Report and Recommendation of the President to the Board of Directors

Project Number: 39669
November 2007

Proposed Loan
Republic of Uzbekistan: CAREC Regional Road Project

Asian Development Bank

CURRENCY EQUIVALENTS
(as of 27 November 2007)

Currency Unit	–	sum (SUM)
SUM1.00	=	$0.000778
$1.00	=	SUM1,285.23

ABBREVIATIONS

ADB	–	Asian Development Bank
CAREC	–	Central Asia Regional Economic Cooperation
EA	–	executing agency
EIRR	–	economic internal rate of return
EMP	–	environmental management plan
FIDIC	–	Fédération Internationale des Ingénieurs Conseils (International Federation of Consulting Engineers)
FIRR	–	financial internal rate of return
GDP	–	gross domestic product
HDM-4	–	Highway Development and Management Model 4
ICB	–	international competitive bidding
IEE	–	initial environmental examination
IRI	–	international roughness index
LIBOR	–	London interbank offered rate
MOF	–	Ministry of Finance
NCB	–	national competitive bidding
NPV	–	net present value
O&M	–	operation and maintenance
OCR	–	ordinary capital resources
PIU	–	project implementation unit
PPTA	–	project preparatory technical assistance
REPC	–	road equipment pool company
ROW	–	right-of-way
SIEE	–	summary initial environmental examination
SJSC	–	state joint stock company
SOE	–	statement of expenditures
TA	–	technical assistance
TIR	–	Transports Internationaux Routiers
VOC	–	vehicle operating cost
vpd	–	vehicles per day

NOTES

(i) The fiscal year (FY) of the Government and its agencies ends on 31 December. FY before a calendar year denotes the year in which the fiscal year ends, e.g., FY 2007 ends on 31 December 2007.

(ii) In this report, "$" refers to US dollars unless otherwise stated.

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CONTENTS

LOAN AND PROJECT SUMMARY

Borrower	Republic of Uzbekistan
Classification	Targeting classification: General intervention Sector: Transport and communications Subsector: Roads and highways Themes: Sustainable economic growth, capacity development Subthemes: Fostering physical infrastructure development, institutional development
Environment Assessment	Category B. An initial environment examination (IEE) was undertaken and is summarized in Appendix 14.
Project Description	The Project aims to develop strategic international highways and improve road sustainability in Uzbekistan. It will have two major components: (i) road development, and (ii) road sector sustainability. The road development component will improve 131 kilometers (km) of the A-380 highway. International competitive bidding (ICB) for civil works will be applied for the first time. Advisory support for project management, construction supervision, and procurement will be provided to assist the executing agency (EA) in managing, implementing, and supervising the overall Project to meet high international standards. The road sector sustainability component will primarily assist the Government in strengthening operation and maintenance of the road network in Uzbekistan including improvement of road sector institutions, road sector planning and budgeting; and provision of road equipment. Institutional support for road sector planning and management and advisory support for development of a commercially operated road equipment pool company will be provided.
Rationale	Under the Government's Road Development Program 2007–2010, about $320 million has been allocated for road reconstruction and $460 million for repairs, focusing on the development of strategic international highways. The highways are included in the Central Asia Regional Economic Cooperation (CAREC) corridors recently agreed among its member countries. CAREC corridors development aims to enhance international trade and regional connectivity. Asian Development Bank (ADB) financing to support the Government's Road Development Program 2007–2010, will contribute to achieving the Government's development objectives, as well as enhancing regional integration and economic growth in the CAREC region. Road sector reforms have progressed significantly since 2003. Reform measures include (i) sector unbundling, (ii) institutional reforms, and (iii) promotion of competitive bidding for road construction works. A new road law introducing toll roads and

private sector participation in the road sector was enacted in 2007. Further reform is expected together with the investments in the Government's Road Development Program 2007–2010. Support for the road sector is justified based on reform progress and fits with ADB's strategy of promoting regional cooperation.

Adequate road maintenance is essential if the road network and international and national connectivity are to be sustained. In past years, insufficient maintenance has lead to road network deterioration. Addressing road sustainability requires a clear strategy for road sector management on: (i) institution and management, (ii) funding, (iii) sector planning, and (iv) governance and accountability. The Government has progressed well in ensuring a steady flow of maintenance funds by establishing a Road Fund. However, the road maintenance budget for primary roads is currently not sufficient to fully sustain the roads. Outsourcing road maintenance through competitive bidding would, to some extent, help reduce maintenance cost. The Road Fund's capacity in road planning and management will be improved to meet these overall key principles. In addition, financing support of road equipment will pave the way for strengthening the private sector and road construction enterprises. It is a first step toward fully private provision of equipment in a competitive environment.

Impact and Outcome

The main impact of the Project is sustainable economic development and increased domestic and international trade through an adequate, efficient, safe, and sustainable road network in Uzbekistan and improved regional connectivity.

Project Investment Plan

The total project cost is estimated at $173.5 million equivalent, including cost of taxes and duties of $22.2 million.

Financing Plan

A loan of $75.3 million from the ordinary capital resources of ADB will be provided under ADB's London interbank offered rate (LIBOR)-based lending facility. The loan will have an amortization period of 24 years including a grace period of 4 years, an interest rate determined in accordance with ADB's LIBOR-based lending facility, a commitment charge of 0.35% per annum of the cumulative undisbursed loan, and such other terms and conditions set forth in the Loan Agreement.

Financing Plan
($ million)

Source	Total	%
Asian Development Bank	75.3	43
Government	98.2	57
Total	**173.5**	**100**

Source: Asian Development Bank estimates.

Allocation and Relending Terms	The Government will pass on the proceeds of the ADB loan for the procurement of equipment to a road equipment pool company (REPC) and the provision of consulting services for the development of REPC with an additional spread of maximum 0.2% and on terms and conditions that are otherwise identical to the ADB loan to the Government. The REPC will assume the foreign exchange risk.
Period of Utilization	Until 30 June 2012
Estimated Project Completion Date	31 December 2011
Executing Agency	The Republican Road Fund (the Road Fund) that is under and accountable to the Ministry of Finance will be the Project's EA. It is adequately staffed and its financial management capabilities are adequate.
Implementation Arrangements	A project implementation unit (PIU) under the Road Fund will be set up and be responsible for implementation of the Project. Two staff from the Road Fund will be appointed to assist PIU in implementing the road development component and institutional support for the road sector planning and management system. A staff from the REPC will be assigned to help PIU implement the procurement of road equipment and advisory support for development of the REPC.
Procurement	Procurement of goods, civil works, and related services financed from the ADB loan will be done in accordance with ADB's *Procurement Guidelines* (2007, as amended from time to time). To ensure competition, ICB contract packages will be adopted. Civil works contracts will be procured through ICB among pre-qualified bidders. ICB will be used for civil works over $2 million; national competitive bidding (NCB) for civil works of $100,000–$2 million; shopping for civil works up to $100,000; and ICB for goods over $1 million. The Project involves five ICB contract packages for civil works and two ICB packages for goods.
Consulting Services	It is estimated that a total of about 360 person-months of consultancy services (120 person-months international and 240 person-month national) will be needed for: (i) an international procurement specialist, (ii) project management and construction supervision, (iii) advisory support for development of the REPC, and (iv) road sector planning and management system. Detailed engineering design is being undertaken by locally recruited consultants and financed from the Road Fund resources. An individual procurement specialist with international experience will be recruited to help implement the procurement of works, goods, and services. For the remaining services, consulting firms will be selected and engaged using ADB's quality and cost-based

selection procedures in accordance with its *Guidelines on the Use of Consultants* (2007, as amended from time to time). Full technical proposals will be required for the project management and construction supervision, and the road sector planning and management system; and biodata technical proposals for development of the REPC.

Project Benefits and Beneficiaries

Under the road development component, the main benefits will be vehicle operating cost and accident cost savings, resulting from reduced road pavement roughness and better vehicle running conditions. Potential project beneficiaries will be road users currently using the existing road, diverted road users from railway services parallel to the A-380 highway, diverted road users from international traffic currently using the northern route from and to Kazakhstan and Russian Federation, and generated traffic. This component is economically viable, given economic internal rates of return (EIRRs) of 17% (road section 1) and 34% (road section 2).

Under the road sector sustainability component, the enhanced road sector maintenance capacity is considered over a 10-year period. The with-project scenario assumes a well-planned and managed road sector together with better equipped, commercially operated road enterprises with the capacity to undertake higher levels of better quality road maintenance. This is compared with poor management and planning and ill-equipped road enterprises in the without-project case. The incremental costs and benefits were compared and the EIRR for the component was estimated at 33%, which is economically viable. The investment and operation of the road equipment is financially feasible. The financial rate of return was estimated at 13% which is above the weighted average cost of capital of 4.6%. The REPC is expected to meet cash flow as well as operating requirements, meet full debt service obligations, and maintain a minimum 80:20 debt-equity ratio.

Risks and Assumptions

At the EA level, assumptions include the Road Fund's commitment to improve its planning capacity, provide counterpart resources and support for the Project in a timely manner, and improve the entire A-380 highway as scheduled. At the government level, the main assumptions of the Project are commitment to further reform the road sector, adopt good governance, apply cost recovery principles in investment, invest in cross-border facilities in a timely manner, and sustain policies conducive to economic growth and regional integration.

The main risks to the Project include start-up delays in project implementation, lack of strict adherence to ADB's procurement guidelines, adverse impacts of the Project, and development of the REPC.

The following measures are taken to mitigate the start-up delays risk: (i) recruitment of an international procurement specialist to

help the EA procure contractors, suppliers, and consultants; (ii) recruitment of a professional with experience in externally funded projects as the PIU head; and (iii) finalization of the detailed design for the first civil works package using the Road Fund budget.

The Road Fund is to announce the Project and business opportunities associated with the Project, including the tender process, on its web page. To avoid adverse impacts of the Project, contractors will be required to adopt strict controls over workers' conduct, and adopt environmental protection and comply with mitigation measures. Consulting services will be provided under the Project to help the REPC run the services and further commercialize the REPC.


UZBEKISTAN
CAREC REGIONAL ROAD PROJECT
60°00'E
69°00'E
45°00'N
39°00'N
KAZAKHSTAN
TURKMENISTAN
AFGHANISTAN
TAJIKISTAN
KYRGYZ REPUBLIC
Aral Sea
Vozrozdeniya Island
Muynak
Kungrad
KARAKALPAKSTAN
Khodzheyli
Nukus
NAVOI
Uchkuduk
Zarafshan
Ufgench
KHOREZM
Turtkul
BUKHARA
Gazli
Bukhara
Navoi
SAMARKAND
Samarkand
DJIZZAK
Djizzak
Gulistan
SYRDARYA
TASHKENT
Chirchik
Angren
Namangan
NAMANGAN
Andijan
ANDIJAN
Kokand
Fergana
FERGANA
Sukh
Jordan
KASHKADARYA
Karshi
Oktya
Guzar
Denau
SURKHANDARYA
Kumkurgan
Termez
0 50 100 150
Kilometers
National Capital
Provincial Capital
City/Town
Project Road
Main Road
Railway
River
Provincial Boundary
International Boundary
Boundaries are not necessarily authoritative.
07-2578HR

I. THE PROPOSAL

1. I submit, for your approval, the following report and recommendation on a proposed loan to the Republic of Uzbekistan for the Central Asia Regional Economic Cooperation (CAREC) Regional Road Project (the Project). The design and monitoring framework for the Project is in Appendix 1.[1]

II. RATIONALE: SECTOR PERFORMANCE, PROBLEMS, AND OPPORTUNITIES

A. Performance Indicators and Analysis

2. Uzbekistan is a historical land bridge between the east (East Asia) and west (Europe), as well as the north (Kazakhstan, Russian Federation, and the Baltic states) and south (Indian Ocean and Persian Gulf). Uzbekistan can benefit from this role only if the transport network is well developed and maintained. With a population of 26.8 million, it is the most populous country in Central Asia with the second largest area. Although largely arid, irrigated areas along the two main rivers make it an important agricultural producer, specializing in cotton, for which it is the second largest exporter in the world. It is rich in natural resources, including minerals and large reserves of natural gas.

3. Uzbekistan's gross domestic product (GDP) has been growing at about 7% per year in 2004–2006 after an initial post-independence period of decline. It is predicted that GDP will increase by about 6% annually up to 2020. This growth is expected to increase freight transport by about 4.4% and passenger transport by about 5.1% per annum.[2]

4. Efficient transport is important to achieve the country's development objectives. Uzbekistan's primary roads, totaling 42,530 kilometers (km), are divided into international (3,626 km), national (16,909 km), and regional (local) roads (21,995 km). In addition, there are about 140,000 km of urban and rural roads. In 2005, road transport carried about 85% of Uzbekistan's freight in terms of ton-km and 93% of its passengers in terms of passenger-km. Road traffic volume varies across road sections. Some major roads carry more than 10,000 vehicles per day. Traffic volume grew about 4% per year over 2000–2005.

5. The primary highways, mostly asphalt-paved, are the backbone of the road network in Uzbekistan. The Republican Road Fund (the Road Fund) under the Ministry of Finance (MOF) has responsibility for financing reconstruction, repairs, and maintenance of the primary highways. Its budget for road works has increased from about $125 million in 2005 to about $184 million in 2007 or by about 20% annually. Table 1 shows that about 39% of the budget was allocated for reconstruction, 42% for repair, and 19% for routine maintenance.

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[1] Preparatory technical assistance (PPTA) was provided to prepare the Project. ADB. 2006. *Technical Assistance to the Republic of Uzbekistan for Preparing the Regional Infrastructure (Roads) Project*. Manila (TA 4889-UZB, approved on 8 December, for $300,000).

[2] ADB. 2006. *Technical Assistance to the Republic of Uzbekistan for Transport Sector Strategy (2006–2020)* (TA 4659-UZB). Consultant's Final Report.

Table 1: Primary Road Program
($ million equivalent)

Type of Work	2005		2006		2007		2008		2009		2010	
	Km	$ Million	Km	$ Million	Km	$ Million	Km	$ Million	Km	$ Million	Km	$ Million
Reconstruction	66	37	239	51	259	63	162	107	222	93	138	58
Repair	2,420	63	1,701	62	2,120	89	2,189	73	3,432	115	5,440	182
Routine Maintenance	42,530	25	42,530	31	42,530	32	42,530	36	42,530	41	42,530	47
Total		**125**		**144**		**184**		**216**		**249**		**287**

km = kilometer.
Source: The Road Fund estimates (2007).

6. The Uzbekistan Transport Sector Strategy (2006–2020) (footnote 2) identified broad issues for the road sector including: (i) a considerable road rehabilitation and maintenance backlog, (ii) road deterioration, (iii) inadequate number of qualified supervisory personnel for national road network maintenance services, (iv) funding constraints to clear the road maintenance backlog, (v) restrictions on the trade of certain internationally traded cargoes, (vi) an infant logistics industry, (vii) policy development and regulation of activity of the road sector, and (viii) the lack of a medium-term investment plan for the sector. Some of these, such as road funding and regulatory framework, have now been partly or are being addressed by the Government.

B. Analysis of Key Problems and Opportunities

1. Challenges

7. **Road Sector Reforms**. There has been significant road sector reform in recent years. The road sector has been transformed from a single state road agency, Uzavtoyul, responsible for policy, planning, funding, construction, and operation and maintenance (O&M) of primary roads into a new structure that is much more closely in line with international best practice.

(i) The Road Board, chaired by a deputy prime minister, is responsible for policy formulation in the road sector.

(ii) The Uzbek Association of Transport and Transport Communications is coordinating the activities of the transport sector's main stakeholders.

(iii) The Road Fund under MOF is responsible for managing and funding primary roads, including planning and outsourcing of construction, reconstruction, repairs, and maintenance; and project implementation and supervision.

(iv) State joint stock company (SJSC) Uzavtoyul is responsible for the O&M of primary roads. In these tasks, it is assisted by two of its divisions. One division, led by seven core subsidiaries, is responsible for maintenance of international and national roads. The other division, led by 13 core subsidiaries with 161 ancillary subsidiaries, is responsible for maintenance of district roads. In the conduct of these O&M tasks, the core Uzavtuyol subsidiaries report to, and are funded by, the Road Fund. The ancillary subsidiaries, however, work under performance-based contracts.

8. Steps have been taken to stimulate commercialization of Uzavtuyol subsidiaries by introducing competitive bidding for road construction, reconstruction, and repairs; and the requirement of performance-based contracts for maintenance. However, overall the subsidiaries remain closely linked to the Government and the Road Fund. In order to enhance efficiency and competition in the road sector, the Government should consider further reforms to stimulate private sector development in the road construction industry. Among the steps to achieve this, the Government should take steps towards making Uzavtuyol subsidiaries legally, financially, and managerially independent and towards introducing competitive bidding for maintenance. A road sector analysis is in Appendix 2.

9. The Road Fund's capacity in planning and execution is inadequate, so it requires institutional capacity enhancement and human resources strengthening. Assistance is required in database development, maintenance program optimization, and investment strategy.

10. **Road Network and Border Crossing**. In general, despite a few missing links, the road network has good coverage and sufficient capacity to accommodate the moderately growing traffic demand. Most major corridors are dual carriageways and the current volume capacity ratios are relatively low. However, parts of the network are in poor condition and require rehabilitation. The road quality is deteriorating because of inadequate maintenance. In addition, poor signposting and road markings have been observed in some roads, raising road safety concerns.

11. The Government is focused on the development of the following five international corridors out of 20 corridors (Table 2).

Table 2: Primary International Road Corridors

1.	Europe, Russian Federation, PRC, Kazakhstan, and Kyrgyz Republic–Chimkent (Kazakhstan)–Gisht Kuprik/Yallama–Tashkent–Samarkand–Bukhara–Alat–Farap (Turkmenistan)–Iran and Turkey
2.	Tashkent–Kokand–Andijan–Dustlik–Osh (Kyrgyz Republic)–Kashgar (PRC)
3.	Samarkand–Karshi–Termez–Saryasiya–Dushanbe (Tajikistan)–Termez–Ayritom–Hayratan (Afghanistan)–Iran and Pakistan
4.	Samarkand–Jartepa–Panjikent (Tajikistan)
5.	Bukhara–Nukus–Kungrad–Beyneu (Kazakhstan)–Astrakhan (Russian Federation)

PRC = People's Republic of China.
Source: Road Fund (2007).

12. Despite significant improvements in recent years, transit trade facilitation remains complex and time-consuming, especially for vehicles without Transports Internationaux Routiers (TIR) Carnets.[3] The combination of transposing documentation at each border, different documentary requirements, a high percentage of physical examinations of goods, and payment of transit and other fees all mean border delays. The Government recognizes these issues and is pursuing an investment plan for its trade facilitation and customs cooperation program, and for border post development at key crossings.

13. **Transit Traffic**. The substantial decline in transit traffic since 1998 suggests the potential to expand transit traffic. The decline that was common throughout Central Asia resulted in a general reduction of international trade. Several factors caused the decline in

[3] The TIR (Transports Internationaux Routiers) system relies on a document known as the "TIR Carnet" which is printed and distributed by the Geneva-based International Road Transport Union for issue to the carnet users by the national guarantee associations which are authorized for this purpose by the contracting parties' administrations.

transit traffic: poorly maintained infrastructure, high transit fees, security concerns, and competing international corridors.

14. There is international competition for transit traffic. The Niznhy Pianj–Dushanbe–Sarytash–Osh–Bishkek–Almaty corridor could compete in future with the Dushanbe–Termez–Tashkent–Almaty corridor. Improvement of the Osh–Bishkek route has already reduced the need for Kyrgyz traffic to transit Uzbekistan, even in winter.

15. A key factor in the economics of a corridor is the level of transit fees. With over 80% of transit traffic being carried in Turkish and Iranian trucks, substantial revenue is generated from foreign transporters. There has been a decline of around 60% in the number of transiting trucks. While this is partly due to economic changes, with Kazakhstan for example sourcing more traffic via the Russian Federation, transporters consider high transit fees to have been a factor and there is a need to reconsider and rationalize them. The transit fees issues will be addressed in new international transport law and new transit law under preparation by the Government.

16. **Road Maintenance**. Although the budget allocated for routine maintenance has increased 13% annually, it currently remains inadequate. The current yearly routine maintenance budget of less than $1,000/km is approximately only half of the road maintenance cost standard of $2,200/km.[4] The Road Fund, however, has been committed to increasing the maintenance budget under the Government's Road Development Program 2007–2010.

17. A weakness of the Road Fund financing is that about 80% of the sources of funds are not directly related to the use of the network. On the other hand, fuel levy (about 60–70% of other countries' road user charges)[5] is not included in the Road Fund's sources of funds. Revisiting the operations of the Road Fund and examining the effectiveness of the current operating, financing, and quality control procedures would be timely.

18. In addition, a systematic approach to prioritizing road maintenance interventions and development planning would help the Road Fund better assess the real need for road maintenance and development. Regular road condition and traffic surveys are urgently required. Comprehensive data is crucial to quantify the extent of the maintenance backlog and develop a prioritized remedial maintenance program.

19. **Road Construction Industry**. Under current road management arrangements, the road construction market for primary roads that are open for bidding is limited to reconstruction and repairs. With seven state-owned enterprises under Uzavtoyul specializing in construction and maintenance of international and national roads, and 161 smaller regionally-based state-owned enterprises, coupled with limited market opportunities, private contractors have been limited. However, the number of private contractors awarded construction and repair works by the Road Fund has increased in the last two years.

20. A distinction should be made between Uzavtoyul and the 13 provincially-based core subsidiaries, and the rest of the Uzavtoyul subsidiaries. Uzavtoyul and the 13 provincially-based core subsidiaries have government-like functions, such as road data collection and programming, with less business activities. On the other hand, the seven international and national roads subsidiaries and the 161 provincially-based ancillary subsidiaries mainly operate as business entities.

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[4] M. Benmamaar. 2005. *Transport Notes TRN-4. Why Road Maintenance is Important and How to Get it Done*. Washington, DC: World Bank.

[5] Burningham, S. and Stankevich, N. 2006. Financing of Road Maintenance in Sub-Saharan Africa: Reforms and progress towards second generation of road fund. Discussion Paper 6. Sub-Saharan Africa Transport Policy Program.

21. These latter Uzavtoyul subsidiaries provide an excellent foundation for the development of the road construction and maintenance private sector through continued commercialization, leading to privatization. There is a need to further promote competition among Uzavtoyul subsidiaries, and strengthen their capacity with access to necessary construction and maintenance equipment, to be better equipped for future opportunities in international as well as national projects. Following the Government's policy to privatize state-owned enterprises, it is envisaged these Uzavtoyul subsidiaries will also be gradually spun off from Uzavtoyul as private contractors.

22. **Road Safety**. The number of road accidents is reported at about 10,000 per year, resulting in about 2,000 fatalities. At about 15.4 fatalities per 10,000 vehicles, this rate is very high by developed countries' standards but low for developing countries. Responsibilities for road safety, split between several agencies, are defined in the Law on Road Safety, 1999. The Ministry of Internal Affairs is the leading agency responsible, through the State Traffic Police, for the development of safety standards, rules, and regulations; traffic management, surveillance, and enforcement; vehicle inspection; and accident data collection and analysis. The Uzbek Agency for Road and River Transport is responsible for vehicle certification and developing relevant regulations. Uzavtoyul is responsible for ensuring that road design complies with the road safety design standard.

23. On some roads, road signs are inadequate and road marking is poor. Overtaking and speeding are common because of the relatively low traffic volume. Implementation of speed limits could be improved.

24. Despite the fact that accident data is not publicly disclosed, the Government has made a coordinated effort for improving road safety. A Road Safety Commission has been set up under the Cabinet of Ministers. A road safety plan is being implemented, including a safety awareness program and education for students. Finally, accident data and black spots are analyzed and communicated with Uzavtoyul.

2. Opportunities

25. **Road Development**. Under the Government's Road Development Program 2007–2010, about $300 million has been allocated for road reconstruction. It will focus on the development of the following international highways: M-34, M-39, A-378, A-380, M-37, Tashkent Ring Road, and Gulistan–Angren. Improving these international road corridors, road-related facilities, and other trade and transport facilitation measures (including streamlining of procedures at borders) will facilitate passenger and cargo movement and is expected to increase domestic and regional trade.

26. Most of those international highways are included in CAREC corridors 2 (Mediterranean–East Asia), 3 (Russian Federation–Middle East and South Asia), 5 (East Asia–Middle East and South Asia), and 6 (Europe–Middle East and South Asia) recently agreed among its member countries (para. 41). CAREC corridors are important for international trade and regional connectivity.

27. ADB financing to support the Government's Road Development Program 2007–2010 will contribute not only to achieving the Government's development objectives, but also enhancing regional connectivity and integration—contributing to economic growth in the CAREC region.

28. **Road Sector Sustainability**. Adequate road maintenance is essential if the road network and international and national connectivity is to be sustained. In past years, insufficient maintenance has led to deterioration of the road network. Postponing road maintenance results in high direct and indirect costs. Addressing road sustainability requires a clear strategy for road sector management that attends to the following key principles: (i) improvement of road network planning; (ii) clear ownership of roads and responsibilities of sector institutions; (iii) involvement of road stakeholders in the planning and operations of roads; (iv) accurate costing of development and maintenance priorities; (v) development standards for improving roads; (vi) a comprehensive maintenance program, including road related facilities; and (vii) sufficient capacity in funding, managing, and supervising road maintenance. Road sustainability, therefore, needs reforms in the financing, institutional setup, and management of road maintenance with the active participation of direct and indirect users.

29. The Government has a clear road sector reform program to be implemented in 2007–2010 (para. 38). A new road law, approved by parliament and the senate in 2007, will provide a legal basis for introducing toll roads and private sector participations in road operations. It also clearly distinguishes road ownership and responsibilities of road sector institutions, including district governments. These show the Government's serious commitment to improving the road sector. However, only successful implementation of the new law will guarantee the targeted outcomes.

30. The Government has progressed well in ensuring a steady flow of maintenance funds by establishing the Road Fund. However, the road maintenance budget for primary roads needs to be increased to sustain the roads. Outsourcing road maintenance through competitive bidding would help reduce maintenance cost (footnote 4). The Road Fund's capacity in road planning and management can be improved to meet the overall key principles above with targeted advisory support.

31. In addition, making road equipment available can pave the way for strengthening the private sector and road construction enterprises. It is a first step toward fully private provision of equipment in a competitive environment. Many private equipment pool companies operate successfully in industrialized and semi-industrialized countries.[6]

C. External Assistance and Lessons Learned

32. ADB is the lead agency in the transport sector, customs cooperation, and trade facilitation activities of CAREC, of which Uzbekistan is a member. ADB, the European Bank for Reconstruction and Development, and the governments of Germany and Japan have been focusing their assistance on the railway sector in Uzbekistan while the World Bank focused on the urban transport sector.

33. A number of studies were completed or are being undertaken through ADB regional technical assistance (TA).[7] In the road sector, ADB had financed a TA[8] and approved a loan[9] that was later cancelled by the Government because (i) the road section identified under the

[6] J. M. Lantran. 1992. *Transport Notes RD-10. Equipment Pools for Road Maintenance*. Washington, DC: World Bank.

[7] ADB. 2005. *Technical Assistance for Facilitation of Transport Cooperation among Central Asia Regional Cooperation Economic Countries (Phase I) (Financed by the Japan Special Fund).* Manila (TA 6294-REG, approved on 21 December, for $650,000).

[8] ADB. 1998. *Technical Assistance to the Republic of Uzbekistan for Institutional Strengthening and Policy Support for the Road Sector*. Manila (TA 3118-UZB, approved on 15 December).

[9] ADB. 1998. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan and Technical Assistance Grant to the Republic of Uzbekistan for the Road Rehabilitation Project*. Manila (Loan 1657-UZB, approved on 15 December).

project was no longer a government priority; and (ii) the Government was unable to comply with loan covenants, especially road sector reforms, prior to project implementation.

34. Since the cancellation of the loan, the then envisaged road sector reforms have progressed significantly. Reform measures include (i) sector unbundling by separating road transport operation and road construction; (ii) institutional reform by creating the Uzbek Association of Transport and Transport Communications, the Road Board, and the Road Fund, and by restructuring Uzavtoyul; and (iii) promotion of competitive bidding for road construction works, many of which are recommendations of Institutional Strengthening and Policy Support for the Road Sector (footnote 8). Support for the road sector is justified based on reform progress in this sector and fit with ADB strategy to promote regional cooperation. Further reassurance for ADB includes (i) the objectives outlined under the Government's transport sector policy (para. 36); (ii) the completed Uzbekistan Transport Sector Strategy (2006-2020)[10] which was strongly supported by the Government; and (iii) the committed road sector reform (para. 38) and solid investment pipeline developed under the Government's Road Development Program 2007–2010.

35. The 2006 ADB country assistance program evaluation for Uzbekistan evaluated the overall program "satisfactory" based on the criteria of relevance and efficacy.[11] It classifies transport sector projects "generally satisfactory" and noted good progress in the transport sector. However, several issues remain. The proposed Project, therefore, will address relevant issues identified in the country assistance program evaluation—including project focus, financial sustainability, inefficient practices of government agencies, the lacking link between policies and practice, and project implementation. Financial sustainability is also key to the success of road projects.[12]

D. Transport Sector Strategy

36. **Government Strategy**. The Government's Concept of Development of Transport and Communications in Uzbekistan to 2015 outlines transport sector development objectives and strategic directions. The concept underscores the importance of international traffic, and suggests upgrading and maintaining the main highways to meet international standards. It also highlights the need for improving road transit and trade facilitation, including development of common approaches to tariff and customs policy. The nonphysical obstacles to passenger and freight traffic by way of roads should be removed. Technical equipment at border crossings should be improved to facilitate efficient border-crossing procedures. The aim is to enhance trade between Uzbekistan and its trading partners.

37. The Government strongly supported the transport sector strategy prepared under the Transport Sector Strategy (2006–2010) (footnote 10). The strategy provides strategic direction and an investment plan for the transport sector, including roads. It elaborates the policy direction outlined in the transport development concept and takes into account the Government's comprehensive investment program for improving the road network. The investment plan comprises (i) improvement or rehabilitation of the existing major roads; (ii) new construction and major upgrading of the existing major roads; and (iii) implementation of road safety measures, especially on domestic sections of international routes.

38. Further reform in the road sector was recently announced and includes: (i) organization of construction and reconstruction of primary highways, (ii) development of modern road

[10] ADB. 2005. *Technical Assistance to the Republic of Uzbekistan for the Transport Sector Strategy (2006–2010)* (Financed by the Japan Special Fund). Manila. (TA 4659-UZB, approved on 3 October).
[11] ADB. 2006. *Country Assistance Program Evaluation for Uzbekistan*. Manila.
[12] ADB. 2006. *Learning from Successful Road Projects*. Manila.

infrastructure, (iii) rationalization of financial resources utilization, (iv) improvement of the legal and regulatory framework of road construction, (v) measures for improvement of road safety and reliability, and (vi) training for road industry personnel.[13]

39. **ADB Strategy**. The Project is fully in line with ADB's country and regional strategies. ADB's future role in the transport sector, as outlined in Uzbekistan's ADB country strategy and program 2006–2010[14] will focus on (i) developing a reliable existing infrastructure network that opens up regional and international markets; (ii) integrating transport systems for improved safety and service quality; (iii) harmonizing the regulatory framework to promote efficiency; (iv) restructuring and modernizing the transport sector by promoting competition; (v) competitive marketing and tariff setting; and (vi) improving financing and management efficiency and effectiveness.

40. The strategic direction envisaged under the Uzbekistan Transport Sector Strategy (2006-2020) (footnote 2) focuses on developing international corridors that will serve all users and attract transit traffic. The priority so far has been on the development of the east–west corridor. The opening up of Afghanistan offers opportunities in the medium-to-longer term for development of transit corridors between Central Asia and the warm-water ports in Iran and Pakistan.

41. The CAREC Transport Sector Strategy for 2008–2018 prepared under ADB assistance and endorsed during the Ministerial Meeting on 3 November 2007 has three overarching goals: (i) establishing competitive transport corridors across the CAREC region; (ii) facilitating efficient movement of people and goods across borders; and (iii) developing safe, people-friendly transport systems that are environmentally friendly. The strategy also identified six strategic corridors for full completion by 2018.[15]

III. THE PROPOSED PROJECT

A. Impact and Outcome

42. The Project will support an adequate, efficient, safe, and sustainable road network in Uzbekistan that provides domestic and regional connectivity which will contribute to sustainable economic development and increased domestic and international trade.

B. Outputs

43. The output of the Project will be (i) 131 km of reconstructed highway sections of the A-380: Guzar–Bukhara–Nukus–Dautata (Uzbekistan and Kazakhstan border); and (ii) strengthened road sector institutions and road network management capacity.

44. The Project will have two major components: (i) a road development component, and (ii) a road sector sustainability component.

45. **Road Development Component**. ADB will finance reconstruction of the A-380 highway, which is the main route between the northwest and southeast of Uzbekistan and serves as an increasingly important international corridor between Afghanistan (via Termez), Tajikistan, and Turkmenistan, and Kazakhstan and Russian Federation. The A-380 highway is designated

[13] Resolution of the President of Uzbekistan PP-535 (20 December 2006): On Measures for Development of Common Use Roads in 2007–2010.
[14] ADB. 2006. *Country Strategy and Program for Uzbekistan (2006–2010).* Manila
[15] ADB. 2007. *Technical Assistance for the Central Asia Economic Cooperation: Transport Sector Strategy Study* (TA 6347-REG). Consultant's Draft Final Report.

CAREC 6 Corridor, Asian Highway 63, Transport Corridor Europe Caucasus Asia (TRACECA) Corridor 28, and European Highways E-40 and E-60. The adjoining 84 km Kazakhstan section Uzbekistan Border–Beyneu is included in the 2009–2010 Kazakhstan Road Sector Development Program for reconstruction. Reconstruction of the Beyneu–Aktau (Caspian Sea) and Beyneu–Russian Federation border sections is also in the program for completion by 2011. The A-380 highway is part of CAREC 6 that is considered high priority for completion by 2012 (footnote 15).

46. The pavement condition of the A-380 highway Guzar–Bukhara–Nukus–Dautata (Uzbekistan and Kazakhstan Border) has deteriorated because of deferred maintenance and an increase in traffic. With the existing traffic of about 5,500 passenger car equivalent per day in the Khorezm section, the A-380 highway traffic is expected to reach 13,000 passenger car equivalent per day in 2020. Reconstruction of this international road is technically justified. Out of 1,204 km of the A-380 highway, 211 km will be reconstructed and 700 km will be repaired during 2007–2010; the remaining road sections need adequate routine maintenance. ADB's investment in reconstruction of the A-380 highway will help the Government accelerate completion of the overall program and introduce international best practice.

47. Civil works under this component will comprise reconstruction of 131 km of the A380 highway in the Republic of Karakalpakstan and Khorezm Province to meet two-lane international design standard with a four-lane roadbed within the existing right-of-way. The Project will not involve land acquisition and resettlement nor create significant environmental impacts. The sections of the project road are as follows:

(i) Section 1: km876–916 (40 km) in Kungrad District of the Republic of Karakalpakstan.
(ii) Section 2: km490–581 (91 km) in Khazarsp District of Khorezm Province and Tortkul District of the Republic of Karakalpakstan.

48. The Government will, for the first time, adopt international competitive bidding (ICB) for roadworks. Advisory support for procurement of contractors and recruitment of consultants will be provided. An international procurement consultant will assist the executing agency (EA) to strengthen its procurement capability. Advisory support for project management and construction supervision will also be provided to assist the EA in managing, implementing, and supervising the overall Project to meet high international standards.

49. **Road Sector Sustainability Component**. This component will primarily assist the Government to strengthen road sector sustainability in Uzbekistan through improvement of road sector institutions, the introduction of competition in road maintenance leading to further commercialization of enterprises and eventually privatization, road sector planning, and budgeting system; and provision of road equipment to ensure timely and effective road maintenance program. This component will partly support the road sector reforms (para. 38) and will involve the following activities:

(i) **Institutional support for road sector planning and management system**. This subcomponent will provide advisory support to improve the Government's current road sector planning and road sector financing systems and will focus on the promotion of road user charges and tolling systems, the introduction of a computerized road network data base system and road sector planning and management systems, and the preparation of a time-bound program to roll out these systems for countrywide application. This subcomponent will also provide advisory support to rationalize road sector institutions and road enterprises, and promote competition in roadworks. It will train dedicated EA staff to build capacity

in road sector planning and management. At the end of the Project, a planning unit will have been fully established at the Road Fund.

(ii) **Provision of road equipment**. The Government will establish the road equipment pool company (REPC) and this subcomponent will assist the Government with the development of the REPC and finance the procurement of road equipment for the REPC.[16] The immediate objective of the REPC will be to provide services using its road equipment to road construction and maintenance enterprises on a full cost recovery basis. Advisory support under this subcomponent will include development of business and marketing plans; an equipment service charge system; and proper administrative, accounting, and financial procedures. The subcomponent will also study the feasibility of privatizing the REPC in the longer term.

C. Project Investment Plan

50. The project investment cost is estimated at $173.5 million equivalent, including taxes and duties of $22.2 million. A summary of the project investment plan is in Table 3. Detailed cost estimates by financiers for the Project are in Appendix 3.

Table 3: Project Investment Plan
($ million)

Item	Amounts[a]
A. Base Cost	
1. Road development component	63.8
2. Road sector sustainability component	56.7
3. Taxes and duties	22.2
Subtotal (A)	**142.7**
B. Recurrent Costs	**0.6**
C. Contingencies[b]	**25.1**
D. Financing Charges During Implementation[c]	**5.1**
Total (A+B+C+D)	**173.5**

[a] In mid-2007 prices.
[b] Physical contingencies computed at 10% for civil works and 5% for road equipment. Price contingencies include provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.
[c] Includes interest and commitment charges. Interest during construction has been computed at the 5-year forward London interbank offered rate plus a spread of 0.6%.
Source: Asian Development Bank estimates.

D. Financing Plan

51. As summarized in Table 4, the proposed ADB financing of $75.3 million represents 43% of the total project cost. The Government will provide the remaining project costs of $98.2 million to finance taxes and duties, and part of the civil works and contingencies.

[16] This is in line with the Transport Sector Strategy, which recommended the establishment of an Equipment Management and Utilization Organization providing construction equipment to road companies as a means of enhancing their operational capacity and hence ability to compete on a broader market front.

Table 4: Financing Plan
($ million)

Source	Total	%
Asian Development Bank	75.3	43
Government	98.2	57
Total	**173.5**	**100**

Source: Asian Development Bank estimates.

52. ADB will provide a loan of $75.3 million from ADB's ordinary capital resources to help finance the Project. The loan will have an amortization period of 24 years, including a grace period of 4 years, an interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility, and a commitment charge of 0.35% of the loan per annum. The Government has provided ADB with (i) the reasons for its decision to borrow under ADB's LIBOR-based lending facility on the basis of these terms and conditions, and (ii) an undertaking that these choices were its own independent decision and not made in reliance on any communication or advice from ADB.

53. The Government will relend the proceeds of the ADB loan of $55.31 million for the provision of equipment to the REPC and the advisory support for the development of REPC with an additional spread of maximum 0.2% and on terms and conditions that are otherwise identical to the ADB loan to the Government. The REPC will assume the foreign exchange risk.

E. Implementation Arrangements

1. Project Management

54. The Road Fund that is under and accountable to MOF will be the EA for the Project. It is adequately staffed and its financial management was found to be acceptable. Within the Road Fund, a project implementation unit (PIU) will be set up and established. The PIU will have overall responsibility for project implementation. A PIU head will be a professional qualified in project management, with experience in project management and civil works acceptable to ADB. The Road Fund will ensure that, during the entire period of project implementation, the PIU is adequately staffed with sufficient experience in engineering, financial, procurement, administrative, and secretarial staff; and equipped with the necessary office space, equipment, and facilities.

55. The PIU will be responsible for implementation of the overall Project. The head of the Road Fund's Technical Construction Division will be appointed to assist the PIU in implementing the road development component. The head of the Road Fund's Program and Road Construction Development Division will be assigned to assist the PIU in implementing the institutional support for the road sector planning and management system. A staff from the REPC will be assigned to help PIU implement the procurement of road equipment and advisory support for development of the REPC. The proposed organizational structure is in Appendix 4.

56. The PIU will oversee all activities under the Project, including project preparation and implementation, as well as monitoring and reporting. The Road Fund will introduce a suitable management information system in the PIU to manage the Project, including REPC-related activities. The proposed arrangements and fund flow for the road development component and procurement and operation of road equipment are in Appendix 5.

57. The PIU will prepare progress reports and will submit them to the EA and ADB every quarter. It will also submit other required performance and monitoring reports twice a year.

Overall progress and compliance with conditions of the Loan Agreement will be monitored regularly with periodic reports to ADB, consistent with existing project implementation requirements. Reports will include evaluation of issues or problems and will recommend remedial actions.

2. Implementation Period

58. The Project will be implemented over 4 years, inclusive of procurement and construction activities, and is expected to be completed by 31 December 2011. The implementation schedule is in Appendix 6.

3. Procurement

59. Procurement of goods, civil works, and related services financed from the ADB loan will be done in accordance with ADB's *Procurement Guidelines* (2007, as amended from time to time). To ensure competition, ICB contract packages will be adopted. Civil works contracts will be procured through ICB among pre-qualified bidders. ICB will be used for civil works over $2 million; national competitive bidding (NCB) for civil works of $100,000–$2 million; shopping for civil works up to $100,000; and ICB for goods over $1 million. The Government agreed to include the relevant sections of ADB's *Anticorruption Policy* (1998, as amended to date) in all bidding and contractual documents.

60. There is no NCB procurement envisaged under this project. However, should there be a need for NCB procurement during project implementation, before commencement of NCB procurement, ADB and the Government will review the Government's procurement procedures to ensure consistency with ADB requirements. Any necessary modifications or clarifications to the Government's procedures will be reflected in the procurement plan.

61. The Project involves five ICB contract packages for road civil works and two ICB packages for goods. The procurement plan for contractors and consultants is in Appendix 7.

4. Consulting Services

62. It is estimated that a total of about 360 person-months of consultancy services will be needed (120 person-months international and 240 person-months national). About 57 person-months of international consultants and about 175 person-months of national consultants will be required for design review, and supervising construction of five civil works packages. A further 5 person-months of international and 14 person-months of national consultants will be required for providing support for development of the REPC. About 46 person-months of international and 51 person-months of national consultants will be required to assist the Road Fund in developing a road sector planning and management system, and conducting studies on road financing and institutions.

63. Detailed engineering design is being undertaken by locally recruited consultants and financed from the Road Fund resources. The Road Fund will also engage 12 person-months of an international procurement specialist with experience in externally funded projects to help implement the procurement of works, goods, and services. An individual consultant will be selected and engaged in accordance with the *Guidelines on the Use of Consultants* (2007, as amended from time to time) and the procurement plan agreed with ADB.

64. Consulting firms will be selected and engaged using ADB's quality- and cost-based selection procedures in accordance with its *Guidelines on the Use of Consultants* and the procurement plan agreed with ADB. Full technical proposals will be required for project

management and construction supervision and the road sector planning and management system; and bio-data technical proposals for the development of the REPC. The outline of terms of reference for consultants to be recruited under the Project is in Appendix 8.

5. Advance Contracting and Retroactive Financing

65. The Government has proposed the provision of an international procurement specialist, consulting services for the development of REPC, and recurrent costs to be financed retroactively. It has been advised that the recruitment of consulting services will be subject to due diligence by ADB.

66. ADB Management has (i) approved advance action for procuring civil works and goods, and (ii) agreed to request Board approval for retroactive financing of up to 20% of the loan amount provided that expenditures are in accordance with agreed procedures and were incurred during the 12 months before the signing of the Loan Agreement. The Road Fund has been informed that approval of advanced contracting and retroactive financing does not commit ADB to finance the Project.

6. Anticorruption Policy

67. ADB's *Anticorruption Policy* was explained to and discussed with the Government and the Road Fund. Consistent with its commitment to good governance, accountability, and transparency, ADB reserves the right to investigate, directly or through its agents, any alleged corrupt, fraudulent, collusive, or coercive practices relating to the Projects. To support these efforts, relevant provisions of ADB's *Anticorruption Policy* are included in the loan regulations and the bidding documents for the Project. In particular, all contracts financed by ADB in connection with the Project shall include provisions specifying the right of ADB to audit and examine the records and accounts of the PIU, and all contractors, suppliers, consultants, and other service providers as they relate to the Project.

7. Disbursement Arrangements

68. The loan proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2007, as amended from time to time). Direct payment procedures will generally be used for large civil works contracts and consulting services. The Road Fund will establish an imprest account at a commercial bank acceptable to ADB, with an initial advance equivalent to estimated eligible project expenditures for the next 6 months which are to be paid through the imprest account or 10% of the loan amount, whichever is less. The imprest account will be established, managed, and liquidated in accordance with ADB's *Loan Disbursement Handbook* and detailed arrangements agreed by the Government and ADB. The statement of expenditure (SOE) procedure will be used to reimburse eligible expenditure and to liquidate and replenish the imprest account for individual payments of $100,000 and below.

8. Accounting, Auditing, and Reporting

69. The Road Fund shall (i) maintain separate accounts for the Project and the REPC; (ii) have such accounts audited annually, in accordance with appropriate auditing standards consistently applied by independent auditors whose qualifications, experience, and terms of reference are acceptable to ADB; (iii) furnish to ADB as soon as available but in any event not later than 6 months after the end of each related fiscal year, certified copies of such audited project accounts and audited financial statements and the report of the auditors relating thereto (including the auditors' separate opinions on the use of the loan proceeds and compliance with the financial covenants of this Loan Agreement as well as on the use of the procedures for the

imprest account and SOEs, all in the English language; and (iv) furnish to ADB such other information concerning such accounts and financial statements and the audit thereof as ADB shall from time to time reasonably request. The independent auditors will be engaged in accordance with ADB's *Guidelines on the Use of Consultants* and will be financed under the loan. Audited financial statements should be prepared in conformity with sound accounting standards acceptable to ADB.

9. Project Performance and Monitoring Report

70. The Road Fund, assisted by the consultants for project management and construction supervision, will establish a project performance monitoring system within 6 months from project commencement and collect baseline data for performance monitoring. The key indicators and assumptions outlined at the impact and outcome levels in the Project's design and monitoring framework will be the primary data required for analysis.

10. Project Review

71. ADB will field an inception mission within 3 months of loan approval. The ADB mission will review project implementation, including procurement, civil works, and environmental and social safeguards based on quarterly progress reports. It will meet with the Government and the Road Fund semiannually to discuss implementation progress. A midterm review will be carried out 2 years after the loan becomes effective. This will focus on the engineering, environmental, and social safeguards of the Project; compliance with loan covenants; and review of the financial status of the PIU. Representatives of ADB, the Road Fund, and the REPC will take part in the review. The midterm review will evaluate compliance with warranties and representations of the Loan Agreement and assurances. The review will allow for any necessary midcourse corrections to ensure successful implementation and the achievement of objectives. A project completion report will be submitted within 3 months of completion of the Project.

IV. BENEFITS, IMPACTS, ASSUMPTIONS, AND RISKS

A. Project Benefits

1. Economic Benefits

72. Economic sector analysis was carried out separately for the road development component and the road sector sustainability component. The methodology, key assumptions, and results are summarized in Appendix 9. The main benefits of the road development component will be vehicle operating cost (VOC) and road accident cost savings resulting from the reduced road roughness and better vehicle running conditions. The potential project beneficiaries will be road users currently using the existing road, diverted road users from the railway services parallel to the road, diverted road users from international traffic currently using the northern route from and to Kazakhstan and Russian Federation. The economic internal rate of return (EIRR) is estimated at 17% for road section 1 and 34% for road section 2. This component is economically viable.

73. Under the road sector sustainability component, the enhanced road sector maintenance capacity is considered over a 10-year period. The with-project scenario assumes a well-planned and managed road sector together with better equipped, commercially operated road enterprises with the capacity to undertake higher levels of better quality road maintenance. This is compared with poor management and planning and ill-equipped road enterprises in the without-project case. The net (incremental) benefit would be the VOC savings, time value savings, and accident savings between with-project and without-project scenarios. Under the

without-project case, average road roughness will be higher than that of the with-project case because of lower levels of quality of road network maintenance. The higher average road roughness will result in higher VOC, average travel time, and accident rates. The incremental costs and benefits were compared and the EIRR for the component was estimated at 33%, which is economically viable.

2. Financial Sustainability

74. Financial projections were prepared for the REPC, including projected operating and financial ratios in nominal terms. O&M and replacement costs were considered. Average equipment hire charge was estimated on a full cost recovery basis with a rate of return on assets of at least 15%. On this basis, the financial internal rate of return is estimated at 13% which is above the weighted average cost of capital of 4.6%. Sensitivity analyses were undertaken and found acceptable switching values for increases in capital and O&M costs, implementation delay, and decrease in revenue. The REPC is expected to meet cash flow and operating requirements, meet full debt service obligations, and maintain a minimum 80:20 debt-equity ratio. The REPC should be financially sustainable and should be able to repay the loan to the Government. Summary financial analysis for the investment and operation of the road equipment is in Appendix 10 and financial projections for the REPC are in Appendix 11.

3. Financial Management

75. Using financial management assessment questionnaires and field interviews, financial management assessments were undertaken for the Road Fund to evaluate their ability to undertake and fulfill ADB's fiduciary requirements for the project components. The Road Fund's financial management was found to be acceptable. The road sector sustainability component requires establishment and development of a road equipment company. To minimize risks associated with the new entity, detailed business and financial management plans will be developed. The proposed Project includes consultant services to facilitate the development and commercial operations of the REPC. Summary financial management analysis is in Appendix 12 and full financial management analysis is in Supplementary Appendix A.

4. Social Dimensions and Poverty Reduction

76. The fieldwork and social analysis for the Project were part of project preparatory TA (footnote 1). Consultation was conducted in July 2007 with stakeholders, including local population and pastoral nomads; the Road Fund, the Project's EA; and district government officials.

77. The Project covers two road sections located in the Republic of Karakalpakstan and Khorezm Province. Both regions are among provinces in Uzbekistan with the highest poverty incidence. The main beneficiaries of the Project will be road users and the secondary beneficiaries will be people living along the improved road. The Project will reconstruct existing roads within the current right-of-way owned by the Government. It will generate nonquantifiable economic and social benefits. Better roads will likely attract additional economic activity and traffic, thus generating benefits to a wider circle of beneficiaries. Direct benefit of the Project includes employment opportunities in civil works. Construction will create temporary jobs, and routine maintenance will employ unskilled and semiskilled workers. Women will be encouraged to work and will be treated equitably.[17] The Project will provide better and improved conditions

[17] The absence of comprehensive gender analysis in the infrastructure sector of Uzbekistan in general, and the lack of actual and adequate information about traveling conditions for women, complicates the process of developing the gender-related activities. To maximize the project impact on women and men in the transport sector, a gender

for all road users; and better access to health facilities, schools, and markets. Indirect benefits will include employment and business opportunities such as restaurants, vehicle related services, and small businesses. A summary poverty reduction and social analysis is in Appendix 13.

B. Project Impacts

1. Social Impacts and Involuntary Resettlement

78. The Project will entail reconstruction of the existing road within the current right-of-way owned by the Government, and is free from settlements. Pavement and shoulder widening will remain within the existing right-of-way in all cases. There are neither resettlement issues nor land loss in the project area. There will be no land, housing, property or income loss; and no new limitations to the movement of villagers and pastoralists. No archeological site, cemetery, or other sociocultural facilities will be affected by the Project. No systemic socioeconomic or sociocultural impact on indigenous peoples that would trigger the preparation of indigenous peoples' development plans is foreseen.

79. Village inhabitants and pastoral nomads are vulnerable, but their vulnerable situations are neither directly nor indirectly related with the project road. They are completely dependent on the *shirkats* (agricultural cooperatives) and the state for their livelihood. Improved transport conditions may facilitate their excessive emigration. Improved roads may also cause road accidents involving road users and local inhabitants, resulting from vehicle speeding. Project roads design has taken into account measures to avoid road accidents.

2. Environmental Impacts and Mitigation Measures

80. The Project has been classified environment category B in accordance with ADB's *Environmental Assessment Guidelines*. The initial environmental examination (IEE) prepared for the Project is consistent with the requirements of ADB's *Environment Policy* (2002) and *Environmental Assessment Guidelines*.

81. The IEE identifies that project impacts are not significant, and most of them are construction-related, such as elevated dust and noise levels, loss of roadside vegetation, and traffic flow disruption. These impacts are considered temporary and will be addressed through careful implementation of the environmental mitigation and monitoring plan. The Project is not anticipated to affect ecologically sensitive areas and sites of archaeological, cultural, or historical significance.

82. The contractors shall implement mitigation measures during the construction period. The EA, through the PIU, shall be assisted by the construction supervision consultant to (i) ensure that tender and contract documents clearly set out the contractor's obligations to undertake environmental mitigation measures identified in the IEE, (ii) supervise and monitor implementation of mitigation measures during construction, and (iii) implement the environmental monitoring plan including reporting requirements. To help develop the environmental management capacity of the Road Fund, a training program on environmental assessment and environmental management plan (EMP) implementation shall be undertaken. The summary IEE is in Appendix 14 and the IEE is in Supplementary Appendix B.

assessment in transport/highway sector of Uzbekistan project was formulated. The supplementary financial sources from ADB's Gender and Development Cooperation Fund will be utilized.

C. Assumptions and Potential Risks

83. At the EA level, assumptions include the Road Fund's commitment to improving its planning capacity, providing counterpart resources and support for the Project in a timely manner, and improving the entire A-380 highway as scheduled. At the government level, the main assumptions are the commitment to further reform the road sector, adopt good governance, apply cost recovery principles in investment, invest in cross-border facilities in a timely manner, and sustain policies conducive to economic growth and regional integration.

84. The main risks to the Project include start-up delays in project implementation, lack of strict adherence to ADB's procurement guidelines, adverse impacts of the Project, and establishment of the REPC.

85. The following measures will be taken to mitigate the start-up delays risk: (i) recruitment of an international procurement specialist to help the EA procure contractors, suppliers, and consultants; (ii) recruitment of a professional with experience in externally funded projects as the PIU head; and (iii) finalization of the detailed design for the first civil works package using the Road Fund's budget. The Road Fund will announce the Project and business opportunities associated with the Project, including the tender process, on its web page. To avoid adverse impacts of the Project, contractors will be required to adopt strict controls over workers' conduct,[18] adopt environmental protection, and comply with mitigation measures. Consulting services will be provided under the Project to help the REPC run the services and further commercialize the REPC.

V. ASSURANCES AND CONDITIONS

A. Specific Assurances

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

(i) **Counterpart funds**. The Government, through the Road Fund and/or REPC (as applicable), will make available all counterpart funds required for timely and effective implementation of the Project, and will ensure that the Road Fund resources thus required will be made available on an annual basis for each fiscal year. The Government will cause the Road Fund to incorporate updated estimates of the funding requirements for implementation of the Project in its annual development program.

(ii) **Government funding for road development and maintenance**. (a) The Government shall cause the Road Fund to allocate a routine maintenance budget as planned under the Government's Road Development Program 2007–2010 and that, in each fiscal year thereafter, these budgets are increased by no less than annual inflation rates, provided always that sound fiscal balance is maintained; and (b) without limiting the generality of the foregoing, the Government shall allocate and make available, on a timely basis, sufficient funds for the implementation of the Government's Road Development Program 2007–2010 and shall ensure that the road sections covered by the Road Development Program 2007–2010 are maintained in accordance with applicable standards and best international practices.

[18] The Project will benefit from the findings of the ongoing ADB. 2006. *Technical Assistance for Fighting HIV/AIDS in Asia and the Pacific*. Manila. (RETA 6321 approved on 6 June 2006, for $8.67 million).

(iii) **Construction quality**. The Government through the EA will ensure that the Project is carried out in accordance with the applicable technical specifications and design, and that the construction supervision, quality control, and project management of the Project are performed in accordance with applicable standards and best international practices.

(iv) **Road safety**. The Government through the EA will ensure that civil works contracts will include contractor's obligation to comply with road safety measures. The Government shall cause Uzavtoyul to monitor and report the accident rate and traffic volume after commencement of the operation of the project road.

(v) **Environment**. The Government through the EA will ensure that potential adverse environmental impacts arising from the Project are minimized by implementing all the mitigation measures presented in the IEE and summary IEE (SIEE). The Government will also ensure that the design, construction, and operation of the Project are in accordance with ADB's *Environment Policy* and the Government's environmental laws and regulations The Government will ensure and will cause the EA to ensure that:

(a) The PIU head will have access to sufficient resources to implement and record the implementation of the EMP prepared for the purposes of the Project, under the guidance of the State Committee for Environmental Protection.
(b) The PIU with the assistance of the project management and supervision consultant prepares semiannual environmental reports and submits to ADB, within 3 months of the close of each half of the calendar year, from the start of project implementation and until completion of the Project. The report will include, among other things, a review of progress made on environmental measures detailed in the IEE, EMP, and monitoring thereof; and problems encountered and remedial measures taken.
(c) Detailed engineering designs, civil works, and other contracts for the project facilities incorporate applicable environmental measures identified in the IEE, SIEE, and EMP.
(d) Civil works contractors are supervised to ensure compliance with the requirements of the IEE, SIEE, and EMP.

(vi) **Anticorruption**. The Government shall comply with, and shall ensure that the EA complies with, ADB's *Anticorruption Policy*. The Government, consistent with its commitment to good governance, accountability and transparency, agrees (a) that ADB has the right to investigate, directly or through its agents, any alleged corrupt, fraudulent, collusive or coercive practices relating to the Project; and (b) to cooperate fully with any such investigation and to extend all necessary assistance, including providing access to all relevant books and records, as may be necessary for the satisfactory completion of any such investigation. In addition, the Government shall (a) conduct periodic inspections on the contractors' activities related to fund withdrawals and settlements; (b) ensure that all contracts financed by ADB in connection with the Project include provisions specifying the right of ADB to audit and examine the records and accounts of all contractors, suppliers, consultants, and other service providers as they relate to the Project; and (c) the construction supervision consultant shall verify the contractors' invoices in accordance with working drawings and contract specifications. The Road Fund will announce the Project and business

opportunities associated with the Project, including the applicable tender process, on its web page which is currently under MOF's website.

(vii) **Project monitoring, review, and reporting**. The Government, through the EA, will carry out benefit monitoring and evaluation of the Project in accordance with the design and monitoring framework agreed between the Government and ADB.

(viii) **Labor, gender, health, and social protection**. The Government, through the EA, will include a specific provision in bidding documents to ensure that civil works contractors (a) comply with applicable core labor standards, labor laws, and incorporate applicable workplace occupational safety norms; (b) do not differentiate payment between men and women for work of equal value; (c) do not employ child labor in the construction and maintenance activities; (d) eliminate forced or compulsory labor; (e) eliminate discrimination in respect of employment; (f) allow for freedom of association; and (g) to the extent possible, maximize employment of local poor and disadvantaged persons for project construction purposes, provided that the requirements for job and efficiency are adequately met. The Government, through the EA, shall ensure that appropriate entities—for example nongovernment organizations—disseminate information on the risks of sexually transmitted infections, including HIV/AIDS, to the employees of civil works contractors engaged under the Project and to members of the local communities surrounding the project road, particularly females.

(ix) **Land acquisition and resettlement**. The Government will ensure that the Project will neither involve land acquisition nor involuntary resettlement within the meaning of ADB's *Involuntary Resettlement Policy* (1995).

(ix) **Road sector reform**. To ensure that the on-going road sector reforms are aligned with the Project, the Government will keep ADB informed about the progress of road sector reforms included in the Government's Road Development Program 2007–2010 comprising (i) organization of construction and reconstruction of primary highways, (ii) development of modern road infrastructure, (iii) rationalization of financial resources utilization, (iv) improvement of legal and regulatory framework of road construction, (v) measures for improvement of road safety and reliability, and (vi) training for road industry personnel.

(x) **Establishment of the REPC**. The Government shall cause the REPC to be established by the end of June 2008 as an independent legal entity with an equity that is sufficient to maintain a debt to equity ratio of 90 to 10 upon the incurrence of debt in the amount of $55,310,000. The REPC will be a corporate entity owned 100% by the state. The REPC shall have the capacity to own, operate, manage, and provide services for utilizing the road construction and maintenance equipment for road construction, rehabilitation and/or maintenance works in Uzbekistan.

(xi) **Sustainability and transparency of the REPC**. The Government shall cause the REPC (a) to maintain an 80:20 debt-equity ratio and 80% operating ratio by the end of 2009; (b) to set an equipment service charge/fee at the level necessary to ensure its financial viability; and (c) to ensure that its servicing conditions and fee structure are transparent and publicly available, and neither discriminate between state-owned and private road construction enterprises nor between foreign and national companies. The REPC is required to submit

audited project accounts and audited financial statements during project implementation.

B. Conditions for Disbursement

87. No disbursements shall be made from the loan account for purposes of the Project until ADB has received Government's certification, in form and substance satisfactory to ADB, that the PIU has been established, has been adequately equipped and staffed as agreed with ADB, and has become fully operational to implement the Project.

88. No disbursement for road equipment and consulting services for the development of REPC shall be made until (i) the REPC (a) has been established; (b) has equity in an amount that will be sufficient to maintain a ratio of debt to equity no greater than 90 to 10 upon the incurrence of debt in the amount of $53,310,000; (c) has been equipped and staffed as agreed with ADB, and become fully operational to manage the road equipment; and (ii) the relending agreement between MOF and REPC has been duly executed, substantiated with evidence satisfactory to ADB.

VI. RECOMMENDATION

89. I am satisfied that the proposed loan would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve the loan of $75,300,000 to the Republic of Uzbekistan for the CAREC Regional Road Project from ADB's ordinary capital resources, with interest to be determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility; a term of 24 years, including a grace period of 4 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft Loan Agreement presented to the Board.

Haruhiko Kuroda
President

28 November 2007

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
Impact Sustainable economic development and increased domestic and international trade growth	**By 2018**: • Increased transport sector share of gross domestic product from about $900 million (2005 estimate) to $1.8 billion • Increased external trade with Kazakhstan from about $700 million (2006) to $1.5 billion • Increased local trade in the project areas reflected by increased the number of domestic trucks from 1,000 trucks (2007) to 2,000 trucks	• National socioeconomic statistics from Central Statistics Office • Regular classified traffic count	**Assumption** • Government sustains policies conducive to economic growth and remains committed to enhanced policy reform and regional integration
Outcome Improved regional connectivity and an adequate, efficient, and sustainable road network in Uzbekistan	**By 2013:** • Increased total traffic volume of A-380 in Republic of Karakalpakstan from 360 vpd in 2007 to 800 vpd and in Khorezm from 1,900 vpd to 3,600 vpd • Increased number of cross-border trucks on A-380 (Daudata Custom Post) from 10 trucks/day (2007) to 17 trucks/day • Accident rate reduced by 10% on A-380 highway from 50 accidents per year (2007 estimate) • Recommendations for improving road sustainability implemented with road maintenance budget increased from 20% to 30% of the total budget • Road financing plan prepared by the newly developed system	• National, provincial, and district socioeconomic statistics from Central Statistics Office • ADB's project completion report and project performance evaluation report • Periodic classified traffic counts and accident data system • Freight Forwarder Association statistics • Government resolution • Road Fund annual budget • ADB's project performance evaluation report • ADB's project performance evaluation report	**Assumptions** • Increased availability and quality of transport services following improvement of the project road • Improved cross-border facilities and procedures at the border point between Uzbekistan and Kazakhstan • The Road Fund continues constructing remaining sections of the A-380 as scheduled at the same quality as the Project **Risk** • Inadequate financial resources for road maintenance **Assumption** • Government commitment to further reform the road sector and adopt good governance and cost recovery principles

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
	• REPC's financial performance maintained at 80:20 debt-equity ratio and 80% operating ratio	• Financial statement • ADB's project performance evaluation report	
Outputs 1. Reconstructed road sections of A-380 between Guzar and Dautata border	**By 2011:** • 131 km road reconstructed on time, within budget, and meeting technical specifications • Pavement international roughness index of less than 3 m/km	• Consultants' progress reports • ADB review missions	**Assumption** • Timely provision of counterpart resources and support for the Project **Risk** • Road Fund is not familiar with externally funded projects
2. Comprehensive road sector planning and management system introduced at the Road Fund office	• Road sustainability strategy is prepared • Computerized road sector planning and management system installed • Database system developed and tested. • Database manual developed • The system tested • 30 Road Fund staff trained • Long-term system improvement program developed		**Assumptions** • Government is committed to further reform the road sector • Road Fund is committed to improving its planning capacity
3. REPC operational	• Guidance for development of the road equipment company prepared • Business plan prepared • About 300 units of road equipment purchased • 20 staff trained		**Risk** • Government's willingness to move toward privatization of REPC
Activities with Key Milestones **1.0 Road Development Component** 1.1 Recruitment of procurement specialist by end of December 2007 1.2 Recruitment of project management and construction supervision by September 2008 1.3 Award civil works contracts by October 2008 (first package under the Project) 1.4 Completion of civil works by December 2011 **2.0 Road Sustainability Enhancement Component** 2.1 Recruitment of consultants for road sector planning and management system by March 2009 2.2 Consulting services for Road Sector Planning and Management System completed by March 2010 2.3 REPC set up by the Government by end of June 2008 2.4 Recruit consultants for development of REPC by March 2008 2.5 Procurement of equipment completed by March 2009			**Inputs** 1. ADB loan of $75.3 million (OCR) 2. Government counterpart budget of $98.2 million

ADB = Asian Development Bank, km = kilometer, OCR = ordinary capital resources, REPC = road equipment pool company, vpd = vehicles per day.

