1. Project Data:

<table>
<thead>
<tr>
<th>PROJ ID</th>
<th>Appraisal</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>P058847</td>
<td>334.20</td>
<td>392.45</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Project Costs (US$M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cn-3rd Xinjiang Hwy Project</td>
<td>334.20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Country</th>
<th>Loan/Credit (US$M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>150.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sector Board</th>
<th>Cofinancing (US$M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TR</td>
<td>150.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sector(s):</th>
<th>Theme(s):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roads and highways (94%)</td>
<td>Rural services and infrastructure (40% - P)</td>
</tr>
<tr>
<td>Sub-national government administration (6%)</td>
<td>Infrastructure services for private sector development (40% - P)</td>
</tr>
<tr>
<td></td>
<td>Other public sector governance (20% - S)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>L/C Number</th>
<th>Board Approval Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>L7143</td>
<td>05/09/2002</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Partners involved</th>
<th>Closing Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12/31/2007</td>
</tr>
<tr>
<td></td>
<td>12/31/2009</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Evaluator</th>
<th>Panel Reviewer</th>
<th>Group Manager</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peter Nigel Freeman</td>
<td>Robert Mark Lacey</td>
<td>IEG ICR Review 1</td>
<td>IEGPS1</td>
</tr>
</tbody>
</table>

2. Project Objectives and Components:

a. Objectives:

The overall project development objective (PDO) as stated in the PAD and the Loan Agreement is "to improve transport infrastructure and sector governance in support of social and economic development in Xinjiang Uigur Autonomous Region (XUAR), a remote province in Western China." This objective was to be achieved through:

i) Relieving traffic congestion and increasing mobility along the regional and international trade corridor between Kuitun and Sailimu close to the Kazakhstan border, part of the main east-west section of China's National Trunk Highway System (NTHS).

ii) Improving accessibility to selected poor areas in the region through a Local Roads Rehabilitation Program (LRRP); and

iii) Enhancing the efficiency and effectiveness of public sector management of the road network.

b. Were the project objectives/key associated outcome targets revised during implementation?

No

c. Components (or Key Conditions in the case of DPLs, as appropriate):

Component 1. Construction of the Kuitan-Sailimu Highways (KSH) (Appraisal estimate US$271.74 million; actual
This 312 km. highway will complete the remaining gap in the NTHS 1,430 km long stretch of National Highway traversing Xinjiang (a part of the ancient Silk Road). The Kuiten-Wusu section (18 km.) was designed as an expressway on a new alignment, while the remaining section Wusu-Bole Fork-Sailimuhu comprised improvements to the existing road and bypasses around the main cities. The component also included supervision costs, land acquisition, and resettlement.

Component 2. Local Road Rehabilitation Program (Appraisal US$44.88 million; actual US$51.84 million)

Some 600 km. of existing local roads in poor areas would be improved without changes to the existing alignment.

Component 3. Institutional Strengthening (Appraisal US$16.08 million; actual US$17.45 million)

Compriised the institutional strengthening and training at the Head Office (XHGHAB), and the Provincial Survey and Design Institute (XRSFDI), studies, technical assistance, and equipment. The studies covered i) Road maintenance management improvement, and ii) continuing support to activities started under other projects such as road safety, improving transport services and improving the management of toll highways.

d. Comments on Project Cost, Financing, Borrower Contribution, and Dates:

The total estimated cost at appraisal was US$332.70 million with a specific investment loan from IBRD of US$150 million, and US$182.70 million from the borrower. The final cost was US$390.95 million with the IBRD loan fully disbursed and the borrower increasing its contribution to US$240.95 million. There was also a Front End Fee of US$1.50 million. The original closing date of December 31, 2007 was extended twice by a year on each occasion; the first time was due to delays in the Akasi-Xihexiu section of the LRRP program due to unprecedented technical difficulties, the second time was in order to complete the LRRP and the training program.

