winding sections through the mountain pass was apparently adhered to for fear of official retribution, the police presence on the return journey is strong.¹

3. In line with best practices, guardrails have been constructed at dangerous drops beside the road. However, the central reservation along the dual carriageway has no guardrails, except on bridge decks. Without doubt, guardrails on the central reservation would reduce the number of fatal accidents but would also cost the maintenance services a continual, large amount for frequent repairs. Currently, no program for repairs of guardrails is apparent, and may not be budgeted.

4. In Kazakhstan and the Kyrgyz Republic, road safety remains an area of concern. Roads in the region are perceived to be unsafe due to the high speed of vehicle traffic. In the Kyrgyz Republic, the Road Safety Secretariat continues to push mitigating measures as safety has been a sensitive issue for the Government.²

Table A10.1: Accident Statistics in the Kyrgyz Republic

Year		Total Accidents (number)	Fatal Accidents (number)	Fatal to Total Accidents (%)	Persons Injured (number)	Persons Injured per Accident (number)
1997		2,993	685	22.89	3,730	1.25
1998		2,864	585	20.43	3,453	1.21
1999		2,665	584	21.91	3,304	1.24
2000	Approval	2,670	610	22.85	3,292	1.23
2001		3,122	703	22.52	3,808	1.22
2002	Effectiveness	2,966	725	24.44	3,561	1.20
2003		3,380	897	26.54	4,091	1.21
2004		3,275	892	27.24	3,969	1.21
2005		3,717	893	24.02	4,568	1.23
2006		3,911	1,050	26.85	4,948	1.27
2007	Completion	4,692	1,252	26.68	6,223	1.33

Source: Secretariat of Road Security responsible for accident prevention on road transportation under the Government of the Kyrgyz Republic.

¹ Some heavy vehicles drive very slowly down the slopes of the mountain pass. They have a dedicated climbing lane but no dedicated lane for descent, causing drivers of faster vehicles to overtake, sometimes dangerously, when traffic police are not present.

² To address the issue, reforms were made in the Ministry of Transport and Communications and road police. Likewise, the Government called for more attention to road safety in future projects. In the case of the Almaty–Bishkek Road Project, road safety was not integrated at project approval.

5. A key limitation of this assessment is the absence of project-specific data in the Kyrgyz Republic. Road accident statistics are available only for the country as a whole, not specifically for the Almaty–Bishkek road. Table A10.1 reflects the present problem. The number of road accidents has been increasing, from 2,670 cases in 2000 to 4,692 in 2007. The ratio of fatal accidents has progressively increased from 22.9% in 2000 to 26.7% in 2007. Similarly, the ratio of injured persons per accident exhibits a generally increasing trend from 1.23 persons per accident in 2000 to 1.27 in 2006 and 1.33 in 2007.

6. In Kazakhstan, long-term data from concerned regional road departments has shown a general increase in the frequency of road accidents. This number increased from 89 in 2000 to an average of 370 during 2004–2005. The incidence of accidents peaked at 610 in 2006 as completion of the road improvement caught some drivers unprepared for the dangers of driving at faster speeds. In 2007, the number of accidents declined to 489 cases in part due to improved awareness about speeding and better enforcement by the traffic police.

7. At the same time, accident statistics point to mixed results in terms of the severity and intensity of increased road accidents. Except for 2005 and 2006 (near project completion), fatal accidents were just about constant at a narrow range of 40–60 cases per year. Accordingly, this led to a general decline in the proportion of fatal accidents (Table A10.2). The number of injuries from accidents, meanwhile, nearly doubled from 150 persons in 2000 to an average of 289 during 2005–2006. Notwithstanding this rising trend, the number of people injured per accident has progressively declined from 1.69 per accident in 2000 to an average of 0.58 during 2005–2006.

