



# Report and Recommendation of the President to the Board of Directors

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Project Number: 38236-02  
July 2009

## Proposed Supplementary Asian Development Fund Grant

Republic of Tajikistan: Dushanbe–Kyrgyz Border  
Road Rehabilitation Project (Phase II)

## CURRENCY EQUIVALENTS

(as of 29 June 2009)

Currency Unit – somoni (TJS)

TJS1.00 = \$0.2272  
\$1.00 = TJS4.4005

## ABBREVIATIONS

AADT	–	annual average daily traffic
ADB	–	Asian Development Bank
ADF	–	Asian Development Fund
CAREC	–	Central Asia Regional Economic Cooperation
EA	–	executing agency
EIRR	–	economic internal rate of return
EMP	–	environmental management plan
GDP	–	gross domestic product
ICB	–	international competitive bidding
IEE	–	initial environmental examination
MOTC	–	Ministry of Transport and Communications
NCB	–	national competitive bidding
NPV	–	net present value
PIU	–	project implementation unit
PRC	–	People's Republic of China
SDR	–	special drawing rights

## NOTES

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

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## SUPPLEMENTARY GRANT AND PROJECT SUMMARY

<b>Borrower</b>	Republic of Tajikistan
<b>Classification</b>	<p>Targeting classification: Target intervention – geographic</p> <p>Sector (subsector): Transport, and information and communication technology (road transport)</p> <p>Themes (subthemes): <b>Regional cooperation</b> (cross-border infrastructure), economic growth (widening access to markets and economic opportunities)</p> <p>Location impact: Subregional (high impact), national (high impact), and rural (medium impact)</p>
<b>Environment Assessment</b>	<p>Category C</p> <p>The Dushanbe–Kyrgyz Border Road Project, Phase II (the Project), was classified category B. An initial environmental examination was undertaken in 2005 and the summary initial environmental examination was uploaded to the Asian Development Bank (ADB) website.</p>
<b>Project Description</b>	<p>The Project approved in 2005 is a government priority. It aims to rehabilitate the road from Dushanbe to the border with the Kyrgyz Republic—part of the Central Asia Regional Economic Cooperation (CAREC) Transport Corridors 3 and 5. The supplementary grant will reinforce the Project’s development impact, outcome, and outputs. It will complete the entire Dushanbe–Kyrgyz border road (project corridor).</p> <p>The supplementary grant outputs are (i) the rehabilitated road section from Obigarm to Nurobod (km 95–km 140), (ii) the repaired emergency bypass road at km 110–km 112, (iii) the improved central section from Nurobod to Nimich (km 140–km 217), and (iv) the upgraded border section at Karamik. The new financing will improve 127 kilometers (km) of the project corridor and 7 km of the bypass road.</p>
<b>Rationale</b>	<p>The project corridor is a flagship road in Tajikistan and is part of the CAREC Transport Corridors 3 and 5 under the CAREC Transport and Trade Facilitation Strategy—connecting Afghanistan, Kazakhstan, the Kyrgyz Republic, the People’s Republic of China (PRC), Tajikistan, and Uzbekistan. Because of its poor condition, the corridor obstructs regional trade and domestic commercial activities. The rehabilitated project corridor will spur regional connectivity, trade, and jobs. Directly, it will reduce travel time and transport costs, and improve road safety. It will offer higher prices for agricultural products and lower prices for imports. Improved access will encourage commercial activities among rural communities and the country’s capital, Dushanbe, elevating the welfare of communities, businesses, and people. It will support public service delivery along the corridor, and thereby assist the poor, women, and children.</p>

Supplementary finance is prompted by traffic and trade increases, and not by technical and maintenance flaws. Traffic and trade growth have surpassed forecasts, and the excess traffic has led to premature deterioration of the project corridor. The Project was under-designed to meet current traffic needs and future demands—the cost of success was underestimated. Left as it is, the road quality will continue to deteriorate. Ultimately, this will result in higher investment costs.

Supplementary finance is opportune to (i) close technical and financial gaps resulting from the excess deterioration, (ii) reflect cost effective design and best practice solution by updating the outdated project assumptions, (iii) extend the economic life of the project corridor, and (iv) augment the Project's development impacts. The Project, with additional activities, remains timely and feasible.

**Impact and Outcome** Supplementary finance complements the Project's impact of restoring an integrated and efficient regional road transport and trade link. Its outcome is improved access to markets and social services.

**Investment Plan** The incremental cost is estimated at \$25 million, including taxes and duties, as well as physical and price contingencies.

**Financing Plan**

**Revised Financing Plan**

(\$ million)

Source	Amounts		
	Base Project	New Financing	Total
Asian Development Bank	30.0	20.0	50.0
Government	9.5	5.0	14.5
<b>Total</b>	<b>39.5</b>	<b>25.0</b>	<b>64.5</b>

ADB will extend a supplementary grant of \$20 million from ADB's Special Funds resources. The Government will add \$5 million.

**Period of Utilization** 31 December 2012

**Estimated Project Completion Date** 31 December 2011

**Executing Agency** Ministry of Transport and Communications (MOTC)

**Implementation Arrangements** The project implementation unit will manage day-to-day project activities.

**Procurement** MOTC will procure works following ADB's *Procurement Guidelines* (2007, as amended from time to time). International and national competitive bidding will be used, as well as varying the existing contracts. This will ensure continuity, and adherence to existing implementation schedules.

<b>Advance Contracting and Retroactive Financing</b>	ADB approved advance contracting and retroactive financing (consulting services and works) of up to 20% of the grant amount on 29 April 2009. Expenditures incurred before grant effectiveness within 12 months of grant signing will be eligible for retroactive financing.
<b>Consulting Services</b>	Consultants will be engaged using ADB's <i>Guidelines on the Use of Consultants</i> (2007, as amended from time to time) using least cost selection method and varying the existing contracts.
<b>Benefits and Beneficiaries</b>	The new grant will expand the Project. This will match the scope to existing and projected traffic volumes, and safeguard the project benefits. Additional works will generate 300 semi-skilled and unskilled jobs during implementation.
<b>Risks and Assumptions</b>	<p>The revised economic internal rate of return is 25%, up from the original 15%, so the supplementary grant guarantees project viability. Although there are fewer project risks, insufficient maintenance after completion, inadequate contractor performance (quality of works, and budget and time consciousness), and weak safeguards management remain key concerns.</p> <p>These will be counteracted by (i) monitoring maintenance of the project corridor after completion—often the cause of project failure; and (ii) overseeing contractor and consultant performance regularly. ADB will examine disbursement targets against physical progress, and begin evaluating results early during implementation. Tajikistan Resident Mission and headquarters staff will join to follow up on agreed schedules and quality of deliverables, and report to ADB Management. Additional safeguard inputs will help ensure safeguard compliance.</p>



**DUSHANBE-KYRGYZ BORDER ROAD REHABILITATION PROJECT (PHASE II)**  
**Supplementary Grant**



- ★ National Capital
  - ⊙ Regional Capital
  - City/Town
  - Project Road - Phase 1
  - Project Road - Phase 2
  - Project Road - Phase 3
  - Proposed Supplementary Grant Road
  - CAREC Transport Corridor 3
  - Ongoing Project financed by other donors
  - Project financed by ADB and cofinanciers
  - Negotiations ongoing with PRC and ISDB
  - Main Road
  - Railway
  - River
  - Regional Boundary
  - Autonomous Regional Boundary
  - International Boundary
- Boundaries are not necessarily authoritative.