3. Relevance of Objectives & Design:

Objectives

The construction of XSH was a key factor in the government strategy to develop the highway network with a view to better integration of the regions in China’s national economy. In this regard the KSH was especially relevant to the development program of the Western Region of China, which lagged substantially behind in development when compared to the Eastern provinces. The 1997 Country Assistance Strategy endorsed this focus, believing it would foster growth, reduce poverty, and support better governance. It also emphasized the need for improving the quality of both transport infrastructure and transport logistics in interfacing with eight neighboring countries in Central Asia. The project is in line with the Country Partnership Strategy of 2006-2010 in that it improves road access to trade and services, as well as more efficient sector management support. Overall the relevance of the PDOs is high.

Design

Various alternatives were considered for the KSH including that of a public/private partnership, but this idea was rejected because of the reluctance of private investors to get involved in greenfield projects at that time in China. For the LRRP, alternative links were considered based on socioeconomic impact and technical urgency due to poor road condition. The basis for the institutional component was a five year Institutional Development and Reform Plan. This was a sensible approach because it was considered to be a dynamic document that needed to be adjusted periodically reflecting changes taking place in the Xinjiang Communications Department (XCD), concurrently with reforms in Xinjiang. Risks were rightly not considered to be high because of the previous experience in other projects by the implementing agencies in XUAR together with the strong commitment from Government at all levels. The design could have been improved by including safety issues concerning at-grade crossings and a thorough study of the geological conditions in the Akasi-Xihexiu road under the LRRP program, since this was a known area of difficulty. Design relevance was substantial.

4. Achievement of Objectives (Efficacy):

Achievement of the overall objective – “to improve transport infrastructure and sector governance in support of social and economic development in Xinjiang Uigur Autonomous Region (XUAR), a remote province in Western China” – was substantial. As the following assessment of the means by which this objective was to be achieved shows, the project enabled a considerable improvement in the transport infrastructure of the Autonomous Region by both filling the remaining gap in the National Highway traversing Xinjiang and by enhancing the condition of the local road network. These led to substantial reductions in transport costs, and safer, faster, and more comfortable journeys, as well as contributing to economic growth in the Autonomous Region and higher incomes for its population. Among the identified beneficiaries of the transport enhancements were people in village communities where ethnic minorities form a majority of the population. Road sector governance was improved through separating political from managerial functions, streamlining bureaucratic procedures, and giving greater autonomy to XCD-owned enterprises.

i) Relieving traffic congestion and increasing mobility along the regional and international trade corridor between Kuitun and Sailimu. Average travel speed and thus mobility on the road was measured in the three sections of the
Road and increased from the 30-47 km/h range to the 60-120 km/h range. This was because of considerable reductions in traffic congestion and the use of larger capacity, more powerful trucks. Traffic has benefitted from smoother roads with an improvement in the road roughness index from IRI 15.6 to IRI 4.9 at project closure. This was aided by an increase in maintenance spending. Road safety also improved as exemplified by a considerable reduction in the rate of fatal traffic accidents, down from 22/10,000 vehicles in 2003 to 11/10,000 vehicles in 2008. Since the road was improved there has been considerable economic growth in the area, but this cannot all be attributed to the road improvement.

i) Improving accessibility to selected poor areas in the region. Traffic on the LRRP roads increased substantially as a result of the project. For example traffic on the Mulei-Qitai road grew an average annual daily traffic equivalent of 2,405 in 2000 to 6,889 in 2008, and the Jimusar-Santai road from 2,833 to 5,290. An analysis of the beneficiaries also showed that the program was of specific benefit to local minority groups of people. Of the 12 roads improved, 9 were through areas where minorities made up 69 percent or more of the local population. Economic and social development in the counties served by the LRRP also improved, but this may not have been solely due to the roads. The average annual income of people in the villages affected by the improvement of the local roads showed increases of between 80 and 120 percent over a five year period. While factors other than roads would have contributed to this, it is likely that the roads were a key element.

ii) Enhancing the efficiency and effectiveness of public sector management of the road network. A major restructuring of the XCD was concluded in 2006, which was supported by technical assistance from the Bank, training, and various studies. This included separating the political from the management functions, providing autonomy to XCD owned enterprises, simplifying bureaucratic procedures and streamlining construction and maintenance under different agency units. Training focused on environmental protection, highway engineering supervision, financial management, and project management. Overall, 1,036 persons received training against the PAD estimate of 817 persons. Domestic training was far ahead of the target, but less overseas training than expected took place. The Chinese Pavement Management system has now been adopted by XCD which is a valuable maintenance management tool. An equipment asset management system is now also available and in use, but needs further improvements. A transport facilitation study funded by the project has recommended the regulation of the large number of freight terminal companies (ten times greater than in European countries). This will increase efficiency and quality in freight operations and is presently under discussion.

5. Efficiency (not applicable to DPLs):

There is little difference between the ERR at appraisal (19.6 percent) and completion (20.4 percent) for the KSH improvement, although there is some variation for individual sections. For the LRRP program the ERRs are 32 percent at appraisal and 27 percent at completion. Taking a weighted average the ERRs (shown below) are 22.2 percent at appraisal and 21.6 percent at completion. The ERRs at completion were based actual construction cost and current traffic data. The slightly lower ERR at completion is due to an increase in average construction cost, but the efficiency is nonetheless substantial. An FRR does not apply since the toll road is not being run on a for-profit basis. Tolls are sufficient to adequately cover expected maintenance costs.

<table>
<thead>
<tr>
<th>Rate Available?</th>
<th>Point Value</th>
<th>Coverage/Scope*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appraisal</td>
<td>Yes</td>
<td>22.2%</td>
</tr>
<tr>
<td>ICR estimate</td>
<td>Yes</td>
<td>21.6%</td>
</tr>
</tbody>
</table>

* Refers to percent of total project cost for which ERR/FRR was calculated.

6. Outcome:

This was a highly relevant project, especially given the importance of the development program focused on the less advanced provinces of Western China. Design relevance, though not flawless, was substantial. Analysis of efficacy shows that the project achieved its objective of improving transport infrastructure and sector governance in support of social and economic development in Xinjiang Uigur Autonomous Region (XUAR). Efficiency was also substantial, with an ERR exceeding 21 percent.

a. Outcome Rating: Satisfactory

7. Rationale for Risk to Development Outcome Rating:
Past experience in XUAR indicates that newly built roads are well maintained. Toll revenues along the KSH are sufficient to provide adequate maintenance in the short to medium term. The budgetary allocations for LRRP roads or maintenance are also expected to be adequate based on previous experience. Institutional improvements have a low risk of being reversed based on previous performance. However, taking a longer term view, and given the major increase in the extent of modern roads in the XUAR anticipated over the next few years, there is a likelihood that at some point there will be a big rise in maintenance requirements as the road system starts to age. This will require XAUR to improve the efficiency of its maintenance management and ensure that funding for maintenance is increased along with the higher demands for road maintenance resulting from increased traffic. Risk to development outcome is thus seen as moderate.

a. Risk to Development Outcome Rating: Moderate

8. Assessment of Bank Performance:

Quality at Entry
The Bank had established good working relationships with the implementing agency through the two previous Xinjiang projects and used its experience in these projects as strong inputs into the preparation of the current operation. Design focused on an appropriate mix of main highways and local roads, some sound institutional measures, and good coverage of risks and mitigation measures. The ICR reports that safeguards were covered comprehensively and in a transparent manner. The economic analysis was sound. Safety issues concerning at-grade crossings could have been included, and a more thorough study could have been undertaken of the geological conditions in the small Akasi-Xihexiu road section under the LRRP program.

Supervision
While there was staff turnover in the supervision team, the quality of supervision was unaffected as all team members had individually and collectively considerable experience in China. The mission frequency was adequate and the team successfully intervened as necessary to assist with the resolution of problems such as embankment settlement, safety issues, and improving monitoring procedures. In addition the team assisted the Borrower in organizing a three day international seminar on road safety. Participants believed that the seminar successfully raised general awareness about road safety issues, and strengthened the capacity of Xinjiang province to support sustainable reductions in road deaths and injuries.

a. Ensuring Quality at-Entry: Satisfactory
b. Quality of Supervision: Satisfactory
c. Overall Bank Performance: Satisfactory

9. Assessment of Borrower Performance:

Government
The Xinjiang Government provided sustained support for the project from preparation through implementation. It also supported an increase in the funding allocation for road maintenance during the period of project implementation which was an important factor behind the overall improvement in the quality of the road network that took place during the project period. A small criticism is that approvals were not forthcoming for all of the persons earmarked for overseas training and study tours. Nevertheless, 83 out of 121 persons (69 percent) received such training. On the other hand the numbers receiving domestic training exceeded expectations (37 percent more).

Implementing Agency
During the duration of the project there were three different directors of XCD and many changes in senior staff. While these changes did not impact progress on the physical works, they did affect slightly that on the institutional component, the quality of M&E reporting, and the training, leading to a time extension of the project. Nevertheless, the improvement in the quality of the road network was creditable, the civil works were satisfactory (with the exception of delays because of extreme geological conditions on the Akasi-Xihexiu section of the LRRP program), the environmental and social aspects were very well attended to and considerable attention was paid to road safety. Regarding safety, XCD implemented the pilot road improvement and held a very successful road safety seminar, which was well attended with a variety of stakeholders.

a. Government Performance: Satisfactory
b. Implementing Agency Performance: Satisfactory

c. Overall Borrower Performance: Satisfactory

10. M&E Design, Implementation, & Utilization:

Design
The PAD provided four outcome indicators and numerous output indicators, but did not include specific targets against which to assess outcomes. This omission was corrected in a Supplemental Letter included in the loan documents which specified targets and baseline values. Most of the indicators were easy to monitor, since the required data were already periodically collected by the Xinjiang provincial government. However, one indicator, was based on transport rates (which are set and regulated by the provincial government), rather than actual operating costs for providers of transport services. Although the transport rates indicator was monitored, it did not yield any useful information because it did not reflect the improvements in the road condition. Some of the output indicators were overly complicated and had to be simplified during implementation.

Implementation
Although indicator values were regularly requested by Bank missions and included in the supervision reports, information was frequently provided late. There were also issues regarding the credibility of some data, especially concerning traffic and road roughness indicators. In some instances, revisions were requested by the supervision missions and these were provided by XCD.

Utilization
Values of indicators were regularly requested by Bank missions and most were utilized by the Xinjiang Communications Department (XCD) for their own planning and monitoring purposes. Of special interest to the XCD were the indicators for road congestion, road safety and road condition, because they reflected the impact of XCD on the users.

M&E Quality Rating: Modest

11. Other Issues (Safeguards, Fiduciary, Unintended Positive and Negative Impacts):

The project was given a category "A" environmental classification. However, according to the ICR, the alignment of KSH posed relatively few environmental issues since the alignment traverses mainly desert areas. The main issues concerned noise and dust pollution which, according to the ICR, were mitigated appropriately during construction, and through the proper siting and management of quarries and disposal pits.

On the social side, the construction of KSH involved the resettlement of 748 people and affected 196 households, and acquired amounted to 1,333 ha. The amount of compensation paid (120 million Yuan) was actually double the estimate in the Resettlement Action Plan (RAP). This was due to an agreement to pay higher compensation rates, and to an increase in the estimate of people and land affected. The Borrower's report indicates that the people affected by the improvement of the local roads were compensated near the upper limits of the regional stipulation, but does not explain why this decision was taken. The ICR refers to a statement from the Borrower's ICR and Comments (Annex 7, page 41) that "through efforts made by displaced people themselves, and support given by relevant departments, the living standards of displaced families were all improved, [and] generally exceeded [the] original level."

The ICR reports that fiduciary compliance was satisfactory and both audit reports and financial monitoring reports were submitted in a timely manner. The ICR does not report any issues arising from the audit reports. Procurement of works, goods and services was carried out in accordance with Bank guidelines.

12. Ratings:

<table>
<thead>
<tr>
<th>Outcome</th>
<th>ICR</th>
<th>IEG Review</th>
<th>Reason for Disagreement /Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfactory</td>
<td>Satisfactory</td>
<td>Moderate</td>
<td>Moderate</td>
</tr>
</tbody>
</table>
**Bank Performance:** Satisfactory  
**Satisfactory**  
**Borrower Performance:** Satisfactory  
**Satisfactory**  
**Quality of ICR:** Satisfactory

**NOTES:**
- When insufficient information is provided by the Bank for IEG to arrive at a clear rating, IEG will downgrade the relevant ratings as warranted beginning July 1, 2006.
- The “Reason for Disagