

Validation Report
December 2018

Uzbekistan – Central Asia Regional Economic Cooperation Corridor 2 Road Investment Program (Tranche 2)

Reference Number: PVR-592
Project Number: 42107-033
Loan Number: 2746



Raising development impact through evaluation

ABBREVIATIONS

ADB	– Asian Development Bank
CAREC	– Central Asia Regional Economic Cooperation
DMF	– design and monitoring framework
EIRR	– economic internal rate of return
GDP	– gross domestic product
MFERIT	– Ministry of Foreign Economic Relations and Investments and Trade
PCR	– project completion report
PMU	– project management unit
RRP	– report and recommendation of the President

NOTE

In this report, “\$” refers to United States dollars.

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PROJECT BASIC DATA

Project Number	42107-033	PCR Circulation Date	12 April 2018	
Loan Number	2746	PCR Validation Date	Dec 2018	
Project Name	Central Asia Regional Economic Cooperation Corridor 2 Road Investment Program (Tranche 2)			
Sector and subsector	Transport	Road transport (non-urban)		
Strategic agenda	Regional integration Inclusive economic growth			
Safeguard categories	Environment		B	
	Involuntary resettlement		B	
	Indigenous peoples		C	
Country	Republic of Uzbekistan		Approved (\$ million)	Actual (\$ million)
ADB Financing (\$ million)	ADF: 0.00	Total Project Costs	289.00	218.57
	OCR: 240.00	Loan/Grant		
		Loan 2746	240.00	183.56
		Borrower	49.00	35.01
		Beneficiaries	–	–
	Others	–	–	
Cofinancier	–	Total Cofinancing	–	–
Approval Date	31 Mar 2011	Effectiveness Date	12 May 2011	6 May 2011
Signing Date	12 Apr 2011	Closing Date	30 Jun 2014	31 Mar 2017
Project Officers	S. A. Khan N. Singru K. Luu	Location ADB headquarters ADB headquarters ADB headquarters	From May 2011 Jan 2012 Jan 2015	To Jan 2012 Jan 2015 Mar 2018
IED Review				
Director	N. Subramaniam, IESP			
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– = not applicable, ADB = Asian Development Bank, ADF = Asian Development Fund, IED = Independent Evaluation Department, IESP = Sector and Project Division, OCR = ordinary capital resources, PCR = project completion report.

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I. PROJECT DESCRIPTION

A. Rationale

1. Uzbekistan is a double landlocked country in Central Asia, with borders to Afghanistan, Kazakhstan, the Kyrgyz Republic, Tajikistan, and Turkmenistan. As such, the country has a number of international corridors, which are part of the Central Asia Regional Economic Cooperation's (CAREC) transport network. The project covers a section of the A380 highway, which forms the main link between Afghanistan and Turkmenistan, and Kazakhstan and western Uzbekistan. This road was in relatively poor condition resulting in extended travel times and excessive vehicle operating costs. This project was part of a multitranche program to upgrade the

whole of the A380 highway in the country's Republic of Karakalpakstan and Khorezm and Bukhara oblasts. Three sections of the road were rehabilitated concurrently.

2. The rationale for the project was to rehabilitate and widen the existing road to provide a high quality, four-lane dual carriageway, with a high strength concrete surface, that was selected to reduce long-term maintenance costs, given the difficulty of maintaining roads in a harsh environment. To strengthen Uzbekistan's road network against the effects of climate change, the project also procured equipment for the construction of bored piles for bridge foundations. Its aim was to increase the overall resilience of the country's road network by increasing the capability to construct more resilient bridge foundations.

B. Expected Impacts, Outcomes, and Outputs

3. The project's envisaged impact was sustainable economic development in Uzbekistan and improved regional cooperation. It was expected to double the gross domestic product (GDP) growth of the regions served by the road and increase trade with Kazakhstan.