Table A10.2: Accidents on the Almaty–Kyrgyz Republic Border Road

Year		Total Accidents (number)	Fatal Accidents (number)	Fatal to Total Accidents (%)	People Injured (number)	People Injured per Accident (number)
2000	Approval	89	52	58.43	150	1.69
2001		117	41	35.04	176	1.50
2002	Effectiveness	111	54	48.65	176	1.59
2003		287	56	19.51	218	0.76
2004		316	49	15.51	222	0.70
2005		423	81	19.15	288	0.68
2006	Completion	610	148	24.26	289	0.47
2007		489	60	12.27	98	0.20

Sources: Jambyl road department and Almaty road department.

PHOTOGRAPHS OF THE REHABILITATED REGIONAL ROAD

Photo A11.1: Contract 1, European Bank for Reconstruction and Development Section with Dual Carriage Way



Photo A11.2: Asian Development Bank Section



Photo A11.3: Longitudinal and Block Cracking Midlane and Nearside Wheel Path



Photo A11.4: Poorly Sealed Shrinkage Crack



Photo A11.5: Relaid Asphalt Lane, Truck Climbing the Gradient, and Slightly Damaged Guard Rail on the Asian Development Bank Section



Photo A11.6: Drying Up of Trees Adjacent to Project Road 1



Photo A11.7: Drying Up of Trees Adjacent to Project Road 2



LESSONS FROM THE JOINT EVALUATION EXERCISE

1. This appendix identifies key lessons from the Independent Evaluation Department (IED) of the Asian Development Bank (ADB) and the Evaluation Department (EvD) of the European Bank for Reconstruction and Development (EBRD) experience of working together as a team, and provides inputs for future joint evaluations.

A. Lessons from the Joint Evaluation

1. Administrative Matters

2. **Overall Time Frame.** IED and EvD staff allocated substantial time to prepare and implement the joint evaluation work, exceeding the time frame normally associated with an evaluation study executed individually. One of the evaluation departments alone could have managed such an evaluation in about 3–6 months; the joint evaluation required 12 months, from the start of the evaluation work (discussions among IED and EvD) until the finalization of the joint report. This included 2 months to prepare a mutually acceptable approach paper and memorandum of understanding because of the need for consultation and harmonization between the two organizations (para. 15).

3. **Steep Learning Curve.** This was the first joint evaluation exercise between IED and EvD; the required learning process partly explains the relatively long gestation period. This and the associated costs for both organizations are likely to be minimized or avoided in the future. For instance, application of the Good Practice Standards (developed under the auspices of the multilateral development bank [MDB] ECG) required substantive efforts in order to arrive at a consolidated and mutually agreed report (para. 10). The learning process is seen as a key value addition by the joint evaluation exercise. Feedback to the ECG harmonization discussion generated benefits beyond this initiative.

4. **Smooth Management of Consultants.** IED and EvD used three consultants to collect data and inspect project sites for the evaluation study. ADB funded two national consultants for the traffic and socioeconomic impact surveys, and EBRD funded one international consultant for a technical survey of the road. The sharing of the costs by the two organizations enabled synergies to materialize through the pooling of budgetary resources. While each MDB applied its respective consultant procurement rules, this did not translate into any additional burdens.¹ In addition, the preparation for consultant recruitment generated synergies. The development of terms of reference benefited from mutual inputs, as did the screening process for potential consultants. Finally, since the supervision of the consultants was shared, adequate attention was allocated to individual assignments resulting into greater effectiveness in general and better quality of data and evidence collection in particular.

5. **Higher Quality and Quantity of Outputs.** The resulting information base was found to be more comprehensive, resulting in higher quality outputs because of the collective efforts of both organizations. For example, the combined efforts facilitated in-depth discussion in the JER of technical issues and project implementation. In addition, the deployment of three consultants, which might have not been undertaken individually by the MDBs because of cost considerations, enabled a broader and more in-depth data collection process. The fact that ADB and EBRD were joining forces gave the evaluation assignment considerably more weight than could otherwise be solicited, enhanced by the skill mix of the EvD and IED staff.

¹ The procurement processes of both MDBs are highly structured and supported by information technology, and would have occurred even if the assignments were facilitated by one designated MDB.