## I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on a proposed supplementary grant to the Republic of Tajikistan for the Dushanbe–Kyrgyz Border Road Rehabilitation Project (Phase II).<sup>1</sup>

## II. EXISTING PROJECT

### A. Rationale

2. The Dushanbe–Kyrgyz border road (the corridor) is an integral part of the regional road network in Central Asia—connecting Afghanistan, Kazakhstan, the Kyrgyz Republic, the People’s Republic of China (PRC), Tajikistan, and Uzbekistan. This corridor connects with Pakistan’s ocean ports to the south, and the Russian Federation to the north. Landlocked and mountainous, the corridor offers access to regional markets and economic opportunities. The 2007 Central Asia Regional Economic Cooperation (CAREC) Transport and Trade Facilitation Strategy<sup>2</sup> recognized the corridor’s importance, and classified it as Transport Corridors 3 and 5. Its implementation action plan prioritized the corridor. Despite its significance, Tajikistan is fiscally constrained from improving the corridor and suffers losing key road infrastructure from lack of maintenance and funds. Consequently, the poor condition of the corridor undermines Tajikistan’s potential for regional trade and growth.

3. The Asian Development Bank (ADB) has been the lead multilateral financial institution supporting road infrastructure in Tajikistan. ADB’s phased financial assistance for the corridor used the Asian Development Fund (ADF) annual allocation for Tajikistan. Three projects were prepared: (i) the Dushanbe–Kyrgyz Border Road Rehabilitation Project, Phase I (Phase 1);<sup>3</sup> (ii) the Dushanbe–Kyrgyz Border Road Rehabilitation Project, Phase II (the original Project); and (iii) the CAREC Regional Road Corridor Improvement Project (Phase 3).<sup>4</sup> These projects cover 350 kilometers (km) of the corridor and 137 km of rural roads. Phase 1 was completed in 2008 and the other two are still active. They lead to better use of Tajikistan’s strategic location and road networks for regional trade, and reap direct benefits (reduced transport and time costs) from improved connectivity. They also help reform institutions, secure road maintenance budgets, and develop capacity for optimal road operations.

4. The Dushanbe–Kyrgyz Border Road Rehabilitation Project, Phase II (the original Project and the project road) is the only substantial link between Rasht Valley in Tajikistan and the capital, Dushanbe. Heavy fighting in the Rasht Valley during the 1992–1997 civil conflict caused a poverty incidence higher than the national average. The project area produced agricultural products for sale to the former Soviet Union but sales declined substantially after independence. This was partly because of the project road’s poor condition, as it obstructed regional trade and domestic commercial activities. Improved access from the original Project offers higher prices

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<sup>1</sup> ADB. 2005. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan and Asian Development Fund Grant to the Republic of Tajikistan for the Dushanbe–Kyrgyz Border Road Rehabilitation Project (Phase II)* (Loan 2196-TAJ). Manila.

<sup>2</sup> ADB. 2006. *Technical Assistance for Central Asia Regional Economic Cooperation: Transport Sector Strategy Study*. (TA 6347-REG). Manila.

<sup>3</sup> ADB. 2003. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan and Technical Assistance Grant to the Republic of Tajikistan for the Dushanbe–Kyrgyz Border Road Rehabilitation Project (Phase I)* (Loan 2062-TAJ). Manila.

<sup>4</sup> ADB. 2007. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan and Asian Development Fund Grant to the Republic of Tajikistan for the CAREC Regional Road Corridor Improvement Project* (Loan 2359-TAJ). Manila.

for agricultural products, lower prices for imports, reduced transport costs, more job opportunities, better road safety, and public service delivery. Direct beneficiaries are passenger and freight transport users, vehicle owners, and workers. Indirect welfare benefits accrue to communities, businesses, the poor, women, children, and the whole economy.

## B. Scope

5. The original Project includes (i) improving the two-lane central section (km 140–km 217), (ii) mitigating the landslide risk at the Tajik–Kyrgyz border crossing (km 337–km 349), (iii) repairing rural roads (60 km), (iv) procuring road maintenance and vehicle weighing equipment, (v) strengthening the accounting department in the Ministry of Transport and Communications (MOTC), and (vi) developing an HIV/AIDS awareness program.

## C. Cost Estimates and Financing Plan

6. The total cost of the original Project was estimated at \$39.5 million, including taxes and duties, physical and price contingencies, and interest and other charges (Table 1).

**Table 1: Original Investment Plan**  
(\$ million)

Item	Amount
<b>A. Base Costs</b>	
1 Road Improvement	30.4
2 Road Network Sustainability	1.0
3 HIV/AIDS and Migration	0.6
4 Strengthening MOTC's Accounting Department	0.2
5 Project Management	0.3
<b>Subtotal (A)</b>	<b>32.5</b>
<b>B. Contingencies</b>	<b>6.4</b>
<b>C. Financing Charges During Implementation</b>	<b>0.6</b>
<b>Total (A+B+C)</b>	<b>39.5</b>

Source: Asian Development Bank estimates.

7. ADB approved a loan in various currencies of SDR20,353,000 (equivalent to \$31.1 million) and a grant of \$0.5 million from the Special Funds resources on 17 November 2005 (Table 2). The loan and grant became effective on 13 March 2006 with a closing date of 31 December 2009.

**Table 2: Original Financing Plan**  
(\$ million)

Source	Amount
Asian Development Bank	
Asian Development Fund Loan	29.5
Asian Development Fund Grant <sup>a</sup>	0.5
<b>Subtotal</b>	<b>30.0</b>
Government of Tajikistan	9.5
<b>Total</b>	<b>39.5</b>

<sup>a</sup> For HIV/AIDS and migration component, Government contributed \$0.1 million.

Source: Asian Development Bank estimates.

## D. Implementation Status

8. To date, contract awards have amounted to \$27.7 million (89% of total loan amount) and disbursements \$12.1 million (43% of total contract awards). Only the works on the central section of the project road are behind schedule.

9. **Road Improvement.** Civil works are divided into three sections:

- (i) **Central section.** The contract of \$24.6 million was awarded on 17 January 2007 and about 40% of civil works were completed by May 2009. Contractor mobilization was slow, but has since accelerated.
- (ii) **Border section.** The contract of \$1.17 million was awarded on 4 August 2008 and about 70% of civil works were completed by May 2009. Landslide mitigation works are expected to be completed on time.
- (iii) **Rural roads.** Implementation is on schedule. Two contracts totaling \$0.69 million were awarded on 16 April 2008 and about 60% of the total has been disbursed.

10. **Road Network Sustainability.** MOTC, the Executing Agency (EA), requested to postpone procuring road maintenance and vehicle weighing equipment until most of the project works were completed. Procurement is expected to be completed by November 2009.

11. **Consulting Services.** These include (i) construction supervision, (ii) institutional support to MOTC's Accounting Department, (iii) project auditing, and (iv) HIV/AIDS awareness. All consulting services outputs are expected to be delivered on time.

12. **Implementation.** Civil works of the central section have lagged behind schedule, mainly because of poor work planning by the contractor and inadequate supervision from the consultants. In addition, the project implementation unit (PIU) under MOTC has (i) a heavy workload with several simultaneous projects; (ii) difficulties retaining competent staff because of low government wages, despite demanding workload and responsibility; and (iii) weak contract administration for large projects. Lastly, weak implementation of ADB's social and environmental safeguards policies remains a concern. Complaints were received while implementing the land acquisition and resettlement plan. Due diligence works in November 2008 and March 2009 concluded that no irregularity occurred in compensating affected persons.<sup>5</sup> The complaints were mostly from (i) miscommunication between the PIU and affected persons, (ii) misunderstanding of ADB's safeguard policies and the original Project, and (iii) missing information and data. Deficient implementation of the environmental management plan (EMP) was caused by the PIU's lack of environmental expertise and consultants inadequate supervision of contractors.