ROAD SECTOR ANALYSIS

A. Road Network

1. The length of the network by type of road and by category is in Table A2.1. Since March 2006, common use roads or primary roads have been administered and funded by the Republican Road Fund (the Road Fund), under the Ministry of Finance (MOF), and maintained by Uzavtoyul's state-owned enterprises. Responsibility for other roads is split between regional and city authorities, and state and other enterprises. Much of the network was constructed to generous design standards. Most major corridors are dual carriageway. Volume capacity ratios are relatively low, with a high proportion of light vehicles. However, some international roads have high traffic flows.

Table A2.1: Road Network

Road Classification	Length (km)	Proportion (%)
A. Common Use		
International	3,626	2.0
National	16,909	9.2
Regional	21,995	11.9
Subtotal (A)	**42,530**	**23.1**
B. Rural and Urban Roads		
Rural roads	59,267	32.2
Rural streets	52,152	28.4
Urban roads	17,807	9.7
Others	12,097	6.6
Subtotal (B)	**141,323**	**76.9**
Total	**183,853**	

km = kilometer.
Note: Numbers may not sum precisely because of rounding.
Source: The Road Fund.

B. Road Corridors

2. There are 20 corridors designated in international agreements, but five principal corridors are used by road transporters (Table A2.2).

Table A2.2: Primary International Road Corridors

1.	RC1: Europe, Russian Federation, PRC, Kazakhstan and Kyrgyz Republic) Chimkent (Kazakhstan)–Gisht Kuprik/Yallama–Tashkent–Samarkand–Bukhara–Alat–Farap (Turkmenistan)–Iran and Turkey
2.	RC2: Tashkent–Kokand–Andijan–Dustlik–Osh (Kyrgyz Republic)–Kashgar (PRC)
3.	RC3: Samarkand–Karshi–Termez–Saryasiya–Dushanbe (Tajikistan)–Termez–Ayritom–Hayratan (Afghanistan)–Iran and Pakistan
4.	RC4: Samarkand–Jartepa–Panjikent (Tajikistan)
5.	RC5: Bukhara–Nukus–Kungrad–Beyneu (Kazakhstan)–Astrakhan (Russian Federation).

PRC = People's Republic of China, RC = road corridor.
Source: Uzbekistan Transport Sector Strategy (2006–2020), Consultant's Final Report.

3. The most important is north–south corridor road corridor (RC) 1: M39 Chimkent–Tashkent–Samarkand, M37/M371 to Bukhara and south to the Turkmenistan border at Alat. Corridor RC2, although important for domestic traffic, is less so for international/transit traffic. After the opening in 2000 of the twin tunnels on the A-373 under the Kamchik Pass, most Ferghana Valley traffic no longer transits northern Tajikistan. International traffic on corridor RC3 has declined because of security and other issues with Tajikistan and because of restrictions on traffic to and from Afghanistan (these were removed late 2005). Some sections of the Karshi–Surkhaendarya Valley route are difficult for heavy vehicles. The Bukhara-Karshi link is important for traffic through Farap (Turkmenistan) to Dushanbe. Corridor RC4 carries little transit and international traffic because of the limited hinterland on the Tajik side. It is predominantly used for local trade and for activities relating to mining operations higher up the valley in Tajikistan.

C. Issues

1. Road Condition and Maintenance

4. Some sections of the international corridors are in poor condition. Improving the international corridors is a Road Fund priority. Work in progress/planned will bring most sections up to standard by 2011. International corridors are generally also poor in neighboring countries. Corridor development requires international cooperation.

5. Road maintenance has been underfunded. Many sections of primary roads are in a deteriorated condition and some may require reconstruction. Expenditure on periodic and routine maintenance is well below that necessary for long-term network sustainability. Non-common use and some urban roads are particularly at risk: some have no source of funding for maintenance, as they were previously under the responsibility of enterprises now closed. Although ad hoc surveys are made by regional Uzavtoyul offices, there is no network condition database for roads or bridges. This is urgently required. Only with comprehensive data can the extent of the maintenance backlog be quantified and a prioritized remedial maintenance program be developed.

6. The road system is not user friendly: signposting of directions and distances and lane marking is poor, and pedestrians are inadequately protected. Some routes, e.g., Karshi–Bukhara and Namangan–A-373, are particularly dangerous, with vertical curvature resulting in numerous blind hillcrests on fast sections. These are unmarked, with no warning signs or road markings to limit overtaking. Inexpensive work here could save lives. Accident data readily available in most countries—the number of fatalities, serious and slight injuries—was unobtainable and the seriousness of the problem is unclear. Attention needs to be given to data collection and analysis to facilitate prioritizing mitigation measures. With low traffic volumes, speeding, even in the centre of urban areas, is a major problem. Speed limits need to be reviewed for adequacy, then be more clearly signposted and be enforced.

2. Transit Traffic

7. The substantial decline in transit traffic since 1998 suggests the potential to expand transit traffic. The decline that was common throughout Central Asia resulted in a general reduction of international trade. Political and security problems since 1998 have resulted in border closures or restrictions limiting recovery. The key challenge is to redevelop transit traffic.

8. It is important for trade security to have access to alternative international corridors. Options to the north are limited, with transit through Kazakhstan unavoidable. If the improved situation in Afghanistan is sustained, further options are available, such as the Termez-Herat to

Islam Qala route for transit to Iran/Turkey bypassing Turkmenistan. The development of links through corridor RC2 using Irkestan or the Kulna Pass to the Karakorum Highway would reduce dependence on Kazakhstan for traffic to the People's Republic of China via Khorgos.

9. There is international competition for transit traffic. The Niznhy Pianj–Dushanbe–Osh–Bishkek–Almaty corridor could in future compete with the Dushambe/Termez–Tashkent–Almaty corridor. Improvement of the Osh–Bishkek route has already reduced the need for Kyrgyz traffic to transit Uzbekistan, even in winter.

3. Transit Costs

10. A key factor in the economics of a corridor is the level of transit fees, requiring a balance between fully recovering the costs occasioned by transiting vehicles and discouraging use of the corridor. Uzbekistan is in a favorable position, with multiple corridors, but alternatives are being developed.

11. Fees for foreign transporters are quite high: $400 for transit, plus $90 for insurance, although Commonwealth of Independent States transporters have lower preferential rates. With a market share for Uzbek transporters of only around 25% of international traffic and over 80% of transit traffic being carried in Turkish and Iranian trucks, substantial revenue is generated from foreign transporters. Neighboring countries also have high fees, and the combined fees significantly increase transport costs in the region. There has been a decline of around 60% in the number of transiting Turkish and Iranian trucks. While this is partly due to economic changes, with Kazakhstan for example sourcing more traffic via the Russian Federation, transporters consider the high transit fees to have been a factor. There are market pressures on transit fees: transporters will use the most cost-effective routes.

4. Border Crossing

12. Despite significant improvements, transit trade facilitation remains complex and time-consuming, especially for vehicles without Transports Internationaux Routiers (TIR) Carnets.[1] The combination of transposing documentation at each border, different documentary requirements, a high percentage of physical examination of goods and payment of transit and other fees all mean border delays. Despite substantial investment in trade facilitation and customs cooperation programs, improvements in border processing over the last 10 years have been limited. The Customs Office has an investment plan in border post development at key crossings.

D. Progress on Road Sector Reform

13. Road sector reform has been progressing significantly since 2003. Reform measures include (i) sector unbundling by separating road transport operation and road construction; (ii) institutional reform by creating the Uzbek Association of Transport and Transport Communications, the Road Board, and the Road Fund, and by restructuring Uzavtoyul; and (iii) promotion of competitive bidding for road construction, reconstruction, and repair works.

14. **Establishment of Uzavtoyul and the Road Fund**. The Road Fund, an independent state financial institution, was established in 1993 to ensure financing for the design,

[1] The TIR (Transports Internationaux Routiers) system relies on a document known as the "TIR Carnet" which is printed and distributed by the Geneva-based International Road Transport Union for issue to the carnet users by the national guarantee associations which are authorized for this purpose by the contracting parties' administrations.

construction, reconstruction, repair, and maintenance of common use roads, as well as to ensure efficient functioning of the road sector. [2]

15. The Government reorganized the state joint stock company (SJSC) on construction and operation of roads to become SJSC Uzavtoyul[3] to improve the road construction management system; further develop modern network of common use roads; reduce redundant management structures; and enhance the productivity of resources allocated for maintenance, repair, reconstruction, and construction of common use roads. The provincial and district-based road construction organizations were set up under Uzavtoyul. The Road Fund under MOF was set up, replacing the previous one. The function of collection and control of funds of the Road Fund was assigned to the State Tax and Customs Committees.

16. Uzavtoyul was reorganized in 2003, pursuant to presidential decree UP-3292 (2003), to ensure efficient maintenance, repair, reconstruction, and construction of primary roads.[4] The Road Fund's function was expanded to cover outsourcing of reconstruction and repair works of common use roads through competitive bidding to ensure effective utilization of government finances and to enhance the efficiency.[5]

17. **Outsourcing of Road Works**. To ensure quality control of road construction and maintenance, outsourcing for reconstruction and repair works through competition was introduced. [6] The Government also improved the procedure for design, construction, and reconstruction of primary roads; and optimized the Road Fund's financing.[7] Performance-based contracts were used for routine maintenance works.

18. **Quality Control of Road Works**. The Government also established a classification of repair and maintenance works for common use roads, and a mechanism for quality control and acceptance of roadworks.[8]

19. **Restructuring of Uzavtoyul**. In 2006, Uzavtoyul was assigned as an authorized agency of state administration of primary roads. Specialized enterprises responsible for maintenance of international and national roads were set up under Uzavtoyul. [9] Territorial subsidiary road construction enterprises under Uzavtoyul were also reorganized. Furthermore, specialized maintenance enterprises to maintain bridge facilities on the primary roads and other specialized enterprises were also established.

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[2] Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. 334 dated 5 July 1997 on establishment of the Road Fund.

[3] Decree of the President of the Republic of Uzbekistan UP-3292 dated 19 August 2003 on improvement of the management system for construction and operation of common use roads.

[4] Resolution of Cabinet of Ministers of the Republic of Uzbekistan No. 361 dated 21 August 2003 on issues of activity organization of SJSC Uzvatoyul and the Road Fund under MOF.

[5] Decree of the President of the Republic of Uzbekistan PP-299 dated 3 March 2006 on measures for strengthening control over volumes and quality of road construction works and approval of the roads construction program in 2006.

[6] Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. 266 dated 1 January 2006 on improvement of organization and assurance of quality control in construction and operation of common use roads.

[7] Resolution of the Republic of Uzbekistan PP-499 dated 25 October 2006 on measures for improvement of the procedure for design, construction, and reconstruction of common use roads.

[8] Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. 266 dated 1 January 2006 on improvement of organization and assurance of quality control in construction and operation of common use roads.

[9] Resolution of the President of the Republic of Uzbekistan No. 511 dated 14 November 2006 on measures for improvement of the organizational structure of SJSC Uzavtoyul.

20. **Investment Plan**. The concept for development of common use roads of the Republic of Uzbekistan in 2007–2010 and long-term perspective was approved [10] to ensure further development of common use roads that meet high international requirements and standards; ensure all-year efficient international, transit and intra-republican freight, and passengers road transport services; and to optimize economic relations between participants of the investment process in road construction

21. **Separation of Authority**. Separation of authority in managing primary roads was established in 2006. The Road Fund is responsible for budgeting for international and national primary roads. Responsibility for managing local primary roads falls under district or regional *hokimiyats* (governments).

E. Planned Road Sector Reforms

22. A new road law introducing toll roads and private sector operations in road operations was enacted in 2007. Table A2.3 outlines measures to be undertaken (2007–2010) by relevant ministries to improve the road sector in Uzbekistan and support provided by the Project.

Table A2.3: Government's Road Sector Reforms and Plans and Support of the Project

No.	Reforms and Plans	Support of the Project
1.	Organization of construction and reconstruction of primary roads	• Study on road sustainability and road sector institutions • Development of road database • Exposure to best practice in procurement and project implementation • Setup of REPC with a set of road equipment
2.	Development of modern road infrastructure	• Reconstruction of 131 km of A-380 highway • Medium-term investment plan. • Provision of road equipment
3.	Rationalization of financial resources utilization	• Study on road sector financing, possible application of toll roads, and user charges • Introduction of computerized road asset management system • Set of database management system • Standard for costing of roadworks
4.	Improvement of legal and regulatory framework of road construction	• Ongoing by the Government (a new road law was approved by parliament and the senate in 2007)
5.	Measures for improvement of road traffic safety and reliability	• Ongoing by the Government (road safety action plan developed, interagency effort set up, black spot analysis carried out)
6.	Training of personnel for road sector industry	• In-house training for Road Fund staff on HDM-4 • Training and education

Sources: The Road Fund (2007) and Asian Development Bank.

[10] Resolution of the President of the Republic of Uzbekistan PP-535 dated 20 December 2006 on measures for development of common use roads in 2007–2010.

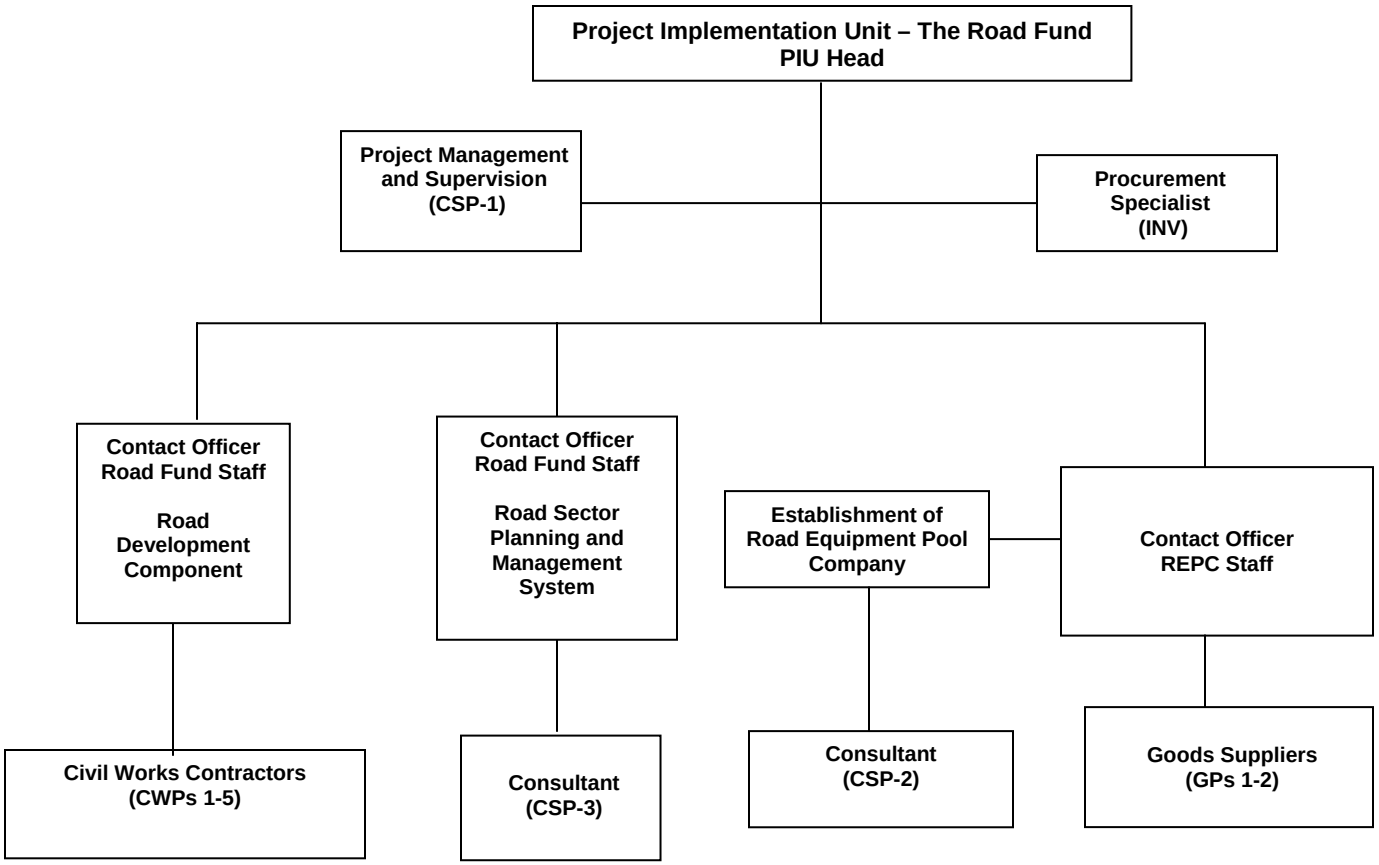
DETAILED COST ESTIMATES BY FINANCIER

($ million)

Item	Cost	ADB		Government	
		$	% of Cost Category	$	% of Cost Category
A. Investment Costs					
1. Road Development Component					
a. Civil Works	61.60	9.20	15	52.40	85
b. Consulting Services					
(i) Procurement Specialist	0.24	0.24	100	0.00	0
(ii) Project Management and Supervision	1.97	1.97	100	0.00	0
2. Road Sector Sustainability Component					
a. Procurement of Road Equipment[a]	55.10	55.10	100	0.00	0
b. Consulting Services					
(i) Road Sector Planning and Management System	1.35	1.35	100	0.00	0
(ii) Development of REPC[a]	0.21	0.21	100	0.00	0
3. Taxes and Duties[b]	22.20	0.00	0	22.20	100
Subtotal (A)	**142.67**	**68.07**		**74.60**	
B. Recurrent Costs[c]	**0.55**	**0.55**	**100**	**0.00**	**0**
Total Base Costs	**143.22**	**68.62**		**74.60**	
C. Contingencies[d]	**25.10**	**6.70**	**27**	**18.40**	**73**
D. Financing Charges During Implementation[e]	**5.10**	**0.00**	**0**	**5.10**	**100**
Total Project Costs	**173.42**	**75.32**		**98.10**	
% Total Project Costs	**100**	**43**		**57**	

ADB = Asian Development Bank, REPC = road equipment pool company.
[a] Onlending to REPC.
[b] 20% taxes for local cost portions of civil works and 20% import duties for equipment.
[c] Recurrent costs include project implementation unit-related expenses and auditors.
[c] 10% contingency for civil works, 5% for equipment, and price contingencies.
[d] Interest during construction and commitment charges.
Source: Asian Development Bank estimates.

PROJECT MANAGEMENT ORGANIZATION



CSP = consulting services package, CWP = civil works package, GP = goods package, INV = individual consultant, PIU = project implementation unit, REPC = road equipment pool company.
Source: The Road Fund.