6. **Savings during Field Missions.** IED and EvD successfully achieved cost and time savings during the field missions. In addition to the 1-week initial reconnaissance mission by an IED staff in June 2008 to supervise and direct consultant work, a joint evaluation mission was carried out during September–October 2008 for about 2 weeks. ADB and EBRD shared the costs of traveling within Kazakhstan and the Kyrgyz Republic, including the field visit. This created synergies in the logistic arrangements and cost savings. Importantly, government officials were asked to participate in a single joint meeting, rather than separate meetings, resulting in time savings for everyone involved. Government officials noted their appreciation. EBRD's Kazakhstan resident offices in Astana and Almaty and ADB's Kyrgyz Resident Mission in Bishkek effectively facilitated the site visits and meeting schedules, continuing the cost sharing.

2. Differences in Evaluation Methodologies

7. IED and EvD have guidelines for evaluating projects. From a conceptual perspective, these guidelines are not very different, as both are in line with the evaluation criteria developed by the Evaluation Network of the Development Assistance Committee (DAC) of the Organisation for Economic Co-operation and Development (OECD) and can be attributed to the harmonization work of the ECG.²

8. However, differences in the individual mandates of ADB and EBRD remain. The differing mandates and institutional behaviors inevitably affect the evaluation sphere. For instance, development effectiveness is at the core of ADB's mandate and carries appropriate importance in IED's evaluation methodology. EBRD's mandate of transition impact holds significance in EvD's evaluation priorities. Thus in project terms, the regional development aspect of this Project was an important focus for ADB, while EBRD's focus was (in a wider sense) on institution building and sector reforms. This is not to challenge the appropriateness of either organization's focus. On the contrary, it highlights the differences in perceptions that needed to be reconciled during the joint evaluation. In addition, EvD and IED apply different aggregations of evaluation aspects. For instance, EvD includes impacts under its overall rating, which ADB does not. Thus, IED is more focused on the development outcome side, while EvD is more concerned about the transition aspect. These and other differences in the agenda of IED and EvD required careful adaptation to ensure that the needs of both organizations were adequately met.³ Table 1 illustrates the common and different evaluation categories and rating scales applied by the two organizations.

² OECD. 1991. *DAC Principles for the Evaluation of Development Assistance*. Paris; Glossary of Terms Used in Evaluation in OECD. 1986. *Methods and Procedures in Aid Evaluation*. Paris; and OECD. 2000. *Glossary of Evaluation and Results-Based Management Terms*. Paris.

³ It might legitimately be argued that differences in institutional focus, thus translating into evaluation work, are more pronounced between EBRD (and possibly the International Finance Corporation for that matter) and its other partner MDBs, and therefore also explain in part the cumbersome gestation process referred to in para. 1. This, in our view, should not be taken as an argument against joint evaluations with EBRD in principle, to the contrary, but it explains the steepness of the learning curve and possible need for providing more time than may likely be required among more like-focused MDBs.

Table 1: Rating Categories Applied by ADB and EBRD

ADB				EBRD	
Performance Assessment	Weight (%)	Score	Rating Value	Performance Indicators	Ratings
Relevance				Relevance (Project Rationale, Strategy, and Policy Compliance) (1)	
Effectiveness				Fulfillment of Objectives (2)	
Efficiency				Project Financial Performance	
				Company Financial Performance	
Sustainability					
Overall				Transition Impact at Industry and Economy as a whole (7 indicators) (3)	
Other Assessments					
Criteria			Ratings		
Impact on Institutions				Environmental Impact	
Socioeconomic Impact					
Environmental Impact					
				Overall [6]	
Other Assessments					
Borrower Performance				Additionality (financial; design and functioning) (8)	
				Bank's Investment Performance	
ADB Performance EBRD Bank Handling (7)					
Rating Scales ADB			Rating Scales EBRD		
Highly Successful >2.7; 2.7 ≥ Successful ≤ 1.6; 1.6 > Partly Successful ≤ 0.8; Unsuccessful < 0.8.			[1] Compliant, Noncompliant; [2] Excellent, Good, Satisfactory, Marginal, Unsatisfactory, Highly Unsatisfactory; [3] Excellent, Good, Satisfactory, Marginal, Unsatisfactory, Negative; [4] Excellent, Good, Satisfactory, Marginal, Unsatisfactory, Highly Unsatisfactory; [5] Outstanding, Substantial, Some, None, Negative; [6] Highly Successful, Successful, Partly Successful, Unsuccessful; [7] Excellent, Good, Satisfactory, Marginal, Unsatisfactory, Highly Unsatisfactory; [8] Verified in all respects, Verified at large, Verified only in part, Not verified.		

ADB = Asian Development Bank, EBRD = European Bank for Reconstruction and Development, EIRR = economic internal rate of return, FIRR = financial internal rate of return.

Sources: ADB. 2006. *Guidelines for Preparing Performance Evaluation Reports for Public Sector Operations*. Manila; and EBRD. 2006. *Evaluation Policy of the EBRD*. London.

9. Apart from "relevance," almost no evaluation category is fully congruent as shown by the following examples. Still, "effectiveness" (applied by IED) is just another expression of EvD's "fulfillment of objectives." Project efficiency (IED) is reflected in the project and/or company financial performance (EvD). Inherently, the two institutions use different approaches for calculation and evaluation of efficiency. The most challenging reconciliation process was in aligning IED's "sustainability" rating with the long-term transition impact of EvD. Here, the mandate of EBRD to trigger transition and maintain the momentum of reform differs from ADB's focus on development effectiveness that ensures longer-term provision of a public good.

10. If the ex-ante appraisal had been conducted jointly, the ex-postevaluation could have been easier to conduct. However, ADB and EBRD had separate internal business processes that had to be adhered for processing the respective loans. Because of the parallel cofinancing arrangement for the Project, ADB and EBRD conducted separate appraisals and addressed different, albeit interconnected road segments. Thus, the joint evaluation presented a unique set of challenges. For example, ADB requires a traffic count at appraisal, completion, and

postevaluation to estimate demand and facilitate the estimation of project economic viability (a major indicator of development impact). Similarly, it requires socioeconomic surveys to collect feedback from beneficiaries on project impact. EBRD does not require such assessments. These, as other differences, had to be reconciled in the evaluation approach paper developed jointly by IED and EvD.

3. Interagency Communications

11. The key to the success of the joint evaluation has been the continuous communication between IED and EvD staff. E-mail and telephone correspondence helped to resolve important issues, e.g., drafting of the approach paper, logistics of the mission, and use of consultants. In addition, meetings of IED and EvD staff in Manila and London enabled discussions with counterpart staff involved in implementing projects, which helped in obtaining information and perspective from the "other side." They also helped in explaining and reconciling discrepancies that emerged from different practices, e.g., the performance of the project supervision consultant was found to be mixed as EBRD was critical of the supervision consultant, while ADB's project officer found the performance to be satisfactory. This differing opinion could be analyzed only after direct discussions in both organizations. Even within IED and EvD, regular communications helped to resolve procedural issues and enabled quick decisions.

4. Flexibility in Implementation

12. A joint evaluation typically takes longer to complete than unilateral evaluation studies, largely due to additional coordination requirements. Delays in completing the joint reports need to be accepted and incorporated into the respective work programs. On the other hand, the evaluation departments need to be cognizant of each other's work programs and give appropriate priorities to joint evaluation activities, especially those related to drafting and finalizing reports.

B. Recommendations from the Joint Evaluation

13. **Preparatory Time Can Be Shortened.** A detailed approach paper is of great value in avoiding cumbersome discussion of direction during implementation, especially when both parties have already firmly committed and commenced using budgetary resources. In its absence, a memorandum of understanding may not always be necessary if the MDB evaluation groups agree in principle on a plan of action (including cost-sharing principle, documentation exchange and related confidentiality matters, waiver of otherwise applicable MDB-specific processing particularities, and consultant procurement principles).

