



Validation Report

Reference Number: PCV: PRC 2010-82
Project Number: 34097
Loan Number: 1967
December 2010

People's Republic of China: Shanxi Road Development II Project

Independent Evaluation Department

Asian Development Bank

ABBREVIATIONS

ADB	–	Asian Development Bank
ADF	–	Asian Development Fund
IED	–	Independent Evaluation Department
km	–	kilometer
NTHS	–	national trunk highway system
OCR	–	ordinary capital resources
PCR	–	project completion report
PRC	–	People's Republic of China
SCD	–	Shanxi Communications Department
SHEC	–	Shanxi–Hou-Yu Expressway Construction Company

NOTE

In this report “\$” refers to US dollars.

Key Words

people's republic of china, transportation, lessons, asian development bank, independent evaluation department, performance evaluation

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PROJECT COMPLETION REPORT VALIDATION

A. Basic Project Data		PCR Validation Date:	December 2010	
Project Number:	34097		Approved	Actual
Loan Number:	1967			
Project Name:	Shanxi Road Development II Project	Total Project Costs (\$ million):	326.80	287.00
Country:	People's Republic of China	Loan (\$ million):	124.00	124.00
Sector:	Transport and Information and Communications Technology/ Road Transport	Total Cofinancing (\$ million):	48.30	65.60
ADB Financing (\$ million):	ADF: 0.00	Borrower (\$ million):	154.50	97.40
	OCR: 124.00	Beneficiaries (\$ million):	0.00	0.00
Cofinanciers:	China Minsheng Bank	Others (\$ million):	48.30	65.60
Approval Date:	12 Dec 2002	Effectiveness Date:	11 Mar 2004	1 Apr 2004
Signing Date:	11 Dec 2003	Closing Date:	31 Jul 2007	6 Mar 2008
Project Officers:	Name: P. Abeygunawardena T. Fujino C.S. Chin E. Oyunchimeg	Location: ADB headquarters ADB headquarters ADB headquarters ADB headquarters	From 2002 2003 2004 2006	To 2003 2004 2006 2008
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ADB = Asian Development Bank, ADF = Asian Development Fund, IED2 = Independent Evaluation Department (Division 2), OCR = ordinary capital resources, PCR = project completion report.

B. Project Description (summarized from the report and recommendation of the President)¹

- (i) **Rationale.** The project was to support the national trunk highway system (NTHS), one of the priorities of the Government of the People's Republic of China (PRC). The NTHS is a system of interprovincial expressways and high-class highways totaling about 35,000 kilometers (km) to be constructed over a 20-year period up to 2010. Launched in 1990, the NTHS aimed to build 35,000 km of highways to eliminate transport bottlenecks. Road development is a key component in the government's strategy to provide needed infrastructure to facilitate economic growth and reduce poverty through improved access to markets and services.

Asian Development Bank (ADB) assistance for the road sector in the PRC has been coupled with a dialogue linked to the government's road subsector policy reform. ADB dialogue has centered on impacts on the poor, road design standards and construction quality, road safety, vehicle emissions, road pricing, corporatization, commercialization, finance, and resource mobilization. Policy dialogue is integrated in ADB technical assistance and loan activities in the PRC.

- (ii) **Impact.** The project was expected to (a) promote economic development in Shanxi Province, and (b) reduce poverty in poor counties and townships in the project areas through sustained economic growth benefits from improved market accessibility in rural areas. The project expressway was to (a) serve part of the vital Taiyuan–Xi'an Corridor (Inner Mongolia to Yunnan Province: 3,610 km) of the NTHS, passing through several cities in different provinces; and (b) serve as an important link to other neighboring provinces by acting as a catalyst in promoting interprovincial trade and fostering new economic activities through the construction of the Yellow River Bridge. At the same time, the project was to improve the rural poor's access for an effective means of transport that meets livelihood needs (i.e., enhancing mobility and linking poor areas to growth centers—providing market access, employment opportunities, and better social services by expanding local

¹ ADB. 2002. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the People's Republic of China for the Shanxi Road Development II Project*. Manila.

roads). The project was to boost further investments in Shanxi by creating demand for goods and services provided by people in remote areas.

- (iii) **Objectives or expected outcomes.** The stated project outcomes relate to (a) more efficient movement of freight and passengers at lower cost; (b) improved access to poor counties; and (c) improved expressway management including enabling conditions to attract private sector financing (i.e., promote private sector investments from domestic and international sources). Specific targets or indicators for outcome (a) include reduced congestion on national highway G108, improved access to townships and villages including reduced average travel time, reduced vehicle costs and freight and passenger charges in the project area, and safer roads including reduced noise, accidents, and vehicle emissions. For outcome (b) on the local roads component, the indicators include improved all-weather access, more reliable and reduced delivery time for rural and agricultural inputs and outputs, increased volume and higher proportions of high-value agricultural products marketed, increased mobility of the relatively poor and minorities, and increased ownership of motorized vehicles in rural communities. Finally, the stated performance indicator on outcome (c) related to financial sufficiency of the expressway agency (i.e., a positive net income within 3 years of completion).
- (iv) **Components and/or outputs.** The project comprised the following components: (a) expressway and bridges—construction of a 65 km four-lane access-controlled toll expressway from Houma to Yumenkou, Shanxi; Yellow River Bridge (4.5 km) and toll station; four interchanges; 11 large bridges; and one service area; (b) local roads—improvement of about 70 km of local roads, which included rebuilding 5 km of local link roads in Xinjiang county and 15 km of local roads in Jishan to meet class II highway standards; upgrading 20 km of village roads in Xinjiang county and 30 km of local county roads in Hejin to class III highway standards; and reconstruction of two bridges across the Fenhe and Fenxi rivers, Jishan county; about \$2 million of the ADB loan were provided for the local roads component; (c) equipment for road maintenance, toll collection, surveillance and communications, load testing, road safety, and office administration; (d) land acquisition and resettlement; and (e) consulting services for construction supervision monitoring and evaluation, road safety audits, and in-country and international training for capacity building.

C. Evaluation of Design and Implementation (project completion report [PCR]² assessment and validation)

- (i) **Relevance of design and formulation.** The project was designed to facilitate economic growth and reduce poverty through improved access to markets and services. To achieve this, the project comprised construction of a section of expressway and rehabilitation of rural, county, local, and village roads. The provision of local roads helped to ensure that benefits from transport improvements were readily available to the public. The project was in line with ADB's country operational strategy and government priorities, and was relevant at the time of project preparation. This is adequately explained in the PCR.

Project formulation followed a typical approach for road projects in the PRC—combining an expressway component with local roads. The cost of the local roads component at completion was \$9.32 million against \$216.07 million for the expressway component. The project aimed to address poverty by improving 46.47 km of local roads. In other words, the financing of the expressway (66.84 km) is justified to reduce poverty by including a small local roads component. It could be debated whether this project design was appropriate in light of the weak attribution to poverty reduction of the expressway component. Such project design has been criticized by the government as well as the Independent Evaluation Department (IED)³ in light of the institutional issues related to managing such components and the relatively small size of the local roads component.
- (ii) **Project outputs.** The PCR appropriately describes the project outputs—expected and actual. The local roads component was modified during implementation—three of the six local roads were replaced with longer sections, which increased the total length from 70.00 km to 97.98 km. However,

² ADB. 2008. *Completion Report: Shanxi Road Development II Project in the People's Republic of China*. Manila.

³ ADB. 2007. *Sector Assistance Program Evaluation: ADB Assistance for Roads and Railways in the People's Republic of China*. Manila.

only four roads were improved under the loan for a total length of 46.47 km because the civil works contracts for two of the roads were signed before the loan became effective and were thus not eligible for financing.

- (iii) **Project cost, disbursements, borrower contribution, and conformance to schedule (as relevant to project performance).** The actual project cost of \$287 million was 12% lower than the appraisal estimate because of variations in costs and exchange rate fluctuations. ADB financed \$124.0 million (of the total foreign exchange cost of \$147.4 million) and disbursed the total amount. The local currency cost was funded through the Ministry of Construction, a loan from the China Minsheng Bank, and Shanxi government funds. To use the total loan amount, the borrower requested that the financing percentage be increased from 48% to 54%. This was approved and made retroactive by ADB.

Disbursements, though delayed at the beginning, followed a largely normal pattern as did construction progress. ADB approved advance procurement action about 6 months prior to loan approval. However, this effort to speed up project implementation was largely negated by the severe acute respiratory syndrome outbreak in early 2003. The loan closing date was extended by 6 months to complete the capacity building component. Other components were completed ahead of schedule.

- (iv) **Implementation arrangements, conditions and covenants, related technical assistance, and procurement and consultant performance.** Implementation arrangements were as envisaged at appraisal. An extended explanation of this is included in the PCR. The Shanxi Communications Department (SCD) was the executing agency, and delegated authority and responsibility appropriately. Shanxi-Hou-Yu Expressway Construction Company (SHEC) was the implementing agency.

Although most loan covenants were complied with, the borrower did not comply with the covenant relating to private sector financing.⁴ The inability to comply with this component has been seen in other ADB loans. The project did not carry out the feasibility of private sector financing of the expressway prior to opening the project facilities. This is a wider issue requiring better policy dialogue with the government. The inclusion of such a loan covenant could be questioned if it is not in line with the government's policy direction.

- (v) **Performance of the borrower and executing agency.** The PCR (para. 29) incorrectly states that SCD was the borrower. The PRC was the borrower and SCD was the executing agency. The PCR reported that the SCD was familiar with ADB procedures and practices from a previous ADB-financed expressway project. However, in general, the PCR treated this subject rather briefly with no mention of the noncompliance with the loan covenant. Since this issue requires a broader discussion at the sector level, the PCR should have recommended a follow-up action. Meanwhile, the PCR rated implementing agency performance as *satisfactory* given that there was due concern for construction quality and was completed a month ahead of schedule even though the start up was delayed. Based on the available information, this validation agrees with the PCR ratings on executing and implementing agency performance.

- (vi) **Performance of the Asian Development Bank.** The PCR concludes that ADB performance was *satisfactory*. This validation confirms this assessment in light of the overall ADB performance, although the performance needs to be monitored because of criticism linked to the slow procurement of consultants. ADB was criticized by the SHEC for being slow in reviewing and approving the documents for engaging the international consulting firm, which was recruited through a procurement process lasting 11 months. Subsequently, during implementation, ADB fielded five review missions over the 3.5 year civil works construction period. ADB's performance in the approval of bidding documents for the civil works contract was prompt.

⁴ Of the 33 loan covenants, 30 covenants were either complied with (29) or being complied with (1) at completion. One covenant was partly complied with (i.e., training programs), while two were not complied with. The covenants that were not complied with relate to corporatization and corporate governance (i.e., corporate development plan) and nongovernment financing (i.e., private sector financing).

D. Evaluation of Performance (PCR assessment and validation)

- (i) **Relevance.** The PCR's rating of "highly relevant" is validated because (a) the project is in line with the operational strategy and the government's development strategy; (b) the project was classified correctly under the economic growth category (not poverty reduction) by the report and recommendation of the President; and (c) the project was located in a relatively less developed interior province of the PRC, which indicates that there could be an indirect but clearly attributable impact on poverty reduction. However, the PCR does not present these arguments clearly.

Like other earlier ADB expressway projects in the country, the project made an attempt at strategic integration of local roads in the project scope. International financial institutions combined local road improvements on expressway projects in the PRC on the premise that these would increase the poverty reduction impacts. ADB evaluation experience suggests that these local roads would have been constructed anyway and this complicated the institutional and financial arrangements without adding value.⁵ The sector assistance program evaluation for the roads and railways sector in the PRC has since recommended that local roads should be attached to expressway projects strictly on a demand-driven basis (footnote 3). The PCR does not clearly argue how it has addressed these issues including the significance of ADB financing in the local road program in areas selected for project support. On the other hand, these issues appear less important in the case of this project since it is located in a less developed interior province. The project would have also enabled implementation of local roads in these poor areas much earlier than without an ADB project. More importantly, this validation agrees with the PCR conclusions that economic development stimulated by the expressway and improved local roads (especially where strong synergy exists in terms of connectivity) under the project would have led to raising living standards and poverty reduction.

- (ii) **Effectiveness in achieving outcome.** The project as a whole is considered *effective* as it substantially achieved its targeted outcomes. It also contributed positively to strengthening institutional capacity at SHEC.

The Houma–Yumenkou Expressway was opened on schedule to provide a faster, safer, and lower cost alternative route for traffic in the corridor. At project completion, traffic is considerably lower than expected (21%–36%) which, in part, is due to an overly optimistic appraisal estimate. Still, traffic appears to be reluctant to divert from the existing longer but toll-free parallel national road (where vehicle weights are not enforced). Two factors that influence the new expressway's competitiveness in attracting more traffic are (a) its toll rates that are perceived to be high, and (b) the enforcement of vehicle weights within the route. In the short run, some may argue that traffic may be expected to divert gradually to the expressway as the existing parallel route deteriorates and travel times and vehicle operating costs increase. However, this is not likely to happen in the longer term when traffic diversion also reduces congestion along the national road.

On the positive side, travel times and transport costs on the expressway are about one-half of those on the parallel route, while freight charges have been reduced by about 20% and passenger fares by over 25%. The expressway was designed to incorporate road safety features, and a subsequent audit showed that there were no deficiencies. Emergency road safety plans are in place. Measures to prevent overloading appear to be enforced and weigh bridges are used. These are considered highly effective outcomes from the project. Overall, the main expressway component is considered *effective* on the high side. This considers the lower than expected expressway traffic and diversion rate from the old national road.

As can be seen below (section D[iii]), the local roads component was economically viable with a high rate of return. A total of six local roads with a length of 70.0 km were selected through consultation with provincial authorities at appraisal to be improved using ADB funding. After some

⁵ Notably, three of the selected roads were substituted. Of the six roads under the project, only four were financed by ADB as two were found ineligible for ADB financing in the absence of a provision for retroactive financing. At completion, ADB financed only a total of 46.5 km for four local roads against the original target of 70 km for six roads. The former accounted for 47.4% of the total length of local roads financed by the project.

changes during implementation, a total of 97.98 km was improved but only 46.47 km (66.3% of total roads proposed for ADB funding) of these were financed under the ADB loan. Therefore, the local road component is also considered *effective*.

Vehicle emissions were reduced by more efficient operating conditions. Additionally, vehicle emissions are tested and controlled by Shanxi Province. Although this is a new initiative in the province, it appears that the province will enforce vehicle emission controls. This may be considered *effective* given the limited track record of emissions enforcement.

Capacity building as envisaged at appraisal had to be truncated in terms of the number of trainees because of budget constraints. During the construction phase, several in-house and overseas training courses were successfully conducted and found to be very effective. Additional training overseas was approved in 2007, but this was not undertaken.

Overall, this validation reconfirms the PCR conclusions that all major components were completed and have achieved their objectives in an *effective* manner.

- (iii) **Efficiency in achieving outcome and outputs.** The PCR rates the project *highly efficient* with a reevaluated economic internal rate of return of 19.4% for the expressway component and 22% for the local roads components, which are slightly higher than the appraisal estimates. Although traffic on the expressway is less than the appraisal estimate, the economic internal rate of return is still high largely because the economic costs at completion were lower than estimated as a result of lower civil works costs (in CNY terms). The validation agrees with the PCR assessment, which is spelled out in its economic reevaluation appendix.
- (iv) **Preliminary assessment of sustainability.** The financial reevaluation shows that the financial internal rate of return is calculated at 8.1%. This is slightly higher than the appraisal estimate. The weighted average cost of capital after tax is estimated at 3.5%, indicating that the project expressway is financially viable with a sustainable traffic growth based on rapid economic growth in the project area. Maintenance has been outsourced to private contractors, and the maintenance budget appears to be responsive to needs. The local roads are expected to be maintained adequately in light of the rural road policy framework launched by the State Council in 2005. This validation confirms the PCR rating of *likely* to be sustainable.
- (v) **Impact (both intended and unintended).** The PCR does not provide any rating for the project impact. Taking into account the evidence provided in the PCR. This validation rates the project impact *significant*. The project was classified environmental category A. However, the PCR (para. 40) indicates that the recommendations of the environmental safeguard review mission have not yet been fully implemented. Some of the recommendations have been implemented, but others (such as continuous monitoring of soil erosion, air quality, and population during operations) are ongoing. The East Asia Department of ADB will need to monitor the implementation appropriately. The issue of attribution of poverty reduction impacts to the project is discussed in section C(i).