FUND FLOW

Figure 5.1: Fund Flow – Civil Works

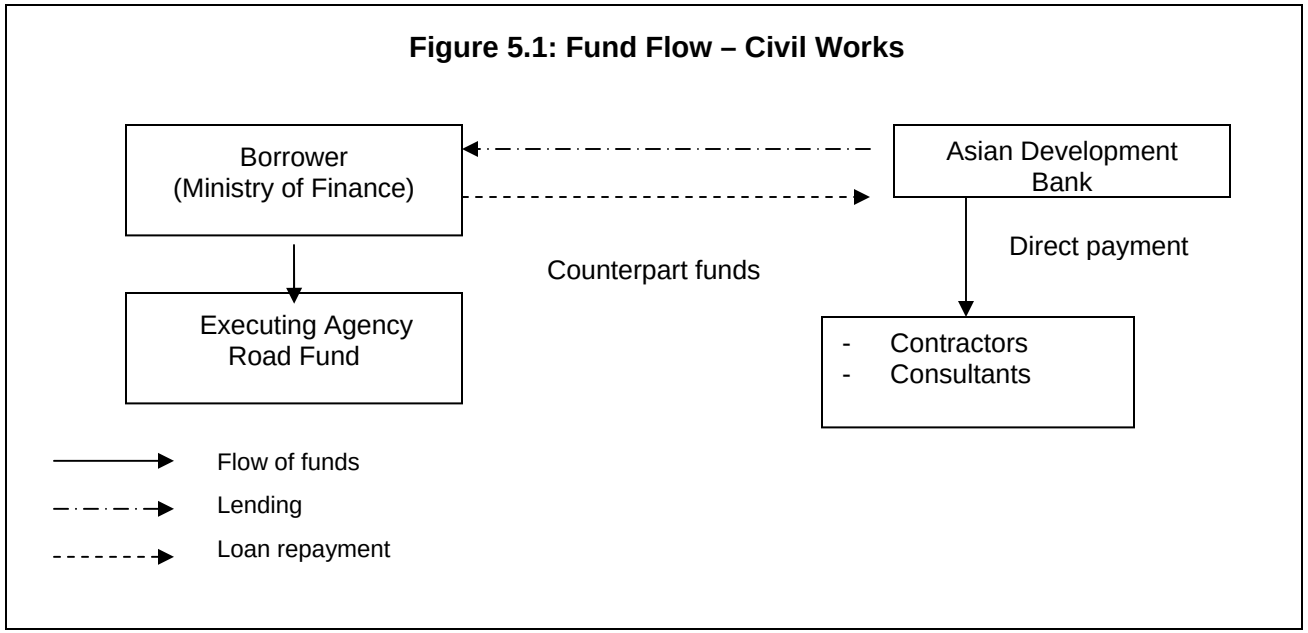
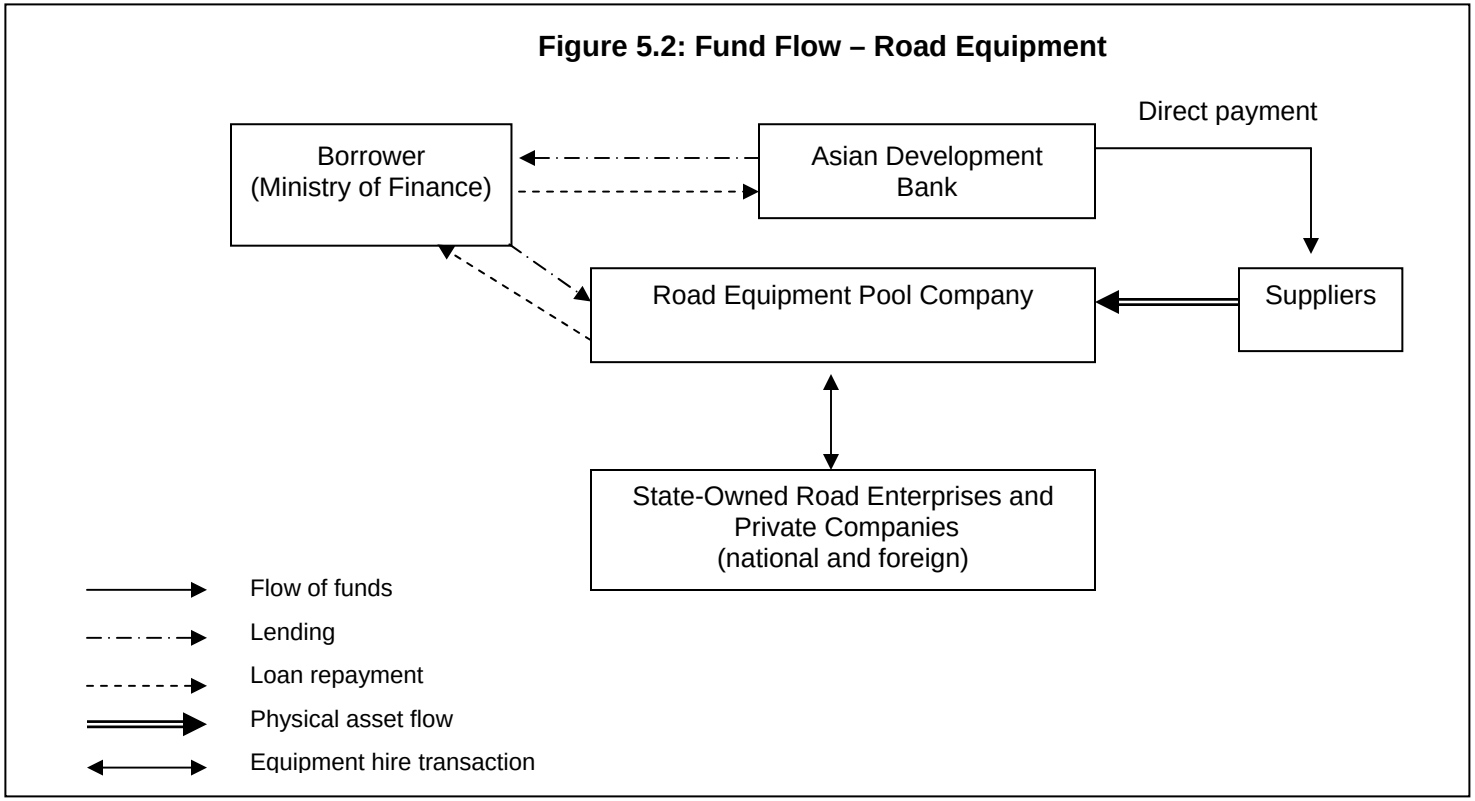
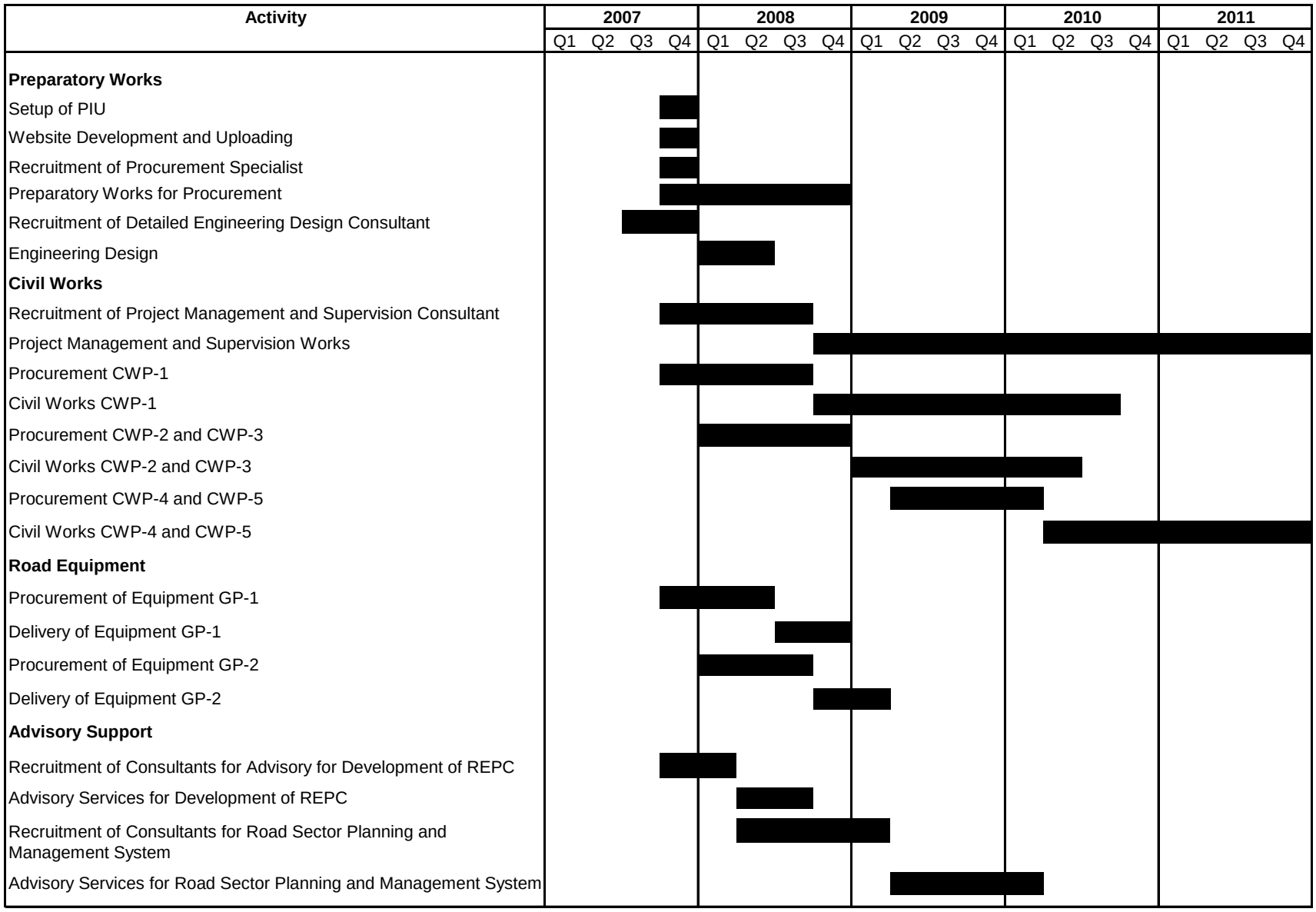


Figure 5.2: Fund Flow – Road Equipment



PROJECT IMPLEMENTATION SCHEDULE



CWP = civil works package, GP = goods package, PIU = project implementation unit, REPC = road equipment pool company.
Source: Asian Development Bank estimates.

PROCUREMENT PLAN AND TENTATIVE CONTRACT PACKAGES

Project Information

Country	Republic of Uzbekistan
Name of Borrower	Ministry of Finance
Project Name	CAREC Regional Road Project
Loan Reference	TBD
Date of Effectiveness	TBD
Project Cost Amount ($ million)	$173.5 million
Of which ADB Loan Amount ($ million)	$75.3 million
Executing Agency	The Road Fund
Approval Date of Original Procurement Plan	TBD
Approval of Most Recent Procurement Plan	TBD
Publication for Local Advertisement	TBD
Period Covered by this Plan	TBD

CAREC = Central Asia Regional Economic Cooperation, TBD = to be determined.
[a] The plan will be updated annually, on rolling 18-month basis, on the anniversary of the date of loan effectiveness.

Procurement Thresholds, Goods and Related Services, Works and Supply & Install

Methods	**Threshold**
International Competitive Bidding (works)	> $2,000,000
International Competitive Bidding (goods)	> $1,000,000
National Competitive Bidding (works)	</= $2,000,000
National Competitive Bidding (goods)	</= $1,000,000
Shopping (works)	</= $100,000
Shopping (goods)	</= $100,000
Exceptional Methods	

Procurement Thresholds, Consultants Services

Methods	**Threshold**
Quality- and Cost-Based Selection (QCBS)	> $1,000,000 by Full Technical Proposal </= 1,000,000 by Simplified Technical Proposal </= $600,000 by Biodata Technical Proposal
Consultants Qualifications Selection (CQS)	</= $200,000 (example: external auditors)
Least-Cost Selection (LCS)	</= $100,000 (example: external auditors)
Individual Consultant Recruitment	Individual consultant (International Procurement Specialist). Justification: A Procurement Specialist is required to help the Road Fund undertake advance actions for procurement of contractors and consultants

Table A7.1: List of Contract Packages in Excess of $100,000 Goods, Works, and Consulting Services

Ref	Contract Description	Estimated Costs ($ million)[a]	Procurement Methods	Expected Date of Advertisement	Prior Review Y/N	Comments
1.	Civil Works	61.6	ICB	November 2007	Y	Financed by ADB and Government of UZB
2.	Goods	55.1	ICB	November 2007	Y	Financed by ADB
3.	Consulting Services	4.53	QCBS	November 2007	Y	Financed by ADB

ADB = Asian Development Bank, ICB = international competitive bidding, N = no, QCBS = quality- and cost-based selection, UZB = Uzbekistan, Y = yes.
[a] Base cost only.
Source: The Road Fund.

Table A7.2: Proposed Detailed Contract Packaging

Ref	Contract Description	Unit	Estimated Costs ($ million)	Mode of Procurement	Duration (months)	Contract Starting	Contract Completion	Responsible Agency
A.	**Civil Works**	**Length (km)**						
1.	CWP-1: Km 876-916	40	14.0[a]	ICB	24	Oct 2008	Sep 2010	Road Fund
2.	CWP-2: Km 490-510	20	9.6	ICB	18	Jan 2009	June 2010	Road Fund
3.	CWP-3: Km 510-530	20	9.7	ICB	18	Jan 2009	June 2010	Road Fund
4.	CWP-4: Km 530-555	25	12.1	ICB	21	April 2010	Dec 2011	Road Fund
5.	CWP-5: Km 555-581	26	16.2	ICB	21	April 2010	Dec 2011	Road Fund
	Total Civil Works	**131**	**61.6**					
B.	**Goods**	**Set**						
1.	GP-1	163	32.6	ICB	6	July 2008	Dec 2008	REPC
2.	GP-2	136	22.4	ICB	6	Oct 2008	March 2009	REPC
	Total Goods	**299**	**55.1**					
C.	**Consulting Services**	**Person-month (total)**						
1.	INV: Procurement Specialist	12	0.24	SSS	12	Jan 2008	Dec 2008	Road Fund
2.	CSP-1: Project management and construction services	232	1.97	QCBS	39	Oct 2008	Dec 2011	Road Fund
3.	CSP-2: Development of REPC	19	0.21	QCBS	6	April 2008	Sep 2008	Road Fund
4.	CSP-3: Road Sector Planning and Management	97	1.35	QCBS	10	April 2009	March 2010	Road Fund

Ref	Contract Description	Unit	Estimated Costs ($ million)	Mode of Procurement	Duration (months)	Contract Starting	Contract Completion	Responsible Agency
	Total Consulting Services	**360**	**3.77**					
	Total Contract Packages		**120.47**					

CSP = consulting service package, CWP = civil works package, GP = goods package, INV = individual consultant, ICB = international competitive bidding, km = kilometer, QCBS = quality- and cost-based selection.
[a] This package comprises surface layer work, road furniture, road signing and marking.
Source: The Road Fund.

OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

A. Procurement Specialist

1. Introduction

1. A procurement specialist will be required to assist the Road Fund, the Project's Executing Agency (EA), in procurement of civil works for reconstruction of 131 kilometers (km) of the A-380 Guzar–Bukhara–Nukus–Dautata, procurement of road reconstruction and maintenance equipment, and recruitment of consulting services for the Project (Table A8.1).

Table A8.1: Proposed Contract Packages

Package	Number of Package	Procurement Mode
Civil works package	5	ICB
Equipment	2	ICB
Consulting services	3	QCBS

ICB = international competitive bidding, QCBS = quality- and cost-based selection.
Source: The Road Fund.

2. Scope of Services

2. The procurement specialist will be responsible for overall coordination of procurement activities carried out under the Project, as well as procurement on project level and shared activities, and ensuring that procurement is carried out in compliance with the procedures agreed with the Asian Development Bank (ADB).

3. The tasks of the procurement specialist will include but not be limited to the following:

(i) Undertake procurement activity in accordance with the draft procurement plan, which provides the estimated costs and basis for the procurement methods for each procurement item under the Project.
(ii) Prepare technical specifications for procurement of good and services together with the EA.
(iii) Prepare bidding documents.
(iv) Prepare tender notices and invitations for bids.
(v) Receive, open, and assist in evaluation of bids; and finalize contracts.
(vi) Administer contracts to ensure compliance with the contract conditions, payment terms, variations, dispute resolution, and monitoring, etc.
(vii) Maintain all records relating to procurement.
(viii) Maintain a separate record relating to complaints and their redressing.
(ix) Periodically update the procurement plan in agreement with the EA to reflect the actual project implementation needs and improvements in institutional capacity.
(x) Prepare procurement implementation reports in accordance with the reporting requirement acceptable to ADB.
(xi) Assist the EA in its procurement activities and help it in develop reports in the agreed format.
(xii) Obtain all necessary clearances within the Government and ADB.
(xiii) Keep all procurement records in proper order, acceptable to the EA and ADB.
(xiv) Assist the ADB staff during procurement post-review missions.
(xv) Contribute to the preparation of project documents, studies, and materials for ADB and the EA.

(xvi) Provide partial backup, be familiar, and participate in the activities of the project implementation unit (PIU) financial management officer in all areas, including preparation of financial and status reports, maintaining financial management system, preparation of document for payment, book and records keeping, etc.
(xvii) Train EA staff on procurement.

4. If so required by the employer, the procurement specialist will provide any of the following as additional services: (i) prepare reports, additional contract documentation, and/or review and comment on the contractor's proposals, as may be required for the successful completion of the Project; and (ii) provide any other specialist services as may be required from time to time.

5. The employer will authorize all additional services, other than minor extras that do not materially affect the scope of the procurement work, at the rates mutually agreed upon when the services require the use of specialists not listed in the contract.

3. Input

6. The services will be carried out by an individual international consultant, to be selected by the Road Fund in accordance with ADB's *Guidelines on the Use of Consultants* (2007, as amended from time to time). A total of 12 person-months of international consultant inputs are estimated for the procurement activities. He/she should be a procurement specialist, preferably with experience of ADB guidelines on procurement of civil works, goods, and services. The services will be implemented over a 12-month period.

4. Deliverables

7. The consultant will submit the reports listed in Table A8.2.

Table A8.2: Required Reports

Type of Report	Recipient	
	Road Fund	ADB
Inception Report (month 1)	6	2
Progress report (monthly)	6	2
Draft Procurement Report	6	2
Final Procurement Report	6	2

ADB = Asian Development Bank.
Source: The Road Fund.

B. Development of Road Equipment Pool Company

1. Introduction

8. A team of consultants is required to help the road equipment pool company (REPC) start operating the unit. The assistance will be provided to ensure the viability and sustainability of the REPC in developing an efficient equipment management mechanism; introducing proper administrative, accounting, and financial procedures; establishing an equipment costing system; and providing on-the-job training for operators and workshop personnel.

2. Scope of Services

9. The scope of services will include the following:

(i) Draft or review the company's charter.

(ii) Prepare business management plan and human resources strategy.
(iii) Prepare financial projection and financial management plan.
(iv) Prepare marketing strategy and plan.
(v) Provide management assistance for the development of hiring and cost control systems (including the calculation of rentals), maintenance systems, and equipment replacement strategies and processes.
(vi) Prepare model contracts.
(vii) Procure suitable computer software for management system, together with any necessary computers and associated hardware.
(viii) Provide training in business development, financial, legal, and marketing.
(ix) Prepare business cycle manual in English and Russian.

3. Input

10. The services will be carried out by consulting firms to be engaged in accordance with ADB's *Guidelines on the Use of Consultants.* They will require a total of about 5 person-months of international consultants and 14 person-months of national consultants. The services will be implemented over a 6-month period. The international consultants will have expertise in the fields of management and marketing, and finance. The national consultants will have expertise in the fields of marketing, financial analysis, legal specialist, and mechanical engineering.

4. Deliverables

11. The Consultant will submit the reports listed in Table A8.3.

Table A8.3: Required Reports

Type of Report	Recipient	
	Road Fund and REPC	ADB
Inception Report (month 1)	6	2
Progress Report (monthly)	6	2
Draft Final Report	6	2
Final Report	6	2

ADB = Asian Development Bank, REPC = road equipment pool company.
Source: The Road Fund.

C. Project Management and Construction Supervision

1. Introduction

12. The Project will involve improvement of the road sections in Table A8.4.

Table A8.4: Proposed Civil Works

Package	Length (km)	Estimated Contract Value [a] ($ Million)	Procurement Mode
CWP-1: Km 876–916	40	14.0	ICB
CWP-2: Km 490–510	20	9.6	ICB
CWP-3: Km 510–530	20	9.7	ICB
CWP-4: Km 530–555	25	12.1	ICB
CWP-5: Km 555–581	26	16.2	ICB

ICB = international competitive bidding, Km = kilometer, CWP = civil works package.
[a] Base cost only.
Source: The Road Fund.

13. Civil works will be carried out based on the International Federation of Consulting Engineers (FIDIC) contract. A consultant team will be engaged for the Project to perform as the engineer. The consultant will administer the construction contracts and ensure that the contractual clauses for both quality and specifications of work are complied with, and the works are constructed in accordance with the provisions of the construction contracts, The engineer's representative will be a full-time professional resident engineer in the project area under each package, in accordance with the provisions of the construction contracts.

14. The supervision consultant, while supervising construction works, will make all necessary arrangements for quality control and implementation of the works. The consultant in consultation with the Road Fund will make all engineering decisions required for the successful and timely completion of the construction contracts, and have all the powers defined as those of the engineer.

15. The engineer will carry out a critical review of the detailed design prior to the commencement of works. This review will be carried out immediately after the services commence. Upon completion of the review, the supervision consultant will prepare a report, setting out all findings and recommendations for correcting any defects or omissions identified. Notwithstanding these, the supervision consultant will immediately inform the employer of any defect or omissions that may have a substantial impact on the Project at the time the defect or omission is uncovered. The consultant will submit four copies of the review report to the employer.