14. **Consultation and Dissemination of Evaluation Findings.** The joint evaluation approach paper stated that the JER would be uploaded on the ADB external and internal websites, including the evaluation information system and ECGnet. In addition, a summary of the JER highlights and lessons would be presented at an ECG meeting in 2009. These forms of dissemination are useful to the international community as well as within ADB and EBRD. In addition, the JER has useful lessons for the Governments of Kazakhstan and the Kyrgyz Republic. IED and EvD should take this opportunity to jointly highlight the findings of the joint evaluation to the respective government's staff to enable implementation of specific lessons, including the need to improve revenue mobilization and increase allocation of funds for road maintenance, crucial for sustainability of the Project.

15. **Encourage Future Joint Evaluation Exercises.** IED and EvD should encourage future joint evaluation exercises to support the harmonization of evaluation efforts, learning from each

other, and development of synergies to maximize benefits to client countries. Although implementation of joint evaluation exercises could require a greater time commitment, the benefits in terms of knowledge sharing and reduction of transaction costs to the MDBs and client government present a strong case for continued collaboration between the two organizations. This is equally applicable to other MDBs and development aid agencies.

MANAGEMENT RESPONSE TO THE PROJECT PERFORMANCE EVALUATION REPORT FOR THE ALMATY–BISHKEK REGIONAL ROAD REHABILITATION PROJECT IN KAZAKHSTAN AND THE KYRGYZ REPUBLIC

On 6 April 2009, the Director General, Independent Evaluation Department, received the following response from the Managing Director General on behalf of Management:

I. General Comments

1. We appreciate the Project Performance Evaluation Report's (PPER) evaluation, and agree to all the recommendations for improving the impact of this first regional transport project in Central Asia.

II. Comments on Specific Recommendations

2. **Recommendation 1. Improve the bridge on the international border.** We agree. The Government of Kazakhstan is carrying out improvement works for the bridge on the Chu River. Such works commenced in May 2008, and are expected to be completed in September 2009.

3. **Recommendation 2. Improve border infrastructure.** We agree. With support of the six multilateral financing institutions including ADB,¹ the Central Asia Regional Economic Cooperation (CAREC) program includes a trade facilitation component to improve cross-border facilities along six major CAREC corridors, including the Almaty–Bishkek Road. ADB is financing the training of customs officials under such trade facilitation component. ADB also has financed the design of the Kyrgyz border post (to include customs equipment, vehicle parking areas, and freight storage facilities).²

4. **Recommendation 3. Implement the Cross-Border Agreement (CBA).** We agree. The CBA is on the CAREC transport and trade facilitation agenda, and ADB has been supporting implementation of CBA through policy dialogue and regular consultations with the Kazakh and Kyrgyz Governments. Both Governments are also planning joint one-window border clearance procedures. This may require relocating cross-border facilities at the Akzhol–Chu border. In addition, ADB and the United Nations Economic and Social Commission for Asia and the Pacific are assisting the Shanghai Cooperation Organization member states, including Kazakhstan and the Kyrgyz Republic, to formulate and implement an intergovernmental agreement on facilitation of international road transport, which will supplement the CBA. This will promote cross-border traffic by simplifying border clearances. The negotiations on the main text were concluded in 2008, and negotiations on its annexes will start in 2009.

¹ The other institutions are European Bank for Reconstruction and Development, International Monetary Fund, Islamic Development Bank, United Nations Development Programme, and World Bank.

² ADB. 2004. *Loan 2113-KGZ (SF): Regional Customs Modernization and Infrastructure Development Project*. Manila.

5. **Recommendation 4. Improve maintenance planning and allocations.**

We agree. ADB is working on a road maintenance and operation system in Kazakhstan under the first tranche of the approved Multitranche Financing Facility: CAREC Transport Corridor 1. ADB assistance covers (i) planning for maintenance, including developing a performance-based road maintenance plan; and (ii) strengthening skills in planning and financing. In the Kyrgyz Republic, ADB is assisting the Government in commercializing road maintenance, introducing performance-based maintenance contracts with the private sector, and developing a transport sector master plan and a comprehensive road sector operations privatization strategy.