4. The project's targeted outcome was better connectivity and an efficient transport system along the Uzbekistan section of the CAREC Corridor 2. The project's design and monitoring framework (DMF) estimated to double traffic intensity on the road and reduce 25% in travel time between Daut-ata and Bukhara. Improvements in road safety targeted to reduce 50% in the number of road crashes. Two main outputs of the projects were (i) reconstruction and improvement of 85 kilometers (km) of the CAREC Corridor 2 road and (ii) improved road sector sustainability, through the procurement of new pile boring equipment.

C. Provision of Inputs

5. At appraisal, a \$240.0 million loan from the Asian Development Bank (ADB) and a government funding of \$49.0 million would finance the project's works and procurement.¹ At completion, the project's financing totaled \$218.6 million—\$183.6 million from ADB and \$35.0 million from the government. The main reasons for these lowered costs were unutilized contingencies, reduced amounts of tax payable, and reduced construction cost.

6. The original loan was approved in March 2011 and became effective in May 2011 on schedule. The closing date for the project loan was in August 2017 over 3 years later than planned. The main reason was the bankruptcy of the originally selected contractor. The replacement of the contractor delayed commencement of the project implementation from May 2012 to May 2014 when the notice to proceed was issued to the new contractor.

7. ADB recruited project management and construction supervision consultants on behalf of the borrower. The international consulting firm was supplemented by an international procurement consultant and a national consultant each for national environment and for social and resettlement. All consultants performed their respective functions, with no changes between planned and actual consulting services.

¹ ADB. 2010. *Report and Recommendation of the President to the Board of Directors: Proposed Multitranchise Financing Facility to the Republic of Uzbekistan for the Central Asia Regional Economic Cooperation Corridor 2 Road Investment Program*. Manila.

8. As the works required were almost onsite improvements, the project was classified as category B for environmental safeguards, category B for involuntary resettlement, and category C for indigenous peoples.

D. Implementation Arrangements

9. This project was implemented via two implementation contracts for (i) construction works and (ii) the provision of pile boring equipment. The construction contract was issued to an international contractor in May 2012, but subsequently terminated and a second construction contract was issued (para. 6). The equipment supply contract was issued in February 2012, with the equipment being delivered in December 2012. This contract included a pool of spare parts, together with specialist training on the operation and maintenance.

10. The Republican Road Fund (RRF) managed the project with the assistance of the project management unit (PMU). The PMU provided support in procurement and contract management, financial management and evaluation, monitoring, compliance, and reporting. It is considered that these arrangements worked well, providing a robust project management function. It also supported the RRF in building capacity. All 21 loan covenants applied to the program were complied with at the appropriate time as set out in the loan agreement.

11. A number of consultancy contracts were issued under this project, the largest being the project management and construction supervision firm. The firm was selected using the quality and cost-based selection method, with a quality–cost ratio of 90:10. It was supported by three consultants (para. 7). The consultants performed a number of capacity-building roles beyond the main program administration to support the PMU.

II. EVALUATION OF PERFORMANCE AND RATINGS

A. Relevance of Design and Formulation

12. The project completion report (PCR) stated that the project was strongly aligned with Uzbekistan's development plan and transport sector plan, highlighting the impact of the road condition on regional trade and economic development in the area.² It rated the project as highly relevant and consistent with all relevant policy and strategy documents for Uzbekistan and for ADB. This validation notes that the government's strategy until 2015 was to continue operation of transportation and other infrastructures connecting Uzbekistan with foreign markets.³ The ADB country strategy in Uzbekistan included facilitation of regional transport.⁴

13. The program design, particularly upgrading the road to a four-lane standard for a traffic flow target of about 2,000 vehicles per day (vpd), is unjustified. Though it was driven by national design standards, it was not in-line with international best practice. It undoubtedly led to reductions in road crash rates, but it would have added significantly to the construction cost, with potentially, minimal benefit for travel times and vehicle operating costs. The PCR also did not show evidence of any transformational and innovative effects, and did not show that good practices were replicated.

² ADB. 2018. *Completion Report: Central Asia Regional Economic Cooperation Corridor 2 Road Investment Program (Tranche 2) in the Republic of Uzbekistan*. Manila.

³ Government of the Republic of Uzbekistan. 2005. *Welfare Improvement Strategy Paper of the Republic of Uzbekistan for 2005–2010*. Tashkent.

⁴ ADB. 2006. *Country Strategy and Program: Uzbekistan, 2006–2010*. Manila.

14. The PCR considered that the DMF for the project was appropriately formulated. However, this validation has some concerns with the DMF. Some indicators are poorly defined and loosely formulated. For example, the definition of outcome indicators on the population served suggested three large oblasts' population would be beneficiaries (the target was 4.5 million). This validation notes that this is an impact indicator. Moreover, this indicator is not realistic given the relatively light traffic in the project area and the length of the road section (about 85 km). As for the impact indicator given in the DMF, it is difficult to positively attribute increases in traffic levels and GDP to the project. Based on the above, the project is assessed relevant.

B. Effectiveness in Achieving Project Outcomes and Outputs

15. The PCR rated the project as highly effective because each component achieved all required target outcomes. It indicated that 85 km of the A380 highway from Km 355 to Km 440 were upgraded to a four-lane road with a concrete pavement. The roughness of the road surface was also significantly decreased, from an International Roughness Index (IRI) of 9 before the project began to less than 2 at project completion. The PCR also stated that travel time on the project road alone was reduced from 90 minutes to 35 minutes. Traffic counts conducted during both peak and off-peak hours on the project road confirmed that traffic volumes in both directions have increased substantially since the project design phase. The annual average daily traffic increased fivefold from 1,000 vehicles per day in 2009 to nearly 5,000 vehicles per day in 2017. The number of cross-border trucks on the A380 highway at Daut-ata customs post increased from 10 per day in 2007 to 30 per day in 2017. The PCR also noted that traffic crash rates were halved.

16. This validation notes that increase in average long-haul traffic volume was achieved albeit the PCR noted that the increase in traffic should not be attributable solely to the project.⁵ There is no discussion about the target of 5,000 women benefiting from the community development as indicated in the report and recommendation of the President's (RRP) DMF. Two outcome targets—decrease in roads' cracks and accident rate—were achieved well. However, there was a shortfall on the targeted reduction of travel time from Daut-ata to Bukhara, instead of the targeted 10 hours, it was to 10.5 hours. The 85 km four-lane road section was completed and opened to traffic in December 2016, instead of 2013 as planned in the RRP. The procurement of eight sets of pile-boring equipment was completed.

17. During implementation, it was confirmed that project was category B for environmental and social risks. Minimal actions were required as part of the environmental management plan (EMP) or land acquisition and resettlement plan (LARP). The LARP compliance report, published in August 2014, confirmed that all statutory and policy requirements had been met during implementation of the project. The EMP prepared by the borrower highlighted a number of operational procedures. These were fully complied with during implementation. According to the project safeguard assessment, all safeguards requirements were fulfilled satisfactorily.⁶ Based on the discussion in this section, the validation rates the project effective.

C. Efficiency of Resource Use

18. The PCR assessed the project efficient because all outputs were achieved and the project remained economically viable at completion. However, this validation has identified some issues relating to the economic appraisal of the project, both at appraisal and completion stage, which

⁵ Footnote 2, para. 34.

⁶ ADB (IED). 2018. Project Safeguard Assessment: Central Asia Regional Economic Cooperation Corridor 2 Road Investment Program (Tranche 2) in Uzbekistan. 14 July (internal).

make these calculations suspect. The methodology used at appraisal, utilizing the Roads Economic Decision (RED) Model, was inappropriate.⁷ This model was customized for low-volume unpaved roads, with traffic volumes between around 50 and 300 vpd, and had no functionality for concrete pavements.⁸ This made the original estimate of the economic internal rate of return (EIRR) suspect, as the modeling of pavement deterioration will not have been informed by detailed modeling.

19. At completion, the methodology used for the calculation were the Highway Development and Management 4 (HDM4) models, but with minimal calibration. This again casts doubt over the results as the models would not reflect conditions in Uzbekistan at this level of calibration. Inadequate calibration of the HDM4 models can lead to overestimation of vehicle operating cost benefits, inaccurate modeling of pavement deterioration, and unrealistic modeling of maintenance requirements.⁹ All of these have the potential to invalidate the results of an estimation.

20. At appraisal and completion stages, the methodology used to assess annual daily traffic was weak, undertaking only extremely limited traffic surveys. This validation considers that forecasts based upon less than 1 full day of traffic counts cannot be considered to be reliable. *Overseas Road Note 5* identifies that traffic counts should be undertaken for at least 7 consecutive days and include at least one count for 24 hours to be considered a reliable basis for the estimation of annual average daily traffic.¹⁰

21. The PCR presented a simplified methodology for assessing crash-related costs. This included the use of the International Road Assessment Programme methodology to identify the cost of each crash. For the reevaluation, assumptions were made regarding the likely number of crashes and their severity on the road section. It was unclear whether the estimated change in crash rates and severity was related to actual statistics. The DMF presented very different figures, but these were related to only a very short time period, prior to full completion of the road rehabilitation.

22. The PCR rightly pointed out that the Uzbekistan government has significantly increased financial commitments to road maintenance. However, the economic reevaluation undertaken for the PCR did not appear to show any future maintenance requirements for the road section. While concrete roads require much less maintenance than asphalt roads, there will still be some maintenance and operating costs, such as lining and signing repairs, cleaning of drainage structures, and maintenance of bridges, which should be reflected in this analysis.

23. Between appraisal and completion stages, the EIRR for the project fell from 15.9% to 9.3%. This was the result of a number of factors, mainly due to overestimation of traffic intensity that resulted in a 10.0% reduction in traffic levels at opening, with the expectation that traffic intensity at the end of the appraisal period would be less than 50.0% of the forecast level at appraisal. This reduced traffic intensity was partially offset by an 18.0% reduction in investment costs. Even so, the EIRR estimated at completion was marginal, and only just above the current

⁷ Footnote 2, Appendix 10.

⁸ R. S. Archondo-Callao. 1999. Roads Economic Decision Model (RED) for Economic Evaluation of Low Volume Roads. *Sub-Saharan Africa Transport Policy Program (SSATP) Technical Note*. No. 18. Washington, D.C.: World Bank. <http://documents.worldbank.org/curated/en/132361468767425415/Roads-Economic-Decision-Model-RED-for-economic-evaluation-of-low-volume-roads>.

⁹ C. Bennett and W. Paterson. 2008. Volume 5: A Guide to Calibration and Adaptation. *Highway Development and Management Model (HDM) 4 Series*. Washington D.C.: World Bank.

¹⁰ Government of the United Kingdom, Department for International Development. 2005. *Overseas Road Note 5: A Guide to Road Project Appraisal*. London.

ADB threshold of 9.0%. Without the reduction in investment cost, the project would undoubtedly have proven to be unviable, as shown by the results of completed sensitivity analyses. Based on the discussion above, this validation rates the project less than efficient.

D. Preliminary Assessment of Sustainability

24. The PCR considered the project likely sustainable. This assessment relies upon the government continuing to allocate adequate resources for road maintenance and the details in Appendix 11 of the PCR. The validation notes that the project road will require minimal maintenance over a number of years and given the government's recent record in increasing allocations, and the PCR considered that these conditions will be met. According to the PCR, during 2011–2016, monetary expenditure in the road fund increased by 47% indicating government commitment to maintenance. This validation assesses the project likely sustainable.

III. OTHER PERFORMANCE ASSESSMENTS

A. Preliminary Assessment of Development Impact

25. The PCR stated that the project would have a substantial impact on regional cooperation by improving regional transport links and, hence, connectivity. However, many of these effects will not occur, or at least be measurable for a number of years, as economic actors react to the changed levels of connectivity. Therefore, there is currently little quantitative evidence to support this conclusion. According to official statistics, GDP in Uzbekistan grew from \$29.6 billion in 2008 to \$67.0 billion in 2016,¹¹ suggesting that the area served by the road slightly grew more quickly than the country as a whole. It is also likely that much of the increase in GDP was the result of inflation and exchange rate changes. Based on the achievement of outcomes and the potential impact, the validation rates the impact satisfactory.

B. Performance of the Borrower and Executing Agency

26. The PCR assessed the performance of the borrower, Uzbekistan government, and the executing agency (EA), Republican Road Fund under the Ministry of Finance, satisfactory reflecting the learning gained from previous ADB-financed projects. The validation also rates the performance of the borrower and EA satisfactory, except the performance of the EA's engineering design consultant. As highlighted in the consultants' report,¹² the design review posed considerable challenges as the original quantities in the bill of quantity did not coincide with the design plan, such as (i) a general lack of typical drawings, (ii) discrepancies in geotechnical assessments, (iii) improper use of specifications, and (iv) slow responses from the designer to requests for clarifications. While not strictly part of the executing agency, management of the designer was EA's responsibility.

C. Performance of the Asian Development Bank and Cofinanciers

27. The PCR assessment of ADB's overall performance was satisfactory, except in the supervision of consultants particularly at appraisal. Deficiencies in this area are highlighted by the

¹¹ Trading Economics. <https://tradingeconomics.com/> (accessed 14 September 2018).

¹² Sambo Engineering Co. Ltd. 2016. *Project Final Report: Central Asia Regional Economic Cooperation Corridor 2 Road Investment Program (Project 2)—Project Management and Construction Supervision for Reconstruction of A380 (Guzar–Bukhara–Nukus–Beyneu) Road Section from Km 355 to Km 440 (85 km)*. Seoul.

poor methodology followed for the economic appraisal of the project. Nevertheless, based on all other aspects done well, the validation rates the ADB performance satisfactory.

D. Others

28. The PCR offered no specific assessment or recommendations in these areas. Overall, this validation considers the administration of the project satisfactory. While there were issues related to the start-up of the construction contract and the bankruptcy of the contractor, these were handled efficiently, with a new contractor being appointed as quickly as possible.

IV. OVERALL ASSESSMENT, LESSONS, AND RECOMMENDATIONS

A. Overall Assessment and Ratings

29. The PCR rated the project successful, indicating that it was designed, implemented, and completed as conceived. The validation notes that the program (all three tranches) was appropriate to deal with a clearly identified constraint to economic development. There are concerns that providing a four-lane road, when a two-lane road would suffice, added significant costs to the project (para. 13), resulting in a project EIRR of only 9.3% (para. 23). There have been some increases in economic activity in the area served by the road section, but these are difficult to attribute to the project, and in any case are relatively small. Nevertheless, based on the overall performance, the validation rates the project successful.

30. The project suffered significant delays due to the bankruptcy of the original contractor. These were well managed by both ADB and the borrower, and there are lessons for how such contracts can be managed. The delays and retendering could have significantly increased construction costs, which could have caused the EIRR to fall below the 9.0% threshold.

Overall Ratings

Validation Criteria	PCR	IED Review	Reason for Disagreement and/or Comments
Relevance	Highly relevant	Relevant	There are concerns that the project design is inappropriate for the situation and there is no evidence of transformative and innovative effects.
Effectiveness	Highly effective	Effective	Some targets were exceeded while other targets were not fully achieved (travel time) or not discussed (women beneficiaries).
Efficiency	Efficient	Less than efficient	Methodological issues were noted. The EIRR for the project at completion was estimated at 9.3%, which is marginally above the opportunity cost of capital.
Sustainability	Likely sustainable	Likely sustainable	
Overall assessment	Successful	Successful	
Preliminary assessment of impact	Satisfactory	Satisfactory	
Borrower and executing agency	Satisfactory	Satisfactory	
Performance of ADB	Satisfactory	Satisfactory	
Quality of PCR		Satisfactory	See assessment on PCR quality.

ADB = Asian Development Bank, EIRR = economic internal rate of return, IED = Independent Evaluation Department, PCR = project completion report.

Source: ADB (IED).

B. Lessons

31. The lessons highlighted in the PCR are consistent with known issues on projects of this type. The need for corridor-based project planning, including liaison between financing institutions and the borrower, is well understood and represents best practice. This program benefited in a number of ways from such working practices, as it was possible to share learning and expertise between projects on the same road section. The need for more realistic project planning and programming, particularly weather conditions and capacity within borrower institutions, is clear. This can often be in the face of pressure from borrowers for rapid project implementation, and unrealistic estimates of institutional capacity. ADB needs to be equipped to resist these pressures. This validation identified below the following additional lessons.

32. **Country-level:** There were issues associated with working with the Ministry of Foreign Economic Relations, Investments and Trade (MFERIT) during the project. MFERIT is responsible for registering all construction contracts in the country, but it appears that there are slow processes within MFERIT, which delayed the process and led to significant detrimental effect on the progress of the contractor mobilization. ADB can work with MFERIT to improve processes generally, or at least identify a fast-track approach for externally funded projects. Another lesson is that, within former Commonwealth of Independent States (CIS) countries, it is often the case that ADB relies on traffic intensity forecasts and designs produced by technical institutions. Diversifying the data sources will help improve the credibility of the data used.

33. **Project-level:** The implementation of the project was initially delayed by the bankruptcy of the originally selected contractor's parent firm. This bankruptcy occurred prior to mobilization and as such no additional costs were incurred. However, the additional procurement process led to significant delays and additional costs for both ADB and the borrower. It would be useful to learn more about the contractors and to review procedures for assessing their financial sustainability.

34. **Results framework and methodology-level:** The original forecasts for traffic intensity on the road section may have not warranted a four-lane road improvement (para. 13). While the PCR listed an economic downturn in Uzbekistan for this, the validation notes that the methodology followed for the estimation of traffic intensity at initial appraisal, contract completion, and reappraisal was poorly structured. Estimating traffic based upon extremely short surveys is known to introduce significant potential inaccuracies. This appears to be a common issue, with insufficient emphasis being placed upon traffic surveys. It is noted that a 20% error in traffic figures is highly likely when only a 1-day survey is undertaken. Such a 20% error will have a much greater impact on the overall viability of a project, than any other error in the appraisal methodology. ADB could apply international standards to traffic data collection in future, to minimize these potential errors.

35. In addition, this validation notes that a number of the indicators in the DMF are framed inadequately. For example, the indicator related to road beneficiaries claimed that 4.5 million people would benefit. It was not clear how this was measured, as the area of the project itself is basically uninhabited. While it was also clear that some indicators were dropped during project implementation, such as the number of women expected to benefit from the project (para. 16). It is recommended that for future projects, targets and indicators should be more closely aligned to the details of project, particularly in relation to beneficiaries.

C. Recommendations for Follow-Up

36. The PCR made a few recommendations relating to post-project monitoring, adequacy of maintenance funds, and consideration of weather conditions prior to determining contract duration. It also recommended that standard technical specifications should be consistent with international standards to provide more robust and efficient construction specifications. This will also assist in improving the consistency of design between different road sections and minimize conflicts and design changes at different stages of project implementation. This validation agrees with these recommendations. The PCR also made no recommendations for further follow on the project. This validation agrees that there are no areas for follow up that would be useful.

V. OTHER CONSIDERATIONS AND FOLLOW-UP

A. Monitoring and Reporting

37. This validation makes no further recommendations regarding monitoring and reporting.

B. Comments on Project Completion Report Quality

38. The PCR included most of the information required to assess the performance of the project, in line with ADB guidance. It presented a number of recommendations concisely. The appendixes to the PCR provided much of the information required to back up the conclusions of the PCR. However, the conclusions could have been further strengthened to address some of the known issues of this type of project. For instance, a better explanation of the project design process, particularly decisions related to design standards, could have been helpful. The validation also notes editorial inconsistency on the government funding contribution to this project. Safeguarding considerations were considered appropriately within the PCR. On the whole, the quality of PCR is considered satisfactory.

C. Data Sources for Validation

39. Data sources for this validation were the PCR, RRP, national and strategy documents, progress reports including back-to-office reports and aide memoire relating to loan review missions, and IED's project safeguard assessment. In addition, the final reports of the project management consultants and equipment supply firm were reviewed.

D. Recommendation for Independent Evaluation Department Follow-Up

40. This validation does not recommend further IED follow up.