2. Scope of Services

16. The tasks of the consultant will include but not be limited to the following:

(i) Ensure that the construction methods proposed by the contractor for carrying out the works are satisfactory.
(ii) Inspection of contractor's construction equipment and safety of the works, property, personnel, and general public.
(iii) Ensure that road safety design requirements are implemented in accordance with the contract.
(iv) Establish efficient procedures for verifying contractor performance and reporting progress and problems in a timely manner, including quality control reports, quantity survey records, requests for variation or change orders, and contractor's claims and invoices.
(v) Undertake project performance monitoring and evaluation in accordance with the project framework and ADB's *Project Performance Management System Handbook*, including the baseline data survey and the following annual survey and reporting up to project completion.
(vi) Ensure that the contractor does not involve child labor in the execution of the civil works contracts in accordance with the provisions of the contract agreement.
(vii) Undertake supervision works; and prepare and issue the following reports, whose format and content should be acceptable to the employer: an inception report, a brief monthly progress report, a detailed quarterly report, and a detailed project completion report.
(viii) Check that "as built" drawing is prepared for all works as construction processes.
(ix) Carry out the following duties related to environmental mitigation, with particular reference to the technical requirements of sound environmental standards on the basis of ADB's *Environmental Guidelines for Selected Infrastructure development Projects (Highways and Roads)* during construction: (a) ensure that all the environmental mitigation measures required to be implemented are incorporated

in the contract documents; (b) supervise and monitor the implementation of environmental mitigation measures required; and (c) in the event of occurrence of any unexpected environmental impacts, coordinate with the PIU to provide necessary mitigation measures for submission to the Road Fund and ADB.

(x) Monitor contractors' compliance with and performance of required actions regarding HIV/AIDS and human trafficking in accordance with the contract documents, such as awareness and education of laborers and workers.

(xi) Prepare draft project completion report at 90% physical completion.

(xii) Prepare final project completion report 2 months after physical completion of the Project, or on an alternative date as agreed with the Road Fund.

(xiii) Process interim and final payments to the contractors.

(xiv) Other detailed requirements are provided separately.

17. If so required by the employer, the supervision consultant will provide any of the following as additional services: (i) prepare reports, including technical appraisals, additional contract documentation, and/or review and comment on the contractor's proposals, as may be required for the successful completion of the Project; and (ii) provide any other specialist services as may be required from time to time.

18. The employer will authorize all additional services, other than minor extras that do not materially affect the scope of the supervision work, at the rates established in the construction supervision contract, or at the rates mutually agreed upon when the services require the use of specialists not listed in the contract.

3. Input

19. The services will be carried out by consulting firms to be engaged in accordance with ADB's *Guidelines on the Use of Consultants.* The services will require a total of about 57 person-months of international consultants and 175 person-months of national consultants. They will be implemented over a 42-month period. The international consultants will provide the following experts: (i) chief resident engineer, (ii) contract specialist, (iii) material engineer, and (iv) highway engineer. The national consultants will have the following expertise: (i) assistant chief resident, (ii) highway engineer, (iii) bridge engineer, (iv) road design engineer, (v) materials engineer, (vi) drainage engineer, (vii) environmental specialist, and (viii) quantity surveyors.

4. Deliverables

20. The consultant will submit the reports listed in Table A8.5.

Table A8.5: Required Reports

Type of Report	Recipient	
	Road Fund	ADB
Inception Report (month 1)	6	2
Progress report (monthly)	6	2
Draft Procurement Report	6	2
Final Procurement Report	6	2

ADB = Asian Development Bank.
Source: The Road Fund.

D. Road Sector Planning and Management System

1. Introduction

21. The Road Fund has identified its limitations regarding road and highway planning in general, and prioritization of maintenance works in the face of budgetary constraints in particular. Since becoming operational in March 2006, the Road Fund has been primarily concerned with the procurement of roads works contracts. The programming of works is carried out based on ad hoc surveys, and does not reflect road traffic and road condition throughout the network adequately. Road Fund staff has been introduced to the asset management approach based on the Highway Development and Management Model 4 (HDM-4) widely utilized in the developing world, so it is now considered appropriate to install modern transport planning and highway engineering approaches.

22. A team of consultants is required to help strengthen the Road Fund's capacity in road sector planning and management, and prepare it to adopt a modern asset management approach to one of Uzbekistan's most valuable capital assets. The Road Fund will establish a roadworks planning unit after completion of this support component.

23. The objective of the technical assistance is to enable the Road Fund to raise the general standards of condition and capacity of the network through utilization of: (i) systematic road traffic censuses, and transport planning and highway techniques; (ii) scientifically-based monitoring of road surface condition (roughness) and roadbed conditions (structural number) on a regular basis so that the status of the entire network is known with a reasonable degree of certainty on a continuous basis; (iii) prioritization of road periodic maintenance and construction works utilizing HDM-4, in light of current and projected available financial resources to be carried out every 3 years on a rolling basis; and (iv) appropriately designed and maintained databases to support the above activities.

2. Scope of Services

24. The consultants will carry out the following tasks:

(i) Review the current road sector planning and financing system.
(ii) Assess the Road Fund financing system and study the impact of possible application of road user charges, tolling system, and asset management systems including, in the longer term, public-private partnerships.
(iii) Assess institutional framework of the road sector and prepare an institutional development strategy focusing on (a) the need for a road agency, and (b) ways of introducing private sector competition in the provision and maintenance of roads.
(iv) Introduce computerized road sector planning and management based on HDM-4.
(v) Introduce transport planning tools, including transport models, to address emerging road capacity constraint issues.
(vi) Develop database systems to support (iii) and (iv) above.
(vii) Develop manual for systems application.
(viii) Purchase and set up the systems.
(ix) Undertake a pilot data collection exercise, including appraisal utilizing HDM-4 and the transport model for selected road links.
(x) Provide staff training and study tours to transport planning and highway engineering centers of excellence.
(xi) Prepare long-term program for countrywide application of road condition and road link flow databases.

(xii) Formalize transport planning and highway engineering and planning through the establishment of a Road Planning Unit.

3. Input

25. The services will be carried out by consulting firms to be engaged in accordance with ADB's *Guidelines on the Use of Consultants.* The services will require a total of about 46 person-months of international consultants and 51 person-months of national consultants. They will be implemented over a 12-month period. The international and national consultants will have expertise in the fields of (i) highway engineering, (ii) transport planning, (iii) transport economics, (iv) road maintenance, (v) road financing, (vi) road institutions, (vii) HDM-4, and (viii) database system and management.

4. Deliverables

26. The consultant will submit the reports listed in Table A8.6 for each task.

Table A8.6: Required Reports

Type of Report	Recipient	
	Road Fund	ADB
Inception Report (month 1)	6	2
Progress report (monthly)	6	2
Draft Final Report	6	2
Final Report	6	2

ADB = Asian Development Bank.
Source: The Road Fund.

27. The following will be the consultant's outputs:

(i) Transport planning and HDM-4 capacity installed in the Road Fund.
(ii) Trained Road Fund staff capable of running HDM-4 and a transport planning model.
(iii) A development plan, including both condition and capacity oriented elements for selected highways.
(iv) Installed databases supporting (iii) above and a plan to expand the database to include the entire common use network.
(v) Road sector institutional strategy and plan.
(vi) Road maintenance and funding strategy and plan.
(vii) Proposals for adequately funding the identified needs of the road sector.

ECONOMIC ANALYSIS

A. Road Development Component

1. General

1. The economic analysis is carried out comparing with- and without-project scenarios. The Project will comprise reconstruction of the following two sections of the A-380 to meet the two-lane international design standard:

(iii) Section 1: kilometer (km) 876–916 (40 km) in the Republic of Karakalpakstan.
(iv) Section 2: km 490–581 (91 km) in Khorezm Province and the Republic of Karakalpakstan.

2. The without-project case reflects expected conditions in the absence of the Project, with maintenance sufficient only to hold the road in its present condition. The with-project case involves initial investment followed by routine and periodic maintenance, but with expenditure and frequency of periodic maintenance economically optimum for predicted road conditions and traffic flows.

3. The analysis is conducted by using the Highway Development and Management Model 4 (HDM-4). It predicted average travel speed, pavement roughness, agency costs, and road user costs. It also calculated the economic viability of road sections.

4. The economic costs were estimated based on financial costs, including physical contingencies. Price escalation contingencies, interest during construction, and taxes were excluded. All costs and benefits are expressed in constant mid-2007 prices. The economic analysis covers the construction period of 4 years plus 20 years of operation and maintenance (O&M). Economic analysis is conducted using border price numeraire. A standard conversion factor for non-tradable goods was estimated and applied to calculate the economic price of non-tradable goods. The shadow wage rates for skilled and unskilled labor are estimated by comparing the average labor wage in the region and the project labor wage, taking into consideration the existing unemployment rate, and are adjusted by the standard conversion factor. The net present value (NPV) at a 12% discount factor and economic internal rate of return (EIRR) were calculated to evaluate the economic viability of the Project.

2. Traffic Forecast

a. Existing Traffic

5. Classified traffic counts were carried out over 24 hours on sections of the project road away from the influence of towns and cities between May and June 2007 and are summarized in Table A9.1.

Table A9.1: Traffic Count Summary (2007)

Road Section	Domestic Trucks	International Trucks	Buses	Cars	Others	Total
Khorezm (km 481)	1,066	5	445	341	67	1,924
Karakalpakstan (km 886)	164	10	58	130	2	364

km = kilometer.
Source: Project preparatory technical assistance consultant's traffic count.

b. Overall Traffic Forecasts

6. Road traffic forecast contains normal traffic, diverted traffic, and generated traffic. The normal traffic growth is assumed to be influenced by the country's gross domestic product (GDP), and population for domestic traffic and international trade for international traffic. The growth rate adopted for the traffic forecast is in Table A9.2.

Table A9.2: Forecast Growth Rates
(% per Year)

Year	Passenger Vehicles	International Trucks	Domestic Trucks
2006–2010	8.5	10.0	10.7
2011–2015	6.2	7.6	8.8
2016–2020	4.2	6.0	6.9
2021–2025	3.2	4.0	5.3
2026–2031	2.0	4.0	4.0

Source: Project preparatory technical assistance consultant's estimates.

7. Diverted traffic is expected from (i) freight rail traffic through the Nukus–Oasis railway line and (ii) international truck traffic to the Russian Federation currently using northern route. It is estimated that 10% of tonnage on the Nukus–Oasis line, running parallel to the A-380 and currently transporting about 1.72 million metric tons per year, will be diverted to the improved A-380, resulting in an additional 121 heavy trucks per day by 2015. An additional 57 heavy trucks are expected from the Northern Route by 2015.

8. Generated traffic has been assumed at about 20% of the flow of forecast normal domestic traffic once all sections of the A-380 have been rehabilitated by 2011. The overall traffic forecast is presented in Table A9.3.

Table A9.3: Overall Traffic Forecasts

Year and Road Section	Domestic Trucks	International Trucks	Buses	Cars	Others	Total	Total (PCE)
2007							
Khorezm	1,066	5	445	341	67	1,924	5,304
Karakalpakstan	169	5	58	130	2	364	646
2010							
Khorezm	1,363	7	592	454	86	2,502	6,871
Karakalpakstan	218	7	77	173	3	477	913
2015							
Khorezm	2,207	190	1,025	785	139	4,347	10,022
Karakalpakstan	374	190	143	319	4	1,030	1,879
2020							
Khorezm	2,712	266	1,372	1,051	170	5,571	12,764
Karakalpakstan	485	266	193	431	6	1,381	2,521
2025							
Khorezm	3,174	344	1,669	1,279	199	6,665	15,251
Karakalpakstan	589	344	243	545	7	1729	3158
2030							
Khorezm	3,504	418	2,030	1,556	220	7,729	17,536
Karakalpakstan	678	418	296	664	7	2063	3757

PCE = passenger car equivalent.
Source: Project preparatory technical assistance consultant's estimates.

3. Economic Analysis

a. Economic Benefits

9. The following economic benefits have been identified:

(i) Vehicle operating cost (VOC) savings to existing users. The VOC – international roughness index (IRI) equations calculated by the HDM-4 were utilized in estimating benefits. The IRI of the project road is estimated at 12. Following reconstruction, the IRI is assumed to be 3, which will be back to 4 before the next scheduled periodic maintenance intervention in year 6 lowers it to 3.

(ii) Domestic generated traffic benefits, assumed to be equal to 50% of the benefit accruing to domestic users of the A-380 highway. Domestic generated traffic is estimated at 20% of existing traffic by 2015.[1]

(iii) Benefits to road traffic diverting from the Northern Route, conservatively valued at $700/truck trip.

(iv) Benefits to small rail consignments diverted by shippers from the railway to benefit from the quicker road service, valued at half the rate of the benefit accruing to domestic road users.

(v) Road accident savings, estimated by assuming a reduction in accident losses once the A-380 highway is improved. Annual losses in property damage and forgone production caused by traffic accidents countrywide are estimated at 3% of GDP.[2] The annual traffic accident costs of the project road are estimated based on the percentage of annual vehicle-km of vehicles along the project road to the total national vehicle-km. A 10% reduction in losses was then assumed to accrue to improvement of the project road.

b. Project Cost

10. The civil works will be implemented over a 4-year period from 2008 to 2011. The Project provides sufficient road capacity to cope with the forecast traffic up to 2031, with an overlay planned for every 6 years.

11. The project cost (taxes excluded) is summarized in Table A9.4. A residual value at the end of evaluation period is estimated at 20% of the initial investment.

Table A9.4: Unit Costs of Road Reconstruction and Maintenance

Works	Cost
Capital Works	$77.1 million (base cost and physical contingencies). The project cost includes costs of preparatory works, sub-base, and base to be financed by the government.
Routine Maintenance	$1,390 per kilometer
Periodic Maintenance	10 % of capital cost in years 6 and 12; and 25 % of capital cost in year 18

Source: Project preparatory technical assistance consultant's estimates.

[1] The generated (induced) traffic is estimated based on various publications, e.g., Ewing and Lichtenstein. 2002. *Induced Traffic and Induced Development*. Chester; Litman. 2007. *Generated Traffic and Induced Travel*. Victoria.; and Goodwin. 2004. *Empirical Evidence on Induced Traffic*. Oxford. ADB's AFG: North-South Corridor Project (2006) also adopted the same assumption for generated traffic. The benefit estimation is based on Rule of a Half (World Bank's Transport Note TRN-11, 2005).

[2] See for instance the Final Report of ADB TA 6195 *Greater Mekong Subregion Transport Sector Strategy Study*, December 2005.

c. Results of Economic Evaluation

12. A summary of the economic analysis is presented in Table A9.5. The road development component is economically viable since it produces an EIRR of 17% for section 1 and 34% for section 2. The difference between the EIRR for the two sections is due to a considerable disparity between existing and projected traffic flows. The current and projected traffic in section 2 is much higher than in section 1. The Project will also (i) provide better access to social services such as health care centers, schools, and markets; (ii) contribute to promoting related development in the region and provide local benefits to the rest of society; (iii) strengthen the Government's broader strategy of developing strategic corridors; and (iv) be strategically important to international trade.

Table A9.5: Summary of Economic Analysis for Civil Works

Year	Section 1: Km 876-916		Section 2: Km 490-581	
	Total Cost ($ '000)	**Total Benefit** ($ '000)	**Total Cost** ($ '000)	**Total Benefit** ($ '000)
2008	7,424.2		448.0	
2009	14,262.3		14,673.3	
2010	3,738.4		20,958.0	
2011	230.5	3,424.4	18,351.8	
2012	24.4	3,859.9	55.4	21,514.4
2013	24.4	4,198.7	55.4	22,900.0
2014	24.4	4,565.8	55.4	24,365.3
2015	24.4	4,952.8	55.4	25,878.2
2016	24.4	5,393.9	55.4	27,055.4
2017	2,474.2	6,030.9	5,235.3	29,283.9
2018	24.4	6,509.4	55.4	31,548.1
2019	24.4	6,967.6	55.4	33,166.6
2020	24.4	7,446.1	55.4	34,878.2
2021	24.4	7,970.9	55.4	36,159.9
2022	8,907.1	8,712.5	18,847.1	38,169.4
2023	24.4	9,275.9	55.4	40,746.8
2024	24.4	9,797.0	55.4	42,498.2
2025	24.4	10,319.6	55.4	44,184.5
2026	24.4	10,870.2	55.4	45,492.2
2027	24.4	11,607.6	55.4	46,791.1
2028	6,185.5	12,188.8	13,088.3	48,933.8
2029	24.4	12,802.2	55.4	51,706.1
2030	24.4	13,357.2	55.4	53,475.1
2031	(4,924.1)	13,835.3	(6,849.7)	55,088.0
EIRR (%)	**17**		**34**	
NPV ($ million)	**10.2**		**104.7**	

( ) = negative, EIRR = economic internal rate of return, NPV = net present value.
Source: Project preparatory technical assistance consultant's estimates.

d. Sensitivity Analysis

13. A sensitivity analysis was carried out to test the impact of changes on key parameters determining project costs and benefits. The road agency cost increase of 20% will reduce the EIRR from 17% to 14.5% for section 1 and 34% to 30% for section 2. Meanwhile, the decrease in traffic by 20% in both sections would bring down the average EIRR from 17% to 13% for section 1 and from 34% to 24% for section 2. If road accident savings are excluded, the EIRR

becomes 16% for section 1 and 22% for section 2. If generated (induced) traffic is ignored, the EIRR becomes 15% for section 1 and 23% for section 2. The economic analysis and sensitivity test concluded that the road development component is economically justified.

B. Road Sector Sustainability Component

14. The general principles of economic analysis are similar to those for the road development component.

15. The road equipment will be used for road works across the country over the lifetime period. Under the with-project scenario, purchase of new equipment is considered with well-planned and managed road maintenance. Under the without-project case, the roadworks will be implemented using the existing equipment available in the country with lack of road maintenance planning and management capacity. The net (incremental) benefit would be the VOC savings, time value savings, and accident savings between the with-project (new equipment purchased) and without-project (using the existing equipment) scenarios. Under the without-project case, the average pavement's IRI is estimated higher than that of the with-project. The higher average IRI will result in higher VOC, average travel time, and accident rates.

16. The incremental cost would be the cost difference between capital investment and O&M of the new equipment (with the Project) and O&M of the existing equipment (without the Project). The equipment cost is estimated to account for 37.5% of total reconstruction costs.

17. The equipment is assumed to be working on about 3.4% of the international road network and about 2% of the total road network per annum. The savings in the 10 years the equipment will be utilized are calculated by the HDM-4 model, given the roughness reductions. The EIRR for the equipment was estimated at 33%, which is economically viable (Table A9.6). Under the worst scenario, where the total cost increases by 20% and the incremental benefits decreases by 20%, the EIRR will be about 20%—still above the threshold of 12%. The economic analysis and sensitivity test concluded that the road equipment component is economically justified.

Table A9.6: Summary of Economic Analysis for Road Sector Sustainability Component

Year	Incremental Cost ($ million)	Incremental Benefit ($ million)
2008	37.0	
2009	31.2	
2010	20.7	1.3
2011	20.7	1.2
2012	20.7	72.6
2013	20.7	72.6
2014	20.7	90.6
2015	20.7	94.8
2016	20.7	109.3
2017	20.7	120.4
2018	20.7	125.2
2019	20.7	129.5
EIRR (%)	**33**	
NPV ($ million)	**157.6**	

EIRR = economic internal rate of return, NPV = net present value.
Source: Project preparatory technical assistance consultant and Asian Development Bank estimates.

FINANCIAL ANALYSIS FOR ROAD EQUIPMENT

A. Introduction

1. The financial evaluation of the proposed investments was carried out in accordance with the Asian Development Bank's (ADB's) *Financial Management and Analysis of Projects.*[1] The financial evaluation covers the investment component under road sector sustainability.

B. Methodology and Major Assumptions

2. Incremental costs and benefits were computed on the basis of a with- and without-project scenario for FY2008–FY2028. The costs include land acquisition, capital costs, and incremental operation and maintenance costs (O&M). Interest during implementation was excluded. No salvage value was considered at the end of equipment life assumed to be 10 years. The anticipated capital mix of debt to equity was used for estimating the weighted average cost of capital. Financial benefits are derived from the average equipment hire charges based on full cost recovery. The financial net present value and financial internal rate of return (FIRR) are calculated on an after-tax basis in real terms.

C. Financial Internal Rate of Return

3. The road sector sustainability component covers investments to improve the operational efficiency, fair distribution, and arm's-length transaction of equipment procured under ADB financing. The road equipment pool company (REPC) will be incorporated in June 2008, and it will implement the equipment procurement.

4. The FIRR was calculated based on (i) the estimated 250 kilometer (km) per annum weighted average construction and maintenance works; (ii) a 90% productivity factor; (iii) a 10% O&M cost of capital cost for a period of 20 years, including a 1-year preparation period and 2-year equipment procurement period; and (iv) no residual value at the end of year 10. Equipment replacement costs were included in the computation of the FIRR at the end of the 10-year equipment life. The equipment hire charge was calculated to cover capital costs (depreciation, O&M, and debt service) with a 15% return on equity at about $80,000 per unit. The resulting FIRR is 12.6% (Table A10.1).

[1] ADB. 2005. *Financial Management and Analysis of Projects.* Manila.

Table A10.1: Financial Analysis for Road Equipment
($ million)

Fiscal Year	Capital Expenditure	O&M Cash Outflows	Total Cash Outflows	Operating Cash Inflows	Net Free Cash Flows
2008	14.0	0.0	14.0	0	(14.0)
2009	32.5	3.3	35.8	9.0	(26.8)
2010	22.6	6.9	29.5	18.0	(11.5)
2011	0.0	6.9	6.9	18.0	11.1
2012	0.0	6.9	6.9	18.0	11.1
2013	0.0	6.9	6.9	18.0	11.1
2014	0.0	6.9	6.9	18.0	11.1
2015	0.0	6.9	6.9	18.0	11.1
2016	0.0	6.9	6.9	18.0	11.1
2017	0.0	6.9	6.9	18.0	11.1
2018	0.0	6.9	6.9	18.0	11.1
2019	32.5	6.9	39.4	18.0	(21.4)
2020	22.6	6.9	29.5	18.0	(11.5)
2021	0.0	6.9	6.9	18.0	11.1
2022	0.0	6.9	6.9	18.0	11.1
2023	0.0	6.9	6.9	18.0	11.1
2024	0.0	6.9	6.9	18.0	11.1
2025	0.0	6.9	6.9	18.0	11.1
2026	0.0	6.9	6.9	18.0	11.1
2027	0.0	6.9	6.9	18.0	11.1
2028	0.0	6.9	6.9	18.0	11.1
				FIRR	**12.6%**
				WACC	**4.6%**
				NPV	**37.8**

( ) = negative, FIRR = financial internal rate of return, NPV = net present value, O&M = operation and maintenance, WACC = weighed average cost of capital.
Notes:
[a] Major replacement/overhaul expenses are to incur every 10 years of operations. 100% of capital expenditure is estimated.
[b] O&M costs are assumed at 10% of total capital expenditure on equipment.
Source: Asian Development Bank estimates.

D. Weighted Average Cost of Capital

5. The weighted average cost of capital (WACC) was calculated in real terms for the Road Sustainability component. Loans from the ordinary capital resources of the Asian Development Bank (ADB) was assumed to be extended to the Government of Uzbekistan, which would be on-lent to REPC at the same terms and conditions with additional 0.2% spread per annum by the Government for a period of 24 years including a 4-year grace period. The domestic annual inflation rate was assumed to be 9.0%. The cost of equity is calculated at 16%, based on refinancing rate of 16% during 2004–2005 declared by the Central Bank of Uzbekistan in line with *Monetary Policy of Government*

of Uzbekistan 2005. The return for the government contribution as equity has been taken as 16.0%. Table A10.2 shows the calculation of the WACC.

Table A10.2: Weighted Average Cost of Capital

Item	ADB Loan Onlent to REPC	Counterpart Government Equity Contribution	Total
Amount ($ million)	55.31	13.8	69.11
Weighting	80%	20%	100.0%
Nominal Cost	6.15%	16.0%	
Corporate Tax Rate	20.0%	0.0%	
Tax-Adjusted Nominal Cost	4.9%	16.00%	
Inflation Rate	0.8%	9.0%	
Real Cost	4.1%	6.4%	
Weighted Component of WACC	3.3%	1.3	
Weighted Average Cost of Capital (Real)	4.6%		

ADB = Asian Development Bank, REPC = road equipment pool company, WACC = weighted average cost of capital.
Source: Asian Development Bank estimates.

E. Sensitivity Analysis

6. Table A10.3 gives the result of the sensitivity analyses of the FIRR under various scenarios. The sensitivity tests are found to provide acceptable FIRR.

Table A10.3: Sensitivity Analyses

Item	FIRR (%)	FNPV ($ million)	Switching Value (%)
Road Sector Sustainability Component			
Base case	12.6	37.8	
1 year implementation delay	8.2	19.0	
10% increase in capital cost	8.6	20.0	21.0
10% increase in O&M cost	11.0	30.0	46.0
10% decrease in revenue	8.2	16.0	(18.0)

FIRR = financial internal rate of return, FNPV = financial net present value, O&M = operation and maintenance.
Source: Asian Development Bank estimates.

F. Conclusion

7. The subproject FIRR is expected to comfortably exceed the WACC. Sensitivity analysis indicates that the FIRR are reasonable under most conditions. As such, the project loan to REPC is considered financially viable.

FINANCIAL PROJECTION OF THE ROAD EQUIPMENT POOL COMPANY

A. General

1. Financial projections for the road equipment pool company (REPC) have been prepared to assess its operational and financial sustainability as a corporate entity. The Government is committed to the establishment of the REPC, which will be incorporated as a corporate legal entity.. The REPC will own, manage, and maintain the road equipment assets financed under the Project and be accountable for the associated liabilities. The estimated asset value—consisting of debt financed $55.31 million[1] road equipment and capital contribution by the Government of $13.8 million in the form of facilities, plant, and property. The Government will take all the necessary legal measures and actions to set up a new entity for this purpose. The projected income statement, balance sheet, and cash flow statement are in Table A11.1.

B. Major Assumptions

2. Major assumptions for the REPC's projected financial statements include the following:

(i) The pro forma projected financial statements of the REPC are prepared for FY2008–FY2018 and are shown in current terms in local currency.

(ii) The domestic inflation rates are assumed at 8.2% in FY2008, 7.5% in FY2009, 7.3% in FY2010, and 7.0% from FY2011 onward, in line with the domestic cost escalation factors 2007–2011 of the Asian Development Bank (ADB). The international inflation rate is assumed at 0.8% per annum during the period of analysis.

(iii) The exchange rate used is SUM1,280 to $1.00 for FY2007, adjusted during the forecast period based on the differential between the assumed domestic and international inflation rates.

(iv) The estimated time for procurement of road equipment is 24 months. It is assumed that the REPC will resume operations in FY 2009 and be fully operational in FY2010. Operating revenues are generated from equipment hire fees. Equipment hire fees are estimated on a full cost recovery basis (i.e., depreciation, operation and maintenance (O&M), and debt service allowing return on equity of 15%). About 250 kilometers (km) per annum is assumed to be covered with the equipment. A 90% productivity factor is used. The average equipment hire fee is estimated at about $80,000/km (SUM102 million/km) and is adjusted to reflect local inflation. They are geared to meet a minimum 80:20 debt-to-equity ratio and 80% operating ratio.

(v) Operating expenses consist of (i) O&M (salaries and general administration expenses), and (ii) depreciation/major repairs of existing and newly acquired assets. Administration costs are estimated at 6% of the REPC's annual revenue. The average labor cost is projected at 3% of gross fixed assets, increasing in line with the local inflation. Depreciation of assets is calculated

[1] The Ministry of Finance (MOF) will onlend $55.31 million to the REPC.

on a straight-line basis at 10%, depreciating the assets over its economical life of 10 years. The repair and maintenance costs are assumed to be 1% of gross fixed assets initially, and are projected to increase over time to 4%.

(vi) The REPC is expected to receive the same benefits as other road companies (private and public), which are exempt from payments of corporate taxation and customs duty of 20% on the import of equipment and machinery.

(vii) Capital expenditure on road maintenance equipment is based on estimates from the feasibility studies financed by ADB.[2] Some 163 units are assumed to be procured in FY2008 plus 136 units in FY2009, totaling 299 units of equipment.

(viii) Inventories represent 1 month of repair value and maintenance costs, and are assumed to contain all necessary spares and tools for maintenance of the equipment.

(ix) A minimum debt-to-equity ratio of 80:20 is assumed. The Government is committed to transfer assets that are relevant to REPC operations, in the form of equity contribution assumed at $13.8 million, representing about 20% of the REPC's total assets.

(x) Financial charges are assumed to be paid as accrued during each year. They are calculated on the average balance of outstanding loan liability during the year. The ADB ordinary capital resources (OCR) loan of $55.31 million will be onlent to the REPC at an additional premium of 0.2%. The same repayment period is assumed to apply: 4-year grace period and 20-year debt amortization schedule. The London interbank offered rate (LIBOR) is estimated at 5.6% (6 months' LIBOR at 5.0% as of 22 October 2007) including 0.6% fixed spread and 0.35% commitment charge on undisbursed loan amount. Foreign exchange fluctuation will be borne by the REPC.

(xi) Accounts receivable represent 1 month of revenue value and accounts payable represent 3 months of revenue value.

[2] ADB. 2006. *Technical Assistance to the Republic of Uzbekistan for Preparing the Regional Infrastructure (Roads) Project.* (TA 4889-UZB, approved on 8 December, for $300,000).

Table A11.1: Road Equipment Pool Company Financial Projection

(SUM million)

Item	Projected										
	2008	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Income Statement Summary											
Revenue	0	16,462	32,462	34,832	37,270	39,879	42,670	41,091	43,968	47,046	62,100
Operating Expenses	282	13,331	17,732	21,724	22,227	22,590	23,687	23,617	23,794	23,961	40,013
Operating Income	(282)	3,130	14,730	13,108	15,043	17,288	18,984	17,475	20,174	23,084	22,087
Other Income	159	780	2,034	3,625	5,640	7,676	9,721	11,901	14,268	16,908	20,028
Earnings before Taxes	**(123)**	**3,911**	**16,764**	**16,732**	**20,683**	**24,964**	**28,705**	**29,376**	**34,442**	**39,992**	**42,116**
Provision for Taxes	0	782	3,353	3,346	4,137	4,993	5,741	5,875	6,888	7,998	8,423
Net Income after Taxes	**(123)**	**3,129**	**13,411**	**13,386**	**16,546**	**19,971**	**22,964**	**23,500**	**27,553**	**31,994**	**33,692**
Cash Flow Summary											
Net Cash from Operating Activities	1,752	16,205	21,183	20,365	20,755	21,823	22,233	21,595	23,046	24,117	30,072
Net Cash from Financing	17,664	45,530	34,234	0	0	(5,007)	(5,315)	(5,642)	(5,989)	(6,358)	82,612
Net Cash from Investing	(17,505)	(46,194)	(39,626)	3,625	5,641	7,676	9,721	11,901	14,269	16,908	(69,332)
Increase in Cash and Cash Equivalents		**1,911**	**15,540**	**15,791**	**23,991**	**26,396**	**24,492**	**26,639**	**27,854**	**31,325**	**34,667**
Balance Sheet Summary											
Fixed Assets	17,664	55,244	88,041	79,177	70,314	61,450	52,587	43,723	34,860	25,996	97,557
Current Assets	1,985	18,904	36,035	60,430	87,029	111,738	138,683	166,406	197,971	232,895	277,800
Total Assets	**19,649**	**74,148**	**124,076**	**139,607**	**157,342**	**173,188**	**191,270**	**210,129**	**232,831**	**258,891**	**375,357**
Current Liabilities	785	3,988	4,903	6,691	7,674	8,513	8,922	9,918	11,073	11,540	11,772
Current Maturities of Long term Debt	1,446	4,084	5,453	5,809	6,016	6,058	6,083	6,088	6,070	6,028	5,957
Long-Term Debt	0	45,530	79,763	79,763	79,763	74,756	69,440	63,798	57,809	51,451	107,255
Equity	17,418	20,547	33,958	47,343	63,890	83,861	106,825	130,325	157,879	189,872	250,373
Total Liabilities and Equity	**19,649**	**74,148**	**124,076**	**139,607**	**157,342**	**173,188**	**191,270**	**210,129**	**232,831**	**258,891**	**375,357**
Key Performance Indicators											
Operating Ratio (%)		81	55	62	60	57	56	57	54	51	64
Debt Service Coverage Ratio (times)	12.8	6.7	5.4	5.5	3.2	3.3	3.4	3.6	3.8	4.4	5.7
Return on Equity (%)		16	49	33	30	27	24	20	19	18	15
Long-Term Debt to Equity (%)	0:100	69:31	70:30	63:37	56:44	47:53	39:61	33:67	27:73	21:79	30:70
Current Ratio		4	5	7	10	13	15	18	22	25	27
Operating Margin (%)[a]		33	64	64	71	78	81	86	92	98	78
Accounts Receivable (months)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

( ) = negative.

[a] Operating profit expressed as a percentage of revenue.

Source: Asian Development Bank estimates.

C. Time-Bound Action Plan for Road Equipment Pool Company

3. The Government will establish the REPC as a legal corporate entity to own, manage, and maintain road equipment procured under ADB financing. Table A11.2 specifies necessary actions to be fulfilled prior to fully fledged operations of REPC.

Table A11.2: Time-Bound Action Plan for Road Equipment Pool Company

Milestone	Target Date	Responsible Party
Recruitment of advisory support for development of REPC under ADB loan	01 Dec 2007	PIU
Appointment of REPC director	31 Dec 2007	MOF, COM
Appointment of REPC staff to assist PIU for procurement of equipment and advisory support for development of REPC	28 February 2008	REPC
Charter documents Preparation and development Approval Registration	 1 April 2008 30 June 2008 1 July 2008	 REPC MOF, COM REPC
Development of internal business procedures and relevant operations manuals for: Corporate plan Company structure Staffing plan/human resources policy Accounting and reporting Financial management Setting up of hire fees/charges Budgeting system On the job training	1 April 2008	PIU, REPC, advisory team for development of REPC
Signing of sub-loan agreement with MOF	1 July 2008	MOF REPC
Formation of capital charter	1 July 2008	REPC
Appointment of board of directors	1 July 2008	COM MOF REPC
Recruitment of REPC personnel	1 July 2008	REPC director
Approval and transfer of fixed assets including land, plants, and property and capital to REPC	1 Sep 2008	COM MOF REPC
Preparation of relevant infrastructure and facilities for REPC to be fully operational	1 Sep 2008	REPC, PIU head
Acceptance and commissioning of equipment and operation of REPC	1 Dec 2008	REPC, PIU head

ADB = Asian Development Bank, COM = Cabinet of Ministers, MOF = Ministry of Finance, PIU = project implementation unit, REPC = road equipment pool company.
Source: The Road Fund.

SUMMARY FINANCIAL MANAGEMENT ASSESSMENT

1. Financial management assessment of the Road Fund, the Executing Agency (EA), was undertaken to evaluate its ability to undertake and fulfill the fiduciary requirements of the Asian Development Bank (ADB). Financial management assessment questionnaires and field interviews were used. Available public financial management assessment diagnostic tools such as the World Bank's comprehensive country financial accountability assessment[1] and public expenditure review[2], and ADB assistance programs,[3] were further reviewed.

2. It is concluded that the Road Fund currently meets ADB's minimum financial management requirements. The Road Fund has satisfactory financial management capability to (i) record required financial transactions and balances, (ii) provide regular and reliable financial statements and monitoring reports, and (iii) safeguard the financial assets. A summary of financial management assessment findings is in Table A12.

Table A12: Summary Financial Management Assessment

Particulars	Conclusions	Actions
A. Executing Agency	The Road Fund is a separate entity, accountable to the Ministry of Finance (MOF). It has significant experience in managing and implementing large-scale projects. However, it has not implemented any project with the participation of international financial institutions/multinational development banks.	During the project preparatory technical assistance (PPTA) financed by the Asian Development Bank (ADB),[4] a series of procurement seminars was conducted. The project design incorporates the support of a procurement consultant for the establishment of procedures and preparation of procurement documentation to ensure all the ADB guidelines are followed.
B. Funds Flow Arrangements	The Road Fund's funds flow arrangements are reliable, predictable, and secure. The Road Fund has enough capability to work under the proposed funds flow arrangements acceptable to ADB. For the project funds, flow arrangements are identified in consultation with Road Fund representatives.	The Road Fund and MOF should ensure the timely availability of counterpart funding in accordance with the project financing plan.

[1] World Bank. October 2004. *Uzbekistan Country Financial Accountability Assessment.* Washington, D.C.
[2] World Bank. March 2005. *Uzbekistan Public Expenditure Review*. Washington, D. C.
[3] ADB. 1999. *Technical Assistance for Strengthening Financial Management and Governance in Selected Developing Member Countries*. Manila.
[4] ADB. 2006. *Technical Assistance to the Republic of Uzbekistan for Preparing the Regional Infrastructure (Road) Project.* Manila.

Particulars	Conclusions	Actions
C. Staffing	The Road Fund is well staffed with experienced financial specialists. The project implementation unit (PIU) scheme requires additional hire for the Project.	Training and workshops on ADB financial management procedures will be provided. It is expected that on-the-job trainings provided by the PIU staff of other ongoing projects will also be beneficial.
D. Accounting Policies and Procedures	The Road Fund's accounting policy is based on the Uzbekistan National Accounting Standards, which are progressively being modernized in accordance with International Accounting Standards.	For the PIU, a separate accounting policy and financial management manual will be established in accordance with ADB and MOF requirements.
E. Internal Audit	There is no internal audit unit within the structure of the Road Fund.	No further action is necessary. However, options include either involving an internal commission or appointment of an internal auditor.
F. External Audit	The Road Fund is audited annually by the Chamber of Accounts. In the case of other projects in the country, the PIU will be audited by independent external auditors on an annual basis.	External audit of the project accounts will be done in accordance with the International Standards on Auditing by an external auditor acceptable to ADB. Sample terms of reference for auditors were sent to the Road Fund.
G. Reporting and Monitoring	The Road Fund reports comply with the reporting requirements of MOF, Ministry of Economy, State Tax Committee, and other government bodies.	Acceptable reporting requirements for the PIU shall be stipulated in the Loan Agreement between ADB and the Government.
H. Information Systems	The Road Fund operates the 1S Accounting system budget module. Reports are prepared with the help of the program and using spreadsheets. The program is not costly and is not a complicated system, which suits the requirements of the Project, although some reports cannot be generated automatically. Many ADB-financed projects in the country use this system.	The Road Fund should ensure that a satisfactory financial management system is maintained throughout the duration of the Project. The 1S-Accounting program will be installed at the PIU for the project needs.

Sources: Asian Development Bank and project preparatory technical assistance consultants.

SUMMARY POVERTY REDUCTION AND SOCIAL STRATEGY

Country/Project Title: Uzbekistan: Central Asia Regional Economic Cooperation (CAREC) Regional Road Project			
Lending/Financing Modality:	**Project Lending**	Department/ Division:	CWRD/CWID

I. POVERTY ANALYSIS AND STRATEGY

A. Linkages to the National Poverty Reduction Strategy and Country Partnership Strategy

The interim poverty reduction strategy for Uzbekistan (2005–2010) identifies four pillars for reducing poverty incidence: (i) high economic growth rates by maintaining macroeconomic stability and accelerating structural reforms, (ii) human development and social protection, (iii) reduced interregional inequalities in living standards, and (iv) improved environment protection. The strategy takes into account differences in the social and economic development of the regions throughout the country.[1] Within the framework of the strategy, two economic policy objectives are set: (i) reduction of regional differences in living standards, and (ii) creation of conditions to increase the economic potential of the regions. The instruments to achieve these objectives are as follows: national social and investment programs, and programs for the establishment and modernization of infrastructure, as well as reform of the local authority and decentralization of public administration. The steps to provide stable social and economic development in the regions include provision of government support and stimulation of the comprehensive development of the regions regarding the development of their industrial infrastructure facilities, improvement of their investment attractiveness, and placement of small manufacturing enterprises in rural districts. The Government's poverty reduction strategy clearly indicates the importance of infrastructure development.

The Asian Development Bank's (ADB's) country and strategy program for Uzbekistan (2006–2010)[2] identified four strategic priorities: (i) accelerate environmentally sustainable rural development, (ii) enable private sector development, (iii) promote regional cooperation in transport and customs transit, and (iv) build human capital of the poor. It prioritizes infrastructure, including road development, to help the Government achieve its development objective and reduce poverty. The Project, which is included in the country strategy and program, has two major components: road development and road sustainability. The Project is expected to contribute to increasing trade with neighboring countries. It is also expected to generate new initiatives and opportunities of economic activities. Improved connectivity and access to health center, schools, and markets emerged as a major priority for the poor. Rural–urban links, promoted through improvements of highways, contribute to supporting greater stability of income and increased off-farm employment in rural areas. In the case of the desert environment, improvement of the road and its rehabilitation is a primary measure to reduce isolation, increase communication, and thus generate new opportunities; and to give the local poor the possibility to be involved in new initiatives outside planned agriculture production.

B. Poverty Analysis

Targeting Classification: General intervention

1. Key Issues

After independence in 1996, Uzbekistan's economic growth and measures taken by the Government have led to positive trends. The country started to recover from economic decline: life expectancy increased, infant and child mortality dropped, basic education was introduced and illiteracy was eliminated, the gender gap in education fell, 95% of households own their dwellings, and the majority of rural households have access to plots. Nevertheless, despite a slowly declining poor population, economic growth has not generated sufficient employment opportunities. According to the 2002 and 2003 household budget surveys, the poverty level in the country is 27.5%, with 6.8 million people living in absolute income deprivation.[3] Regional variations in poverty remain high and rural population has a higher rate of poverty—70% of the country's poor lives in rural areas and the rural poverty rate is 30.5% versus 22.5% in urban areas. The highest concentration of poor households is in the southern and northern regions. The Republic of Karakalpakstan, Namangan, Kashkadarya, and Khorezm have the highest poverty incidence.

The Project will generate nonquantifiable economic and social benefits. Better roads will likely attract additional economic activity and traffic, thus generating benefits to a wider circle of beneficiaries. Direct benefits of the Project include employment opportunities in civil works. Construction will create temporary jobs, and routine maintenance will employ unskilled and semiskilled workers. Women will be encouraged to work and be treated equitably. The Project will provide better and improved conditions for all road users, improved conditions, better and faster access to health centers (especially city hospitals in emergency cases), better access to education and to basic needs and markets, and better access to markets and improvement of market relations. Indirect benefits will include employment and business opportunities, such as restaurants.

Other private business opportunities are expected to emerge, such as vehicle-related services and small businesses.

2. Design Features

The Project will involve civil works of a major highway, using mostly machinery and skilled labor. Only a limited amount of unskilled labor will be needed during construction. No specific pro-poor activities are planned in this Project.

II. SOCIAL ANALYSIS AND STRATEGY

A. Findings of Social Analysis

The Project covers two road sections located in the Republic of Karakalpakstan and Khorezm Province. The main beneficiaries of the Project will be road users and the secondary beneficiaries will be people living along the improved road. The Project will reconstruct the existing roads within the current right-of-way owned by the Government.

The Project concerns five villages, four of which are in the Republic of Karakalpakstan. The villages have changed from the *sovkhoz* (state-operated agricultural estate) system to *shirkat* (agricultural cooperatives) system.. The *shirkat* farm is totally irrigated and produces three crops: cotton, wheat, and rice. Wheat is sold according to state quotas; the surplus is shared among the workers. At the level of local villagers, these changes do not seem to have any effect. They are sharecroppers and must produce certain amounts of yield. One village is located in Khorezm. Most of the villagers work in water and gas reservoir pumps, small businesses, and animal husbandry. There are also employees of different companies (gas company, railway, salt quarry, and soda plant) and about 100 pastoralists in the project area. The pastoral-nomads represent a group that is unknown because it is a new phenomenon.

Rehabilitation of the road is seen by both local authorities and the population as a very positive action. They need the road for everyday life, for their security, and to improve their livelihoods. The road also represents new opportunities for business on different levels—for local women to sell their crafts and open new *chayhonas* (tea houses); for pastoralists to sell their animals and products more easily; and for the local population to have better access to health centers, education, and basic needs. For local and provincial authorities, the improved road will further develop markets and commerce, transportation, and business opportunities.

There are neither resettlement issues nor land loss in the project area. There will be no land, housing, property, or income loss; and no new limitations to the movement of villagers and pastoralists. No archeological site, cemetery, or other social/cultural facilities will be affected by the Project. Village inhabitants and pastoral nomads are vulnerable, but their vulnerable situations are neither directly nor indirectly related to the project road. They will benefit from the Project.

B. Consultation and Participation

1. Provide a summary of the consultation and participation process during the project preparation.

Consultation was conducted with stakeholders including the local population; the Road Fund, the Project's Executing Agency (EA); and district government officials. A meeting was held with the governor of Khorezm. Discussions also took place with village chairpersons and some of the pastoral-nomads. Most of the fieldwork was based on qualitative analysis and direct observation.

2. What level of consultation and participation is envisaged during the project implementation and monitoring?

☐ Information sharing ☒ Consultation ☐ Collaborative decision making ☐ Empowerment

3. Was a consultation and participation plan prepared? ☒ Yes ☐ No

C. Gender and Development

1. Key Issues

Women will be able to benefit from rehabilitation of the road through improved access to basic services such as health, education, and markets. The development opportunities will also concern employment for women in restaurants, tourism, resting areas, and crafts and other products. These opportunities are expected to reduce migration for women.

2. Key Actions

Measures included in the design to promote gender equality and women's empowerment—access to and use of relevant services, resources, assets, or opportunities and participation in decision-making process:

☐ Gender plan ☒ Other actions/measures ☐ No action/measure

The absence of comprehensive gender analysis in the infrastructure sector of Uzbekistan in general, and the lack of actual and adequate information about traveling conditions for women, complicates the process of developing gender-related activities. A gender assessment of the transport/highway sector of Uzbekistan was formulated. Funding of $20,000 was secured from ADB's Gender and Development Cooperation Fund for undertaking the assessment. The activities will include: (i) identification of gender issues in the road sector, (ii) assessment of the highway condition from a gender perspective, (iii) identification of shortages of improved road from a gender perspective, and (iv) formulation of actions to address gender concerns for the Project.

III. SOCIAL SAFEGUARD ISSUES AND OTHER SOCIAL RISKS

Issue	Significant/Limited/ No Impact	Strategy to Address Issue	Plan or Other Measures Included in Design
Involuntary Resettlement	No impact	The Project will entail reconstruction of the existing road within the current right-of-way owned by the Government and is free from settlements. Adequate assurance on safeguards is included to avoid triggering ADB's *Involuntary Resettlement Policy* (1995).	☐ Full Plan ☐ Short Plan ☐ Resettlement Framework ☒ No Action
Indigenous Peoples	No impact	There will be no land, housing, property or income loss; and no new limitations to the movement of villagers and pastoralists. Adequate assurance on safeguards is included to avoid triggering ADB's *Policy on Indigenous Peoples* (1998).	☐ Plan ☐ Other Action ☐ Indigenous Peoples Framework ☒ No Action
Labor ☒ Employment opportunities ☐ Labor retrenchment ☒ Core labor standards	Significant	Bidding documents are to ensure that civil works contractors (a) comply with applicable labor laws and incorporate applicable workplace occupational safety norms; (b) do not differentiate payment between men and women for work of equal value; (c) do not employ child labor in the construction and maintenance activities; (d) eliminate forced or compulsory labor; (e) eliminate discrimination in respect of employment; (f) allow for freedom of association; and (g) to the extent possible, maximize employment of local poor	☐ Plan ☒ Other Action ☐ No Action

		and disadvantaged persons for project construction purposes, provided that the requirements for job and efficiency are adequately met.	
Affordability	No impact	The Project will reduce transport costs and increase the mobility of the local population in the project areas. Hence, it will enhance affordability. It will increase access to basic needs and decrease isolation.	☐ Action ☒ No Action
Other Risks and/or Vulnerabilities ☒HIV/AIDS ☐Human trafficking ☐Others:	Limited impact	The Government, through the EA, shall ensure that appropriate entities, e.g., nongovernment organizations, disseminate information on the risks of sexually transmitted infections, including HIV/AIDS, to the employees of civil works contractors engaged under the Project and to members of the local communities surrounding the project road, particularly females.	☐ Plan ☒ Other Action ☐ No Action

IV. MONITORING AND EVALUATION

Are social indicators included in the design and monitoring framework to facilitate monitoring of social development activities and/or social impacts during project implementation?

☒ Yes: Reduction of traffic accident
☐ No

[1] World Bank. 2005. *Welfare Improvement Strategy Paper of the Republic of Uzbekistan for 2005-2010*. Interim PRSP Document. Washington, DC.
[2] ADB. 2006. *Country Strategy and Program (2006–2010) for Uzbekistan*. Manila.
[3] World Bank. 2003. *Living Standards Assessment*, Washington, DC.

SUMMARY INITIAL ENVIRONMENTAL EXAMINATION

A. Introduction

1. The Project is classified environment category B in accordance with the Asian Development Bank's (ADB's) *Environmental Assessment Guidelines*. The summary initial environmental examination (SIEE), prepared by the project preparatory technical assistance (PPTA) consultant on behalf of the Republican Road Fund (the Road Fund), is consistent with the requirements of ADB's *Environment Policy* (2002) and *Environmental Assessment Guidelines*. The Project will comprise upgrading of two sections of national highway A-380, and will not involve realignment or construction of bypasses or diversions. As such, it does not fall under the type of projects that require an environmental assessment based on the Law on Ecological Expertise, 2000.[1] Only a confirmation that project activities will be confined within the right-of-way and that no significant realignments or interference with any natural habitat will take place is required.

B. Description of the Project

2. The Project will have three components: (i) road construction; (ii) road equipment acquisition; and (iii) advisory support for the introduction of a comprehensive road sector planning and management system; establishment of a road construction equipment unit; and procurement of civil works, consultants, and equipment. The Project will involve resurfacing and widening of two sections of the A-380 highway totaling 131 kilometers (km): (i) in Kharezm Province (Section 1: 91 km), and (ii) in the Republic of Karakalpakstan (Section 2: 40 km). Upgrading shall be confined within the existing 50-meter (m) right-of-way (25 m on either side of the road centerline). The main working width will be 8–10 m centered over the existing carriageway. Construction and movement of materials will take place along the highway, so access roads will not be necessary. The Project will not involve land acquisition and resettlement. Rehabilitation works will require more than 6.6 million cubic meters (m^3) of earthworks for subgrade, shoulder, and carriageway repair. Site works are expected to commence in late 2008, with actual work progressing for 3 years.

C. Description of the Environment

3. **Topography and Geology**. The topography of the land through which the two road sections pass includes mostly desert and slightly undulating terrain, as found at the boundary of the Amudarya River valley. The geology of the area consists of a mixture of sandstone and limestone, overlain with sand. Nearly all towns and villages in the vicinity of the road are located in the irrigated river plain and the delta of the Amudarya, a minimum of 5–10 km away from the road right-of-way, leaving the project roadsides almost totally uninhabited. Neither of the project road sections passes across or close to the river valley proper.

4. **Climate, Air Quality, and Noise**. The project area has a southern temperate continental desert climate, with extremely hot summer temperatures exceeding 45°C and virtually no rain. December through February is the winter period, with temperatures dropping below –15°C, but more often around the freezing point or above 0°C. Temperatures begin to climb in March, accompanied by occasional rain (200 millimeters or less) and sometimes accompanied by flash floods. In dry desert conditions, the daily temperature fluctuations can be as much as 30°C. Frequent dust storms occur during the summer months of March to May when winds exceeding 100 km/hour generate large disturbances, significantly raising the levels of total suspended particulates in the project area. Fine salt is also dispersed into the air mass during such storms. Given that traffic is

[1] Included in the New Laws of the Republic of Uzbekistan Edition 23. Amendments were published in the Narodnoye Slove in July 2000.

light and there is no industry anywhere along the alignment—except the Provincial Transport Department's rock crushing and batch plant facilities, and the soda mine and factory at Km 916—air remains relatively free from gaseous emissions. During the field investigation, no noise sensitive sites were identified along the alignment.

5. **Water Resources**. Aside from occasional rainfall and flash floods, the road does not pass over any surface water. The shallow groundwater acquifer is >25 m below the surface, saline, and polluted. Because of intensive pesticide and fertilizer use, especially in Khorezm Province and the Republic of Karakalpakstan, groundwater at a depth of 100–150 m is also contaminated. Groundwater for human consumption is scarce in the two project regions, with only 22,000 m^3/day and 33,000 m^3/day available based on 2003 data.

6. **Flora and Fauna**. The ecological zones through which the road passes is the Qizylkum desert and Ustiyurt Plateau, an elevated desert region, much of which is significantly modified by past irrigated agriculture and livestock overgrazing. The project road runs along a sparsely vegetated semidesert area. Section 1 has no known environmentally sensitive features within at least 3 km centered over the road. The Amudarya River Basin Forest Reserve is located at Km 677, more than 100 km away from section 1 and 200 km from section 2. There are no known sensitive species habitats for section 2, despite the fact that the area was the migratory range of the saiga antelope (an endangered species) and goitered gazelle (a vulnerable species) prior to 1980. Since that time, overhunting and shrinking of the Aral Sea has decimated the saiga population such that only 10% of the original numbers remain. There is no danger that the project roadwork will in any way interfere with these species. A less severe, but similar condition, affects the goitered gazelle. There are other vulnerable birds and herptiles species in the general area, but they have not been sighted within 5 km of the road sections by environment officials of Gozcompriroda Nukus or Kungrad for over a decade.

7. **Economic and Cultural Resources.** The Republic of Karakalpakstan, where nearly all the road improvements will take place, is sparsely populated (7.5 people/km^2) and areas within the road right-of-way area are almost totally devoid of settlements. There is no human settlement within the 50 m wide right-of-way along the entire project corridor. Some nomad camps and a few road-toll houses are located some distance from the road. A number of villages identified in the social assessment report are located 5 km or more from the road sections. The project road section has no farming, other than nomadic sheep and cattle herding which has decreased the sparse grass cover, thereby increasing problems with sand dunes and erosion. The land is used almost totally for light grazing or is unused. Generally, towns near the project road have electricity, but little else. This is particularly true in the Republic of Karakalpakstan, where frequent power outages are experienced and basic household services such as piped potable water or indoor toilet facilities do not exist.

8. Topraq Qala Fort, spread over a 120 m x 100 m area, is an adobe walled fortification located along section 2 (km 887) north of Kungrad and is a second century A.D. structure from the Kushan period. Toprak Qala has no access or connection to the project road. The fort's outer mud wall boundary is located about 150 m from the A-380 highway. Daud Ata Cemetery is also located along section 2 at km 889 on the west side of the A-380 highway. It is actively used by the four small villages located to the east, as well as by the people of Kungrad. The cemetery entrance is located 50 m from the edge-of-pavement. On the Ustyurt Plateau, there are a series of other archaeological sites—Kirqgiz Qalaa and Tesik Qalaa—dating from the same period as Daud Ata Cemetery. These areas are known only from historical records, i.e., they have not been rediscovered.

D. Screening Environmental Impacts and Mitigation Measures

9. **Pre-Construction Phase**. The decision to restrict the road upgrading to within the existing right-of-way and carriageway will keep construction impacts to a minimum. Existing

transmission lines and underground gas pipelines are located outside the right-of-way. A work boundary of 25 m from the centerline of sections 1 and 2 will be defined using fencing to ensure that construction equipment are kept within the work sites. The Road Fund also plans to bring all construction materials to the construction area in bulk by railcar and from nearby intermodal terminals. Large trucks (up to 26 tons) will be used to transport materials to the construction site. Construction vehicles and equipment will make use of the existing highway such that no new access roads need to be established. As part of the detailed design work, areas along sections 1 and 2 that are prone to flash floods shall be identified by local road agency staff and these conditions shall be accommodated in the final design.

10. **Construction Phase**. Road widening will require clearing of about 130 hectares (ha) of land within the right-of-way. Natural vegetation removed during construction shall be replaced. Stabilization using reed mats and the planting of saksaul (*Haloxylon* sp.) seedlings according to advice from the Uzbekistan Forestry Institute in Tashkent will be undertaken. It may be possible to use waste sewage water to help with watering of revegetation sites. To prevent wind and water erosion, revegetation of the disturbed areas will be undertaken as the work proceeds and as soon as work on any given stretch is completed. During the initial environmental examination (IEE), it was determined that a saksaul tree nursery was established with donor assistance (German development cooperation through Deutsche Gesellschaft für Technische Zusammenarbeit or GTZ) in the Republic of Karakalpakstan and that trees are available for replanting purposes.

11. Extraction of sand and gravel in riverbeds shall be prohibited except (i) where there is no technically and economically feasible alternative; and (ii) provided specific mitigation measures are implemented to minimize impacts on river morphology, water quality, and ecosystems (e.g., reduced extraction during the fish spawning period). Materials shall be sourced from licensed quarry/borrow areas operations. Borrow pits shall be dewatered and fences shall be provided, as appropriate, to minimize health and safety risks. Large volumes of quarry rock, aggregate, and sand will be transported and stored near the roadworks. Work and storage areas and haul routes will be constantly exposed to the elements, and will primarily create dust during the frequent windy conditions. Dust control will be very difficult given the scarcity of water. Dust at work and materials storage sites will be controlled by watering, using shallow aquifer saline water. Along the haul roads, provision of canopies on loaded trucks will be the primary mitigation measure. Any spills on the haul roads will be cleaned up by the contractor within a 24-hour period. It is assumed that the new mobile plants purchased as part of this loan will have dust suppression technology installed and as such will help to control the dust plumes that usually come from crushing operations. Emissions should be kept to a minimum given that state-of-the-art machinery will be used. Inspection and regular reporting will ensure that equipment is maintained to specifications and that dust is carefully and continuously managed. Dust control will be particularly stringent for mobile crushing plants, which can produce large plumes of fine dust that can become airborne many kilometers downwind of their location.

12. Sediment-laden drainage water is not an issue since there is no surface water body into which it may drain. Runoff will simply percolate into the surrounding soils during the rare rains. Fuel will be stored in an adequately protected area to prevent contamination of groundwater in case of spills or leaks. Construction camps shall be provided with septic tanks, and solid waste shall be properly stored and disposed of. The contractor shall undertake proper decommissioning of work areas, work camp sites including waste dumps, and sealing/securing of wells newly dug for use during the construction period. Construction inspection will include specific examination of existing culverts and water channels in areas subject to flash flooding to reconfirm that no drainage restrictions will result because of the construction work. The contractor shall prepare a traffic management plan to ensure that adequate vehicular and pedestrian access is provided at all times.

13. Given the scarcity of water (particularly water suitable for use in concrete making) and a plan for contractors to extract large volumes from the deep aquifer along the road or from existing wells, a water extraction permitting and monitoring program will be prepared by the contractors in close consultation with local water management authorities. The extraction volumes per well will be established based on the geo-hydrological conditions as determined by experts, such that recharge and extraction will be balanced. Each well to be used will have a maximum sustainable extraction volume established, and a meter will be affixed to each well with a seal. Meters will be read daily, with records sent to local authorities. Contractors exceeding allowable limits will have the water supply shut off and an investigation completed and fines paid.

14. The project implementation unit (PIU), with the assistance of the construction supervision engineer, shall undertake regular environmental compliance monitoring. A monitoring checklist will be prepared as part of each monitoring cycle and a monitoring report, which will be attached to the weekly and monthly progress reports. The monitoring report will provide an assessment of the contractor's implementation of mitigation measures, identification of other impacts that need to be addressed, and documentation of complaints by the affected people and how such complaints were addressed. To carry mitigation measures over into the operating period, the contractor will prepare a construction period environmental mitigation completion report to be submitted to Uzavtoyul for its use during the operational period. Some measures, such as revegetation, will need to be continued and strengthened during the operational period.

15. **Operation Phase.** With an expected small increase in traffic volume, associated impacts will likely be minor. Local air and noise conditions will be affected minimally. Uzavtoyul shall continue maintaining revegetation areas and confirmation of the predicted noise and vibration disturbance caused by traffic increase if there is roadside residential development. Depending on the shipping routes, the transport of larger volumes of hazardous and toxic materials may marginally increase the risk of hazardous material spills. Once the traffic volume of trucks doubles and the movement of hazardous and toxic materials increases significantly, a specific spill contingency plan should be prepared and provincial offices should be trained to respond to spills.

E. Institutional Requirements and Environmental Monitoring Plan

16. The environmental management plan (EMP) proposed in the IEE shall be made legally binding through inclusion as environmental clauses in the Loan Agreement between the Government and ADB as well as in the specifications in the contract bid documents. The contractor shall be responsible in implementing the identified mitigation measures during the construction stage and shall be required to prepare a site-specific construction period environmental action plan defining steps they will take to ensure timely and proper implementation of mitigation measures using, as basis, the environmental controls recommended in the IEE. The Project will have a PIU assisted by a construction supervision engineer, likely an international consultant, with responsibility for environmental mitigation and monitoring oversight. It will be the construction supervision engineer's responsibility to establish specific pay items for the environmental mitigation and monitoring activities, with payments made only after verification that each work component has been completed as prescribed. Since neither Uzavtoyul nor the Road Fund have skills in environmental compliance inspection/monitoring and reporting, particularly at the *oblast* or provincial level, the PIU will organize and coordinate workshops for managers and *oblast*-level inspectors. Topics will include environmental assessment, mitigation inspection, enforcement of environmental management plans, and reporting. Terms of reference for a short training program have been prepared and are attached in the IEE.

17. During the project design period, monitoring will focus on confirming Uzavtoyul's commitment to arranging and participating in training programs on environmental

assessment, mitigation and monitoring methods, and reporting. Secondly, the contract documentation will be examined to assure that appropriate environmental safeguards have been added, such as the requirement to implement and adhere to the environmental mitigation and monitoring plan.

18. Construction period monitoring will deal mostly with compliance monitoring of the following construction-related actions: (i) consultation with local community people prior to initiation of work that affects their livelihoods, e.g., access restriction and traffic congestion, noise; (ii) execution and management of the revegetation program; (iii) handling and delivery of construction materials; (iv) dust management at construction sites; and (v) general good housekeeping activities by the contractor at all construction sites.

F. Public Consultation and Information Disclosure

19. Two public consultation sessions, attended by local officials and small businesspersons, were undertaken for the Project. During these consultations, all project details known at the time, except costs, were disclosed, including the preparation of an EMP and the strong commitments of Uzavtoyul to follow the environmental guidelines defined in the IEE. During both sets of meetings, participants were pleased to note the emphasis on environmental controls but felt that there was little to be concerned about for this Project. The first consultation was in June 2007, held in Bukhara and Urgenh. The TA consultants presented the Project and sought comments and inputs. The participants did not raise concerns regarding potential environmental impacts and expressed full support for the Project. The second round of consultations was held in Nukus and Kungrad, Karakalpakstan in July 2007, and addressed specific environmental concerns such as the existence and sensitivity of the endangered species near the project area, and existing concerns with noise and air pollution. Local officials and municipal managers had no concerns with construction period impacts, but were interested to learn about the traffic management program during the construction, as the work would be done on the existing A-380 highway. Uzavtoyul is consulting with its regional offices in this matter and will require that the contractors prepare a traffic management program.

G. Findings and Recommendations

20. The project road, along with other proposed improvements along various sections of the A-380 highway, will contribute to reduced travel time, more reliable transport service, greater passenger comfort, and generation of jobs stemming from greater traffic-induced commerce. These changes will, over the long term, gradually lead to an improved standard of living for local families who take advantage of new income-generating opportunities. It will provide better access to services such as health, schooling, and markets that will be felt immediately once a section or road is improved.

21. While the IEE identified a number endangered species, these are found at great distance from section 2 on the Ustyurt Plateau. Local experts indicated that few, if any, of these species are found anywhere near the road right-of-way.

22. Provided that the mitigation and monitoring actions defined in the IEE are implemented during the construction and operation periods, the Project will not have significant adverse environmental effects and should be carried out as planned.

H. Conclusion

23. The IEE is considered sufficient to identify anticipated impacts associated with the Project, and provides measures for their mitigation and management. Therefore, no further environmental assessment is required.