E. Overall Assessment, Lessons, and Recommendations (validation of PCR assessment)

- (i) **Overall assessment.** The PCR rates the project *successful*. This rating has been validated. The targeted outputs and outcomes have been achieved. There are no negative impacts visible from the data presented in the PCR.
- (ii) **Lessons.** The lessons identified are relevant, although the lesson relating to integrating expressway with local roads components is debatable (section C[i]).
- (iii) **Recommendations.** The PCR makes appropriate recommendations, which are time bound.

F. Monitoring and Evaluation Design, Implementation, and Utilization (PCR assessment and validation)

The impacts, outcomes, and outputs stated in the project framework were straightforward; and data to confirm their status were available. The project performance management system was appropriately implemented and related reports provided information essential for preparing the PCR. Implementation was carried out with some changes. SCD was experienced in implementing ADB-funded projects, easing the learning curve for this project.

G. Other (e.g. safeguards, including governance and anticorruption; fiduciary aspects; government assessment of the project, as applicable) (PCR assessment and validation)

The project was executed well by SCD. The PCR did not discuss the aspects of corruption or the absence thereof. Funds were readily available from all sources. Environmental and social safeguards were in place and actively monitored during implementation and are to be continued following completion.

H. Ratings	PCR	IED Review	Reason for Disagreement/Comments
Relevance:	Highly relevant	Highly relevant	The project is located in a less developed interior province. It would also have enabled implementation of local roads, in particularly poor areas, much earlier than without an ADB project. The PCR concludes that economic development stimulated by the expressway and improved local roads (especially where strong synergy exists in terms of connectivity) under the project would have led to raising living standards and poverty reduction.
Effectiveness in Achieving Outcome:	Effective	Effective	
Efficiency in Achieving Outcome and Outputs:	Highly efficient	Highly efficient	
Preliminary Assessment of Sustainability:	Likely	Likely	
Borrower and EA:	Satisfactory	Satisfactory	
Performance of ADB:	Satisfactory	Satisfactory	
Impact:	No rating provided	Significant	
Overall Assessment:	Successful	Successful	
Quality of PCR:		Satisfactory	

I. Comments on PCR Quality

The PCR was well prepared and thorough. It is consistent with project administration instructions and IED requirements. Areas for improvement include the following.

Appendix 1. The design and monitoring framework could have been improved in several areas:

- (i) Outcomes. The data for road safety on local roads should have been collected and reported in the PCR.
- (ii) Outputs. For the capacity building component, the design and monitoring framework does not state that the training was partly accomplished.

J. Recommendation for Independent Evaluation Department Follow-Up

Outstanding covenants are to be followed up by the East Asia Department. Given ADB's established understanding on the contributions of expressways to development effectiveness and similar performance in terms of an integrated approach to transport sector improvement from past evaluations, a project performance evaluation report is not required.

K. Data Sources for Validation

Data sources used in the preparation of this project validation report included project preparation documents, PCR and implementation related reports, and IED reports.

REGIONAL DEPARTMENT'S RESPONSE TO THE PROJECT COMPLETION REPORT VALIDATION REPORT

On 26 October 2009, Director, IED2, Independent Evaluation Department (IED), received the following comments from the Transport Division, East Asia Department.

We appreciate that the comments we made to IED on the earlier draft have been adequately incorporated in the final draft. Therefore, we have no formal comment to make on the final draft.