## III. SUPPLEMENTARY GRANT

### A. Proposed Changes and Rationale

13. The supplementary grant will expand the original project scope as follows:

<sup>5</sup> Finnroad. 2009. *Land Acquisition and Resettlement Complaint Due Diligence Report*. <http://www.adb.org/Documents/Produced-Under-Loans/38236/38236-TAJ-DPL.pdf>

- (i) **Ancillary works.** These entail scaled up works beyond the original Project. The 77 km central section (km 140–km 217) and the 9 km<sup>6</sup> border section at Karamik (km 337–km 346) will be upgraded.
  - (a) **Central section.** Three major additional activities are (i) pavement upgrading of the km 140–km 150 section; (ii) additional earthworks on the km 177–km 180 section; and (iii) additional quantities to cover widened technical gaps of the initial designs for pavement, drainage, structural, and road safety on various project road sections. Excess traffic growth has triggered premature deterioration and consequent additional quantities and pavement upgrade.
  - (b) **Border section.** The ancillary works involve upgrading the pavement design. This section is a geologically hazardous landslide area, and the original Project covered landslide mitigation works. Intensified cross-border and transit traffic now calls for improved surface treatment.
- (ii) **New road sections.** These are the 41 km<sup>7</sup> from Obigarm to Nurobad (km 95–km 140) and the 7 km emergency bypass road (km 110–km 112). These sections were not included in the original project scope, but they were part of the earlier Phase 1. ADB's social and environmental safeguards requirements were fully met under Phase 1.
  - (a) **Km 95–km 140 section.** Works required are upgrading of pavement, drainage, and road safety. A potential hydropower development project limited the Phase 1 work scope (minor repair) for the section, which assumed completion of the hydropower plant by 2010. This is now less relevant (para.14), while the current traffic volume demands pavement upgrading. If not, this section will continue to be a missing link along the corridor.
  - (b) **Emergency bypass road.** These works are improvement of drainage, earthworks, and road safety. The km 110–km 112 section of the project road is highly prone to rock fall and landslide. The bypass road warrants alternative access for emergencies (major blockages). This road underwent minor repairs (pothole patching and cleaning) under Phase 1. However, steep grades and deficient drainage remain major safety concerns.

14. **Rationale.** The original project road sections deteriorated faster than expected because of the conservative assumptions and designs, the underestimated costs of success from the earlier project (Phase 1), and frequent natural disasters during implementation (Appendix 5). These factors have resulted in widened technical gaps between the original design specifications and needed works. Most importantly, the impact of a nearby hydropower development project was removed from the original project assumption. Because of its investment size, resettlement impacts, construction period, and macroeconomic prospects, the hydropower project will not materialize in the medium term.<sup>8</sup> Therefore, the project road will be unaffected. The Government and ADB determined that the initial designs do not meet current

<sup>6</sup> The length of the border section has been revised to 9 km from the original estimate of 12 km.

<sup>7</sup> Of this, 4 km is good condition with asphalt pavement.

<sup>8</sup> The Government confirmed that the hydropower development project will not impact the project corridor in the medium term in a letter dated 21 April 2009.

and future traffic requirements and minimum safety standards, and there is sufficient economic justification to upgrade the original design.

## B. Impact and Outcome

15. The supplementary grant will expand the original Project, reinforcing its initial impact and outcome. The original Project contributes to an integrated and efficient regional road transport and trade link (impact), and leads to improved access to market and social services (outcome). The expanded Project reflects cost effective design and best practice solution to bridge technical gaps and extend the project road's economic life. A revised design and monitoring framework is in Appendix 1.

## C. Eligibility

16. The supplementary grant complies with ADB's Policy on Supplementary Financing.<sup>9</sup> It meets the eligibility criteria of (i) financing a modified scope and activities as part of operation restructuring caused by unanticipated circumstances and needs during implementation, (ii) a performing existing project, and (iii) according high government priority and aligning ADB's strategies for Tajikistan and CAREC. The expanded Project does not materially alter the purpose of the original Project.

## D. Revised Costs

17. The new investment will cost \$25 million, including taxes and duties, and physical and price contingencies (Table 3). The revised total project cost is \$64.5 million. Detailed cost estimates and financing plan are in Appendix 2.

**Table 3: Revised Costs**  
(\$ million)

<b>Item</b>	<b>Base Costs</b>	<b>Additional Costs</b>	<b>Total</b>
Civil Works	23.6	16.0	39.6
Project Management and Consulting Services	3.0	0.8	3.8
Taxes and duties	5.9	4.0	9.9
<b>Subtotal</b>	<b>32.5</b>	<b>20.8</b>	<b>53.3</b>
Contingencies	6.4	4.2	10.6
Financing Charges During Implementation	0.6	0.0	0.6
<b>Total Project Cost</b>	<b>39.5</b>	<b>25.0</b>	<b>64.5</b>

Source: Asian Development Bank estimates.

## E. New Financing Plan

18. ADB will provide a grant of \$20 million from its Special Funds resources to help finance additional works. The Government will contribute \$5 million (Table 4).

<sup>9</sup> ADB. 2005. *A Review of the Policy on Supplementary Financing: Addressing Challenges and Broader Needs*. Manila.

**Table 4: New Financing Plan**  
(\$ million)

Source	Amount			
	Base	Additional	Total	%
Asian Development Bank	30.0	20.0	50.0	77.5
Government of Tajikistan	9.5	5.0	14.5	22.5
<b>Total</b>	<b>39.5</b>	<b>25.0</b>	<b>64.5</b>	<b>100.0</b>

Source: Asian Development Bank estimates.

## F. Remedial Steps

19. Satisfactory implementation of the original Project is crucial to the success of the additional works (ancillary works and new road sections under the supplementary grant). The original project schedules, milestones, and costs will be monitored regularly. The EA will work with contractors, consultants, and ADB on the construction work program, performance, and outputs. Contractors and consultants have since stepped up works on the central section. At the same time, ADB will examine disbursement targets against actual physical progress, and begin evaluating results early during implementation of the original Project as well as the additional works. Tajikistan Resident Mission and headquarters staff will join to follow up on agreed schedules and quality of deliverables, and report to ADB Management.

20. Phasing works under three distinct projects (Phase 1, original Project, and Phase 3) have been advantageous—better contract supervision and cost control as well as manageable works—but have duplicated supervision consultants' inputs in administration works. Multiple contracts implemented simultaneously require more coordination and administrative oversight. For the additional works, four PIU staff will be added to bolster its oversight function (para. 21). The key remedial features are efficient contracting strategies. A contract variation is envisaged to be issued to the supervision consultants currently implementing Phase 3 to oversee the additional works to minimize overlapping consultant services. Civil works will use a combination of methods: (i) ancillary works (central and border section of the original Project) will use existing contract(s) of the original Project and/or Phase 3, where feasible, to minimize the initial constraints of a slow start-up and delayed contractor mobilization imposed on the original Project; and (ii) new road sections will use standard competitive bidding as they entail separate works and do not depend on the ongoing works of the original Project. Advance contracting and retroactive financing have been approved to accelerate preparation works.

## G. Implementation Arrangements

### 1. Project Management

21. MOTC will remain the EA. The PIU under MOTC will remain responsible for day-to-day project management, preparing withdrawal applications and progress reports, and maintaining project accounts and financial records. The PIU has four full-time staff (two engineers, a procurement specialist, and an accountant) working under the original Project. Before awarding additional civil works contract, four additional staff will be recruited (a road engineer, a procurement specialist, a safeguards specialist, and a translator). This will reduce the current heavy workloads and strengthen the oversight function (paras. 12 and 20).

## 2. Implementation Period

22. The Project will be implemented in 30 months. Civil works will be completed by 31 December 2011. A revised implementation schedule is in Appendix 4.