6. **Recommendation 5. Focus on road safety and environmental impact.**

We agree. Under Kazakhstan's Western Europe–Western China International Transit Corridor Investment Program jointly financed by ADB, European Bank for Reconstruction and Development, Islamic Development Bank, Japan International Cooperation Agency, and World Bank, assistance will cover road safety improvements, including strengthening the capacity of the Committee of Roads (to minimize negative environmental impacts during design, construction, operation, and maintenance of road projects). ADB will support cumulative environmental impact assessments. This Investment Program follows safety management capacity reviews funded by the Global Road Safety Facility.³ The Kyrgyz Republic's transport sector master plan, being developed with ADB assistance, will examine road safety and environmental issues.

³ The Global Road Safety Facility is supporting initiatives to reduce road deaths and injuries in low and middle-income countries.

DEVELOPMENT EFFECTIVENESS COMMITTEE (DEC)

CHAIR'S SUMMARY OF THE COMMITTEE DISCUSSION ON 13 APRIL 2009

I. Sector Assistance Program Evaluation - Education Sector in Bangladesh: What Worked Well and Why under the Sector-Wide Approach? (DOC.IN.2-09)

Background

1. The sector assistance program evaluation (SAPE) by the Independent Evaluation Department (IED) is related to the ongoing subsector-wide approach (SWAp) modality in the primary education subsector in Bangladesh. A special feature of the SAPE is its evaluation of the development partners' (DPs) combined performance in the SWAp led by ADB. After applying a *strengths, weaknesses, opportunities, and threats* (SWOT) analysis, the study on balance supports future SWAp programs with the caveat that ADB should take into account previous experience when designing such programs.

2. Management generally agreed with the recommendations of the study, and reassured the DEC of ongoing efforts which take into account the recommendations.

Summary of Discussion

3. DEC Chair noted the uniqueness of the study as a first study that evaluated the performance of the SWAp modality, implemented with joint-DPs. DEC Chair sought clarification on the threshold of assistance by a DP below which ADB should not take on the responsibility of coordinating with such a DP. DEC Chair inquired on status of the Bangladesh government's commitment to augment its recurrent budget share in primary education.

4. DEC Chair also inquired on the lessons learned from the implementation delays that led to the suspension of the second project in the non-formal education subsector. One DEC member emphasized that weak quality-at-entry is a key reason for implementation delays in many projects. Another DEC member emphasized the importance of harmonizing DPs' procedures in SWAps, even if it takes time to achieve harmonization.

5. One DEC member supported the conduct of a sector analysis, as suggested in the study, to be carried out and led by the Government, in coordination with DPs, including ADB, thereby ensuring ownership by the Government. He also wished that the SWAps modality can bring more external assistance to the Government.

6. Director General, IED was of the view that while the SWAp in Bangladesh has some weaknesses (e.g., high transaction costs due to difficulties to fully harmonize DPs' procedures), it also has strengths (e.g., as being a relevant and effective modality). He recommended using this first experience to build future similar and better programs. IED staff noted from the conclusion of the study that from the Government and DPs' viewpoints, Bangladesh is receptive and ready to develop the SWAp modality further.

7. Deputy Director General, SARD expects that the high transaction costs at the early stage of the SWAp would be reduced in the future. He reiterated that SWAp is a suitable modality from the Government's perspective. From the DPs' perspective, significant lessons can be learned to improve implementation of this modality. BRM staff mentioned that significant harmonization has taken place in the area of procurement and financial management.

Conclusions

8. DEC expressed satisfaction at the Education Sector SAPE for Bangladesh and agreed that overall, the SWAp is a suitable modality for the primary education subsector in Bangladesh in spite of the initial delay.