## 3. Procurement

23. All procurement under the supplementary grant will follow ADB's *Procurement Guidelines* (2007, as amended from time to time). The new sections (the km 95–km 140 section and emergency bypass road) have separate work scopes and are not affected by the ongoing works of the original Project. The km 95–km 140 section will use international competitive bidding (ICB) for civil works contracts above \$1 million, and the emergency bypass road section will use national competitive bidding (NCB) for civil works contracts \$1 million or less. NCB will be under the Law of the Republic of Tajikistan on Public Procurement of Goods, Works and Services (3 March 2006), subject to the clarifications and modifications agreed with ADB and indicated in section II of the procurement plan (Appendix 3). The EA will update it, as necessary. The ancillary works are proposed to be incorporated in the existing contracts of the original Project and/or Phase 3 (either one or both) since they represent a natural extension of an earlier or ongoing job. The contractors from the original Project and Phase 3 have been engaged under ICB procedures and initially indicated keen interest in the additional works opportunities. This is the most expeditious, economical, and efficient option under the circumstances, and will ensure continuity of works as well as adherence to existing implementation schedules. Furthermore, continuation of the civil works engagement will ensure a compatible quality of works, and timely and seamless work coordination. The procurement plans of the respective projects will be updated to reflect contract variation(s) of the original Project and/or Phase 3 contracts upon approval of variation(s) by ADB. The decision to which extent the additional works of the supplementary grant will be incorporated into existing contracts under the original Project and/or Phase 3 will be based on the contractors' earlier and/or ongoing performance, workmanship, resources, capacity, and interests to take on the additional works. In case of failed contract variation(s) under both projects (the original Project and Phase 3), procurement of the ancillary works may follow competitive bidding procedures.

## 4. Consulting Services

24. Consultants will be recruited in accordance with ADB's *Guidelines on the Use of Consultants* (2007, as amended from time to time). Incremental consulting services inputs are construction supervision and project auditing. Construction supervision consulting services will be carried out over 18 months, requiring 18 person-months of international consultant inputs and 126 person-months of national consultant inputs. It is envisaged to issue a contract variation to the supervision consultants currently implementing Phase 3 to gradually oversee and supervise the additional works to minimize duplication of consultant inputs, and to ensure efficiency and timely delivery. The expected additional tasks of the Phase 3 consultant clearly represent a continuation of previous and ongoing works, and it was engaged under quality and cost-based selection using full technical proposals in 2008. Positive feedback has been received from Phase 3 supervision consultants taking on additional works. This approach will (i) ensure seamless coordination, technical consistency, and oversight continuity; (ii) minimize overlapping consulting inputs, costs, and liability risks; (iii) reduce the mobilization period; and (iv) simplify and streamline ongoing ADB-financed project supervision for the project corridor. This option will only be used if the Phase 3 supervision consultant has shown solid performance throughout its engagement, and can demonstrate access to sufficient resources and capacity to manage additional supervision works under the original Project; and on the condition that

contract negotiations for the additional works are concluded successfully. Other consultant selection methods may be used if the Phase 3 supervision consultant does not meet the minimum requirements and/or in case of a failed contract variation(s). The draft terms of reference for construction supervision consulting services are in Supplementary Appendix A. Least cost selection will be used for recruiting project auditing services.

## **5. Advance Contracting and Retroactive Financing**

25. The Government requested advance contracting and retroactive financing, which ADB approved on 29 April 2009. Up to 20% of the proceeds of the supplementary grant will be eligible for retroactive financing for ongoing and awarded contracts under the original Project, provided that eligible expenditures on works and consulting services follow the agreed procedures and were incurred before grant effectiveness within 12 months of the grant signing. However, this approval does not commit ADB to provide the supplementary grant.

## **6. Anticorruption Measures**

26. ADB's *Anticorruption Policy* (1998, as amended to date) was explained to and discussed with the Government, MOTC, and the PIU. 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 additional works financed by the supplementary grant. To support these efforts, relevant provisions of ADB's Anticorruption Policy are included in the grant regulations and the bidding documents. In particular, all contracts financed by ADB in connection with the supplementary grant shall include provisions specifying the right of ADB to audit and examine the records and accounts of the EA, and all contractors, suppliers, consultants, and other service providers as they relate to the supplementary grant.

## **7. Financial Management**

27. The EA will manage the flow of funds, accounting, reporting, and auditing. The financial management assessment of the EA was conducted under the original Project and was found to be acceptable. Its accounting department is being improved under the original Project since 26 January 2009. Activities include (i) strengthening the accounting and finance functions of the Head Office of MOTC; (ii) designing and implementing a manual for monitoring ADB-financed projects in the Finance and Accounting Division of MOTC; (iii) procuring computer and network equipment for the automation of financial and management reporting systems in MOTC; (iv) defining the role, responsibilities, and organization structure of the proposed internal audit function in MOTC; and (v) designing and delivering training to finance and accounting staff of MOTC. The activities are consistent with the recommendation under the Phase 3 financial management assessment report.<sup>1</sup>

## **8. Disbursement Arrangements**

28. The supplementary grant will be disbursed following ADB's *Loan Disbursement Handbook* (2007, as amended from time to time). The disbursement arrangements agreed for the original Project will be retained. A separate imprest account will be established promptly

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<sup>1</sup> Supplementary Appendix E under ADB. 2007. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan and Asian Development Fund Grant to the Republic of Tajikistan for the CAREC Regional Road Corridor Improvement Project* (Loan 2359-TAJ) Manila.

after grant effectiveness at a commercial bank acceptable to ADB and will be managed by the EA. The initial advance to the imprest account is not to exceed \$500,000. Total advances are not to exceed the estimated ADB share of eligible project expenditures to be financed through the imprest account for the next 6 months or 10% of the supplementary grant amount, whichever is lower. The statement of expenditures procedure will be used for liquidation and replenishment of the imprest account(s) and reimbursement of eligible expenditures not exceeding \$50,000 per individual payment. Payments in excess of the statement of expenditures ceiling will be reimbursed, liquidated, or replenished based on full supporting documentation. For civil works contracts, direct payment procedures will apply.

## **9. Accounting, Auditing, and Reporting**

29. The EA will prepare and submit to ADB quarterly and annual progress reports on implementation. These reports will indicate progress made and problems encountered during the review periods, steps taken to remedy the problems or proposed countermeasures, the proposed activities, and expected progress during the following periods. One project completion report will be required for the original Project and additional works financed by the supplementary grant. Within 3 months of physical completion of the supplementary grant, MOTC will submit to ADB a combined project completion report of the original Project and additional works of the supplementary grant. The submission date and report contents will be coordinated with the original Project for simplification and further consolidation.

30. The EA will maintain separate accounts for the additional works of the supplementary grant financed by ADB and the Government, and have them audited by an independent auditor acceptable to ADB. The audited project accounts and the auditor's reports—including separate opinion on the use of the fund proceeds, grant compliance, imprest account, and the statement of expenditure procedures—will be provided to ADB within 6 months after the end of each fiscal year. These need to be submitted together with those of the original Project. The Government was informed of ADB's policy on submission of audited accounts, which covers failure to submit audited accounts and financial statements by due dates. If submission of an audited project accounts is delayed by more than 6 months (i) a no commitment letter will be issued, if applicable; and (ii) ADB may not approve new contract awards. If the delay is more than 12 months, fund disbursements may be suspended or the funds may be canceled.

## **10. Project Performance Monitoring and Evaluation**

31. The EA has a project performance monitoring system for impacts, outcome, outputs, and activities, which has been updated (Appendix 1). The EA and ADB agreed baseline indicators covering the economic, social, environmental, and poverty reduction impact under the original Project. These will be updated, monitored, and reported quarterly.

## **11. Stakeholder Participation and Consultations**

32. Due diligence was carried out during preparation and implementation—covering technical, social, and safeguards issues. Nongovernment organizations and affected local communities were engaged during the process. Regular consultations are being carried out at the higher institutional level, including governments and external aid agencies.

## **12. Reviews**

33. ADB will combine review of the original Project and the additional works of the supplementary grant. To ensure timely and effective implementation, at least three reviews will be undertaken annually. The EA will monitor implementation and inform ADB promptly of major problems that may result in the target schedule not being met. One project completion report will be required after the closing of the supplementary grant (para. 29). ADB will field a combined project completion review mission upon completion of the additional works.

## **IV. BENEFITS, IMPACTS, AND RISKS**

### **A. Economic Benefits**

34. The original project economic analysis remains valid, although adjustments have been made to reflect additional investment costs. These extra costs deliver added benefits and safeguard investments made so far. They correct technical gaps and reinforce the delivery of all outputs. Accordingly, the new economic internal rate of return (EIRR) increased to 25%—up from 15%. The EIRR is highly sensitive to traffic and trade forecasts, and less responsive to increased investment and operating costs (Appendix 5).

### **B. Sustainability**

35. The Government has kept its commitment on its road maintenance budget. The road maintenance budget increased at an average annual growth of 18% from TJS13 million in 2004 to TJS31 million in 2009. The actual amount disbursed increased from TJS13 million in 2004 to TJS27 million in 2008. A separate maintenance budget will be retained after the supplementary grant approval and \$200,000 will be made available annually for the project road. ADB will continue to engage the Government to increase road maintenance financing to the extent possible given its fiscal constraints and the national priority projects.

### **C. Environmental Impact**

36. The additional works of the supplementary grant are classified category C, and the original Project category B. The additional works are not environmentally sensitive, and will not entail significant environmental impacts. Initial environmental examinations (IEEs) were prepared for Phase 1 (new sections) and the original Project (ancillary works), and uploaded to ADB's website. The EMP included in each IEE outlines mitigation measures, monitoring actions, and capacity building. The EMP will be part of the contract documents and will be monitored by supervision consultants and the EA.

### **D. Social and Poverty Impact**

37. The project area is primarily agricultural and unemployment is high. The additional works will generate employment—300 new unskilled and semi-skilled jobs will be created, and encourage hiring of poor people from the project area. The original Project directly benefits about 180,000 people in 26 districts and 120,000 poor villagers residing adjacent to the project road. The project road connects Tajikistan to international markets as well as local markets in between, opening up economic opportunities for communities, businesses, and people. With less transport costs and time, a higher value for agricultural products is warranted. Moreover, the original Project is improving rural roads to connect rural villages to the project road. Improved rural access, through better public service delivery and road safety, benefit vulnerable

groups (the poor, women, and children) and rural communities. Women benefit directly through the HIV/AIDS awareness program implemented under the original Project, targeting local communities and high-risk groups.

#### **E. Social Safeguards**

38. The resettlement impact is limited. The additional works will take place within the existing right-of-way. They do not entail land acquisition or resettlement. A short resettlement plan has been prepared for the original Project. No resettlement impact is envisaged for the new sections (para 13 [ii]).

#### **F. Risks**

39. The main risks are (i) insufficient maintenance after completion; (ii) inadequate contractor performance (quality of works, and budget and time consciousness); and (iii) weak safeguards management. The risks are manageable. These will be counteracted by (i) monitoring maintenance of the project corridor after completion—often the cause of project failure; and (ii) overseeing contractor and consultant performance regularly. ADB will examine disbursement targets against physical progress, and begin evaluating results early during implementation. Tajikistan Resident Mission and headquarters staff will join to follow up on agreed schedules and quality of deliverables, and report to ADB Management. Additional safeguard inputs will help ensure safeguard compliance.

### **V. ASSURANCES**

40. In addition to the specific covenants in the Financing Agreements (Special Operations) under the original Project, the Government has given the following assurances, which are incorporated in the legal document. Variations from the original Financing Agreements are listed below.

41. **Maintenance Financing.** The Government will annually allocate additional \$200,000<sup>2</sup> (plus inflation since 2009) for maintenance of new road sections. The Government will ensure that actual annual expenditures for road maintenance (including emergency maintenance, but excluding rehabilitation and construction) for roads under MOTC jurisdiction are increased at the same rate as increases in the overall national budget during 2009–2011.

42. **Auditing.** The Government will submit audited project accounts to ADB within six (6) months from the end of the fiscal year during implementation.

43. **Safeguard Unit.** The Government will ensure that the permanent safeguard unit institutionalized within the PIU is adequately staffed and equipped to enable it to review, audit, and monitor safeguard implementation, and that it submits a monitoring report every six (6) months to ADB and to relevant governmental agencies through the EA.

44. **Environment.** The Government will cause MOTC to ensure that

- (i) additional works are designed, constructed, implemented, and maintained following the EMP, IEE, and the summary IEE of the original Project, ADB's *Environment Policy* (2002), and the Government's laws and regulations; and

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<sup>2</sup> Calculated based on TJS15,000 per km. Average 2008 maintenance cost is TJS1,000 per km.

- (ii) contractors follow mitigation measures of the agreed EMP, IEE, and SIEE of the original Project, and report regularly on implementation, and in the event of unanticipated adverse environmental impacts, such impacts are to be reported to the EA and ADB, and remedial actions are consulted with affected persons, the EA, and ADB.

45. **Resettlement.** The Government will cause MOTC to ensure that

- (i) in exceptional or unforeseen situations, e.g., landslide during implementation that affect life, residences, and other structures, relocate affected persons immediately and inform ADB, and pay any statutory compensation and resettlement assistance promptly; and
- (ii) in the event of accidents or mishaps at the project site, the party responsible compensates the affected persons promptly, equitably, and transparently; and the EA ensures this is executed appropriately.

## **VI. RECOMMENDATION**

46. I am satisfied that the proposed supplementary grant would comply with the Articles of Agreement of the Asian Development Bank (ADB) and, acting in the absence of the President, under the provisions of Article 35.1 of the Articles of Agreement of ADB, I recommend that the Board approve the supplementary grant not exceeding \$20,000,000 to the Republic of Tajikistan from ADB's Special Funds resources for the Dushanbe–Kyrgyz Border Road Rehabilitation Project (Phase II), on terms and conditions that are substantially in accordance with those set forth in the draft Grant Agreement presented to the Board.

C. Lawrence Greenwood Jr.  
Vice-President

2 July 2009

## REVISED DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
<p><b>Impact</b> An integrated and efficient regional road transport and trade link</p>	<p><b>By 2015,</b> Trade between Tajikistan and the Kyrgyz Republic increased to 250,000 tons from 27,236 tons in 2006</p> <p>Trade between Tajikistan and the PRC increased to 1 million tons from 14,260 tons in 2006</p> <p>Trade between the PRC and Afghanistan increased to 500,000 tons from 0 tons in 2006</p>	<p>Regional and national economic and transport statistics</p> <p>Statistics from international organizations</p>	<p><b>Assumptions</b> Political stability and continued economic growth in Tajikistan</p> <p>Central Asian regional governments' commitment to regional cooperation</p> <p>Continued external assistance to Tajikistan's road subsector</p> <p><b>Risks</b> Accumulated external debt in Tajikistan</p> <p>Shifts in government priorities caused by noneconomic pressures</p>
<p><b>Outcome</b> Original project outcome reinforced; improved access to markets and social services</p>	<p><b>By 2015,</b> Daily international freight traffic on the project corridor increased to 177 trucks (baseline: 10 trucks in 2006)</p> <p>Domestic traffic on the project corridor increased to 750 AADT (baseline: 250 AADT in 2006)</p> <p>Traffic accidents on the project corridor reduced to 14 accidents per 750 AADT (baseline: 14 accidents per 250 AADT in 2006)</p> <p>Travel time between Dushanbe and the Kyrgyz Republic–PRC border reduced to 8 hours (baseline: 13 hours in 2007)</p>	<p>National economic and social statistics</p> <p>MOTC surveys and statistics</p> <p>Project progress reports</p> <p>ADB review missions</p>	<p><b>Assumptions</b> Adequate stakeholder consultation and support</p> <p>Government's commitment to the Project</p> <p>Adequate maintenance of the project corridor</p> <p><b>Risk</b> Lack of funding for maintaining the project corridor</p>