9. DEC appreciated the efforts of MDBs and bilateral donors to harmonize in the spirit of the Paris Declaration, emphasizing in particular that a single report should indeed be prepared to meet all donor requirements. Furthermore, procurement procedures and cash accounting can also be further harmonized. Although the SWAp had some initial difficulties, this modality seems to have taken a firm footing in Bangladesh and could be pursued further, although further success will depend on effective harmonization among DPs. Harmonization is particularly important in this case because of the large number of donors, including some with smaller financial contributions.

10. DEC saw merit in decentralizing education administration. Such decentralization could lead to better community participation. DEC urged the government to enhance its budgetary allocation for recurrent expenditure for primary education.

II. Project Performance Evaluation Report - Almaty-Bishkek Regional Road Rehabilitation Project (Kazakhstan and Kyrgyz Republic) (Loans 1774-KAZ and 1775-KGZ) (DOC.IN.43-09)

Background

11. The project performance evaluation report (PPER) is a first joint evaluation study for a jointly financed cross-border project between ADB and the European Bank for Reconstruction and Development (EBRD). The project has two components: across Kazakhstan (KAZ) and Kyrgyz Republic (KGZ). A rigorous peer review ensured a high quality evaluation report.

12. Main issues highlighted in the study include the lack of adequate capacity in public sector institutions and the need to improve maintenance regimes to plan and finance road maintenance activities.

13. Management responded positively to the recommendations and future actions will be monitored to take account the lessons learnt from the project.

Summary of Discussion

14. DEC Chair expressed concern over the fact that the economic internal rate of return (EIRR) continuously decreased during succeeding stages of the project. More attention should be paid to maintaining the roads properly, since the EIRR on both the KGZ and KAZ components has come down quite precipitously from project appraisal to PCR stage, and further to the joint evaluation exercise. In the joint evaluation exercise, the EIRR was sensitive to the level of maintenance. Less than optimal maintenance can have adverse consequence on the EIRR. DEC Chair also noted the delays in project implementation, and how the soft infrastructures seemed to have lagged behind the hard infrastructures. Maintenance would be a problem if not adequately provided for. One DEC member agreed that focus on road maintenance is the key in this type of project.

15. One DEC member emphasized quality-at-entry as a key issue, and ADB should look at the appropriate control system to avoid the same shortcomings in the future. Harmonization needs to be achieved at the institutional level, and not only at the project level. Another DEC member expressed support for such types of project, but emphasized the need for efficiency and sustainability rather than simply the achievement of the outcome, i.e. the road. A DEC member inquired on the specific lessons learned from this project, including problems that could have been avoided, and hoped that the lessons learned can be drawn by the Management in designing and implementing future regional projects.

16. Director General, CWRD recognized the shortcomings of the project in a number of areas, including the ineffectiveness of the cross-border agreement (CBA). CBAs could be better achieved in a regional cooperation framework, and noted that CAREC would now serve this purpose more effectively. The merits and benefits of the project were noted, and the shortcomings registered as lessons for similar future projects. Director, CWTC noted that maintenance of the roads is priority for both the Kyrgyz Republic and Kazakhstan, although the importance given by each country to this road varied. He noted that a road maintenance privatization framework will also be considered in the future for the two countries.

17. Director, IED1 said that while the project eventually delivered its intended output (i.e. road rehabilitation), a partly successful rating was due to the problems of low efficiency, sustainability and maintenance. IED staff also mentioned contractor performance as one major cause of delays on the Kazakhstan side.

Conclusions

18. DEC noted the conclusions of the PPER. DEC recognized that this road constitutes an important link between the road corridors that connects Asia with Europe and the Fergana Valley with the Russian Federation.

19. Although there were large cost overruns on a per unit basis, together with time overruns and non-compliance with some loan covenants, this road stretch was important for two important and land-locked developing member countries. Furthermore, DEC urged that the CBA which has been ratified by both countries for a long time be implemented after carefully taking the necessary steps.

Ashok K. Lahiri
Chair, Development Effectiveness Committee