<b>Design Summary</b>	<b>Performance Targets/Indicators</b>	<b>Data Sources/Reporting Mechanisms</b>	<b>Assumptions and Risks</b>
<p><b>Outputs</b></p> <p>1. Rehabilitation of 127 km of the project corridor</p> <p>2. Improvement of 7 km of the emergency bypass road</p>	<p><b>By December 2011,</b> Ancillary activities:</p> <p>(i) 77 km of the section from Nurobad to Nimich (km 140–km 217) rehabilitated</p> <p>(ii) 9 km of the border road at Karamik (km 337–km 346) upgraded</p> <p>New road sections:</p> <p>(i) 41 km of the road section from Obigarm to Nurobad (km 95–km 140) upgraded</p> <p>(ii) 7 km of emergency bypass road (km 110–km 112) improved</p>	<p>Project benefit monitoring surveys and reports</p> <p>Consultant's final report</p> <p>ADB review missions</p>	<p><b>Assumptions</b></p> <p>No impact from other developments in the nearby project area</p> <p>Timely completion of the original Project and its deliverables</p> <p>Compliance with covenants</p> <p>Support from local governments and communities</p> <p><b>Risk</b></p> <p>Timely provision of counterpart funding</p>
<p><b>Activities with Milestones</b></p> <p>1.1 Advance contracting initiated by June 2009</p> <p>1.2 Supervision consultants engaged by July 2009</p> <p>1.3 Civil works contracts awarded by September 2009</p> <p>1.4 Civil works completed by December 2011</p>			<p><b>Inputs</b></p> <p>ADB: \$20 million (grant)</p> <p>Government: \$5 million</p> <p>Total: \$25 million</p>

AADT = annual average daily traffic, ADB = Asian Development Bank, km = kilometer, MOTC = Ministry of Transport and Communications, PRC = People's Republic of China.

## REVISED COSTS AND FINANCING PLAN

Table A2.1: Revised Costs  
(\$ million)

Item	Total Project Costs			%
	Base Costs	Additional Costs	Total	
<b>A. Base Costs</b>				
1. Road Improvement				
a. Section at km 95–140	-	8.0	8.0	15
b. Emergency bypass		1.0	1.0	2
c. Central section at km 140–217	20.6	2.5	23.1	43
d. Border section	1.0	4.5	5.5	10
e. Rural roads	1.0	-	1.0	2
<b>Subtotal (A1)</b>	<b>22.6</b>	<b>16.0</b>	<b>38.6</b>	<b>72</b>
2. Road maintenance equipment	1.0	-	1.0	2
3. HIV/AIDS and migration	0.6	-	0.6	1
4. Strengthening MOTC's Accounting Department	0.2	-	0.2	0
5. Consulting services				
a. Project supervision, monitoring, and evaluation	1.8	0.6	2.4	5
b. Auditing services	0.1	0.1	0.2	0
6. Project management	0.3	0.1	0.4	1
7. Taxes and duties	5.9	4.0	9.9	19
<b>Subtotal (A)</b>	<b>32.5</b>	<b>20.8</b>	<b>53.3</b>	<b>100</b>
<b>B. Contingencies</b>				
1. Physical contingency	3.2	2.1	5.3	10
2. Price contingency	3.2	2.1	5.3	10
				0
<b>C. Financing Charges During Implementation</b>	0.6	-	0.6	1
<b>Total (A+B+C)</b>	<b>39.5</b>	<b>25.0</b>	<b>64.5</b>	<b>121</b>

km = kilometer.

Source: Asian Development Bank estimates.

**Table A2.2: Revised Financing Plan**

<b>Item</b>	<b>Additional Costs (\$ million)</b>	<b>Financing (%)</b>	
		<b>ADB</b>	<b>Government</b>
Civil Works	16.0	100	
Consulting Services	0.7	100	
Project Management	0.1		100
Taxes and Duties	4.0		100
Unallocated	4.2	79	21
<b>Total (%)</b>		<b>80</b>	<b>20</b>
<b>Total (\$ million)</b>	<b>25.0</b>	<b>20.0</b>	<b>5.0</b>

ADB = Asian Development Bank.

Source: Asian Development Bank estimates.

## ADDITIONAL PROCUREMENT PLAN

### I. Project Information

Country	Tajikistan
Name of Borrower	Tajikistan
Project Name	Dushanbe–Kyrgyz Border Road Rehabilitation Project (Phase II)
Loan or TA Reference	Loan 2196-TAJ
Date of Effectiveness of Procurement Plan	June 2009
Amount	<p><b>Original</b></p> <ul style="list-style-type: none"> <li>• Total project cost: \$43.5 million</li> <li>• ADF loan: \$29.5 million</li> <li>• ADF grant: \$0.5 million</li> </ul> <p><b>Additional</b></p> <ul style="list-style-type: none"> <li>• New project cost: \$25 million</li> <li>• ADF grant: \$20 million</li> </ul>
Of Which Committed	\$0 (as of April 2009)
Executing Agency	Ministry of Transport and Communications
Approval Date of Original Procurement Plan	17 November 2005
Approval of Most Recent Procurement Plan	26 November 2008
Publication for Local Advertisements <sup>a</sup>	Local newspapers
Period Covered by This Plan	Period covering first 18 months, including procurement of works and consulting services financed from the supplementary grant.

ADF = Asian Development Fund, TA = technical assistance.

<sup>a</sup> General procurement notice, invitations to bid, and calls for expression of interest.

#### A. Procurement Thresholds: Goods, Works, and Related Services

Method	Threshold
International Competitive Bidding for Works <sup>a</sup>	Above \$1,000,000
National Competitive Bidding for Works <sup>a</sup>	\$1,000,000 and below

<sup>a</sup> General procurement notice, invitations to bid, and calls for expression of interest.

#### B. Procurement Thresholds: Consulting Services

Method	Threshold
Least Cost Selection	\$100,000 or less

**C. List of Contract Packages: Works and Consulting Services**  
(\$ million)

General Description	Estimated Value (cumulative)	Estimated Number of Contracts	Procurement Method	Domestic Preference Applicable	Expected Date of Advertisement	Prior Review y/n	Comments
<b>Civil Works</b>							
Km 95– Km 140	8	1	ICB	Yes	28 April 2009	Y	Post-qualification
Emergency Bypass	1	1	NCB	No		Y	
General Description	Estimated Value (cumulative)	Estimated Number of Contracts	Recruitment Method	Type of Proposal			Comments
<b>Consulting Services</b>							
Project Auditing	0.1	1	LCS	bodata		Y	

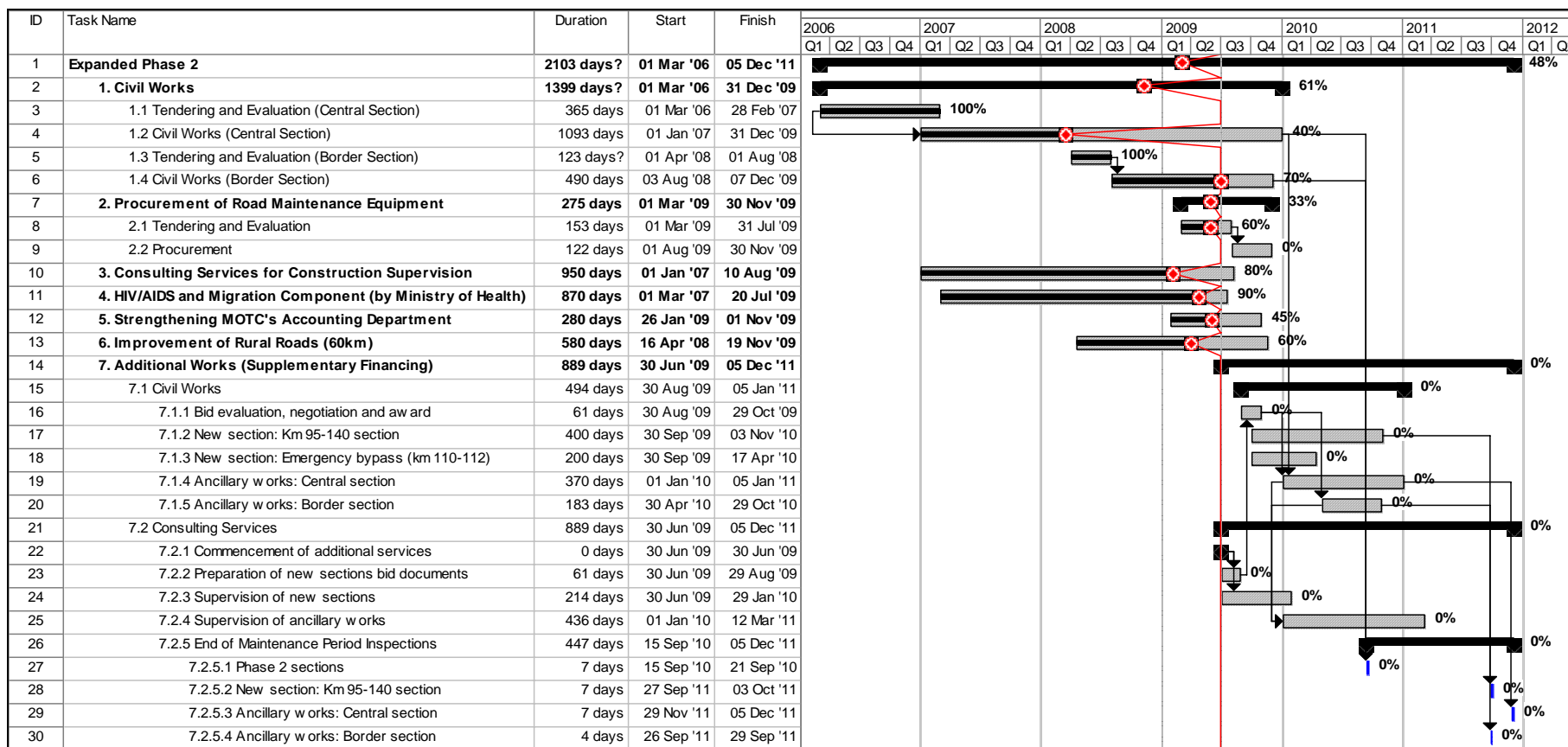
ICB = international competitive bidding, NCB = national competitive bidding, LCS = least-cost selection.

## II. National Competitive Bidding

- General.** The procedures to be followed for national competitive bidding (NCB) shall be those set forth in Law of the Republic of Tajikistan on Public Procurement of Goods, Works and Services effective on 3 March 2006, with the clarifications and modifications described in the following paragraphs required for compliance with the provisions of the Asian Development Bank's (ADB's) *Procurement Guidelines* (2007, as amended from time to time).
- Eligibility.** The eligibility of bidders shall be as defined under section I of ADB's *Procurement Guidelines*. Accordingly, no bidder or potential bidder should be declared ineligible for ADB-financed contracts for reasons other than those provided in section I of ADB's guidelines. Bidders must be nationals of member countries of ADB; and offered goods, works, and services must be produced in and supplied from member countries of ADB.
- Prequalification.** Normally, post-qualification shall be used unless explicitly provided for in the grant agreement and/or procurement plan. Irrespective of whether post-qualification or prequalification is used, eligible bidders (both national and international) shall be allowed to participate.
- Bidding Period.** The minimum bidding period is 28 days prior to the deadline for the submission of bids.
- Bidding Documents.** Procuring entities should use standard bidding documents acceptable to ADB for the procurement of goods, works, and services.
- Preferences.** No domestic preference shall be given for domestic bidders or for domestically manufactured goods.
- Advertising.** Invitations to bid shall be advertised in at least one widely circulated national daily newspaper or freely accessible, nationally known website—allowing a minimum of 28 days for the preparation and submission of bids. Bidding of NCB contracts estimated at \$500,000 equivalent or more for goods and related services, or \$1,000,000 equivalent or more for civil works, shall be advertised on ADB's website via the posting of the procurement plan.

8. **Bid Security.** Where required, bid security shall be in the form of a bank guarantee from a reputable bank.
9. **Bid Opening and Bid Evaluation.** These will be carried out as follows,
  - (i) Bids shall be opened in public.
  - (ii) Evaluation of bids shall be made in strict adherence with the criteria declared in the bidding documents, and contracts shall be awarded to the lowest evaluated bidder.
  - (iii) Bidders shall not be eliminated from detailed evaluation on the basis of minor, non-substantial deviations.
  - (iv) No bidder shall be rejected on the basis of a comparison with the employer's estimate and budget ceiling without ADB's prior concurrence.
  - (v) A contract shall be awarded to the technically responsive bidder that offers the lowest evaluated price and who meets the qualifying requirements set out in the bidding documents.
  - (vi) No negotiations shall be permitted.
10. **Rejection of All Bids and Rebidding.** Bids shall not be rejected and new bids solicited without ADB's prior concurrence.
11. **Participation by Government-Owned Enterprises.** Government-owned enterprises in Tajikistan shall be eligible to participate as bidders only if they can establish that they are legally and financially autonomous, operate under commercial law, and are not a dependent agency of the contracting authority. Furthermore, they will be subject to the same bid and performance security requirements as other bidders.
12. **Right to Inspect and Audit.** A provision shall be included in all NCB works and goods contracts financed by ADB, requiring suppliers and contractors to permit ADB to inspect their accounts and records and other documents relating to the bid submission, and the performance of the contract, and to have them audited by auditors appointed by ADB.
13. **Fraud and Corruption.** The following actions will be taken,
  - (i) The Borrower shall reject a proposal for award if it determines that the bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the contract in question.
  - (ii) ADB will declare a firm or individual ineligible, either indefinitely or for a stated period, to be awarded a contract financed by ADB, if it at any time determines that the firm or individual has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for, or in executing, an ADB-financed contract.

## REVISED IMPLEMENTATION SCHEDULE<sup>1</sup>



km = kilometer.

Source: Asian Development Bank estimates.

<sup>1</sup> Construction period in Tajikistan is normally from March to November.

## REVISED ECONOMIC ANALYSIS

### A. General

1. The original Project's economic analysis was adjusted for additional investment costs to determine its impacts on net economic benefits. For consistency, the original Project's methodology was used to recalculate an economic internal rate of return (EIRR). The original Project's assumptions were reexamined and updated—gross domestic product (GDP) growth, normal traffic, domestic generated and international generated traffic, and growth rate per vehicle type. The revised economic analysis covers 23 years (2007–2029), based on a 6-year implementation period. All figures were translated into 2009 constant prices. Actual costs to March 2009 were incorporated, and projected annual costs were extrapolated based on estimated disbursement profile. They were converted to economic costs using world price numeraire. Price contingencies, interest during construction, and taxes and duties were excluded. A standard conversion factor of 0.9 was applied to non-tradables. The assumption on the potential hydropower development project near the project area, which limited the pavement design on km 95–km 150 (Phase 1 scope, including 10 kilometers of the original Project), was removed.

2. The original Project's economic analysis remains valid. The additional costs deliver added benefits, and safeguard investments made so far. The supplementary grant corrects technical gaps and reinforces the delivery of all outputs. Accordingly, the new EIRR increased to 25%—up from 15%. The EIRR is highly sensitive to traffic and trade forecasts, and less responsive to increased investment and operating costs.

### B. Revised Assumptions

3. The original Project's assumptions were revisited, and its summary is highlighted in Table A5.1. The findings confirm the original Project's conservative assumptions, resulting in a conservative design for the project road. Frequent and severe seismic activities incurred on the project road after the original Project's contract awards worsened premature road deterioration.

**Table A5.1: Assumptions versus Actual Comparison**

<b>Domestic Traffic</b>	<b>Original Project</b> (2008 estimates)	<b>Revised</b> (2008 actual)
<b>Base traffic level (vehicle per day)</b>		
Central section	716 (580 in 2004)	1,300
Border section	29 (20 in 2004)	150
Rural roads	31 (25 in 2004)	50
<b>Real GDP growth (%)</b>	6	7.9
<b>Base growth rate for 2004–2008<sup>a</sup> (%)</b>		
Cars	6	16
Buses	5	3
Trucks	6.5	0
<b>Base growth rate for 2009–2029 (%)</b>		
Cars	6	10
Buses	5	3
Trucks	6.5	3
Growth on year after Phase 1 completion (%)	10	20
Growth on year after Phase 2 completion (%)	10	20

<b>International Traffic</b>	<b>Original Project (2008 estimates)</b>	<b>Revised (2008 actual)</b>
Tajikistan–PRC trade market share	1.9% in 2004 20% from 2015	20.3% in 2007
Afghanistan–PRC trade market share	0.04% in 2004 10% from 2015	11% in 2007
Equilibrium year	2015	2007
EIRR overall (including rural roads)	15.4%	24.9%

EIRR = economic internal rate of return, GDP = gross domestic product, PRC = People's Republic of China.

<sup>a</sup> Based on number of new vehicle registered.

Source: Asian Development Bank estimates.

4. Actual 2008 traffic volume, real GDP, and trade volume with the People's Republic of China (PRC) exceeded the original Project's projection for the year. The 2004–2008 average real GDP growth in Tajikistan was 8.2% per annum. Traffic volume on the project road reached its pre-1990 level (at its peak) in 2008, and the completed Phase 1 significantly contributed to the increase in domestic generated traffic on Phase 2 road sections. The PRC economy also grew remarkably, at an annual growth of over 15% in current prices during the same period (2004–2008). Trade with the PRC is crucial for Tajikistan economy with imports from the PRC dominating Tajikistan market. This is illustrated by a substantial increase of bilateral trade in value terms,<sup>1</sup> at an average growth of 70% per annum. The original Project assumed that the PRC's share of trade with Tajikistan would increase from 2% in 2004 to 20% in 2015. This 20% benchmark market share was outstripped in 2007. The revised assumption includes continuing rapid growth for 2007–2010, but declining from 65% per year in 2008 to a more modest 20% per year in 2010. A moderate increase in the projected traffic level reflects the slowing domestic economy in 2009–2010, although border traffic remains strong (Table A5.2). PRC–Tajik trade will generate traffic of 115 vehicles per day in 2010, growing nearly ten-fold to about 1,080 vehicles per day in 2029.

**Table A5.2: Traffic Counts and Projection**  
(vehicles per day)

<b>Road section</b>	<b>Actual</b>		<b>Projected</b>	
	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
Km 95–140	1,572	1,789	1,874	1,965
Central section (km 140–217)	1,171	1,306	1,437	1,481
Border section (km 337–346)	150	332	473	650

km = kilometer.

Source: Ministry of Transport and Communications.

## C. Results

5. Overall, the Project (the original Project and additional works) remains economically viable, despite additional costs. The new EIRR is 24.9%, up from 15.4%. The economic net present value is \$56.4 million, up from \$9.8 million, using a 12% discount rate (Table A5.3). Sensitivity analysis (Table A5.4) indicated that the EIRR is highly sensitive to domestic traffic increases, and less responsive to changes in capital and maintenance costs, and international generated traffic.<sup>2</sup> This is consistent with the escalated EIRR from that of the original Project.

<sup>1</sup> The total bilateral trade was valued at \$324 million in 2006—up 105% on the previous year.

<sup>2</sup> Economic benefits from international generated traffic are shared with Afghanistan, the Kyrgyz Republic, and the PRC.

**Table A5.3: Revised Economic Internal Rate of Return**  
(\$ million)

Year	Capital Costs	Maintenance Costs	Total Costs	Normal Traffic	Domestic Generated	International Generated	Rural Roads	Total Benefits	Net Benefits
2007	4.76		4.76	0.00	0.00	0.00	0.00	0.00	(4.76)
2008	6.44		6.44	0.00	0.00	0.00	0.00	0.00	(6.44)
2009	7.85		7.85	3.39	0.00	0.00	0.19	3.58	(4.27)
2010	15.71		15.71	3.98	0.14	0.19	0.46	4.77	(10.93)
2011	15.71	0.90	16.61	5.71	0.21	0.43	0.49	6.84	(9.76)
2012	2.09	1.80	3.89	6.58	0.24	0.66	0.52	8.01	4.11
2013	0.00	1.80	1.80	7.63	0.27	0.92	0.56	9.38	7.57
2014	0.00	1.80	1.80	8.86	0.31	1.20	0.60	10.97	9.17
2015	0.00	1.80	1.80	10.36	0.36	1.52	0.64	12.89	11.08
2016	0.00	6.30	6.30	12.00	0.42	1.73	0.69	14.83	8.52
2017	0.00	0.90	0.90	13.99	0.49	1.97	0.73	17.17	16.27
2018	0.00	1.80	1.80	16.40	0.58	2.25	0.79	20.02	18.21
2019	0.00	1.80	1.80	19.35	0.68	2.61	0.84	23.47	21.67
2020	0.00	1.80	1.80	23.05	0.81	3.04	0.90	27.80	25.99
2021	0.00	1.80	1.80	27.23	0.97	3.50	0.96	32.67	30.86
2022	0.00	6.30	6.30	30.72	1.11	3.90	1.03	36.76	30.46
2023	0.00	0.90	0.90	34.02	1.23	4.28	1.10	40.64	39.74
2024	0.00	1.80	1.80	37.06	1.35	4.62	1.18	44.21	42.40
2025	0.00	1.80	1.80	40.06	1.47	4.94	1.26	47.74	45.93
2026	0.00	1.80	1.80	42.73	1.58	5.23	1.35	50.89	49.09
2027	0.00	1.80	1.80	45.48	1.69	5.53	1.44	54.14	52.34
2028	0.00	6.30	6.30	48.24	1.80	5.79	1.54	57.38	51.07
2029	0.00	1.80	1.80	51.31	1.92	6.08	1.65	60.97	59.16
								<b>EIRR</b>	<b>24.9%</b>
								<b>NPV</b>	<b>56.44</b>

( ) = negative, EIRR = economic internal rate of return, NPV = net present value.

Source: Asian Development Bank estimates.

**Table A5.4: Sensitivity Analysis**

Item	EIRR (%)	ENPV (\$ million)	Switching Value (%)
Base case	24.9	56.4	
1 year implementation delay	20.4	43.9	
Normal traffic –20%	21.9	40.7	61
Total benefit –20%	21.1	36.9	53
Capital cost +20%	22.2	50.3	146
Normal traffic –20%; capital costs +20%	19.2	33.7	
International generated traffic –20%	24.5	54.9	412

EIRR = economic internal rate of return, ENPV = economic net present value.

Source: Asian Development Bank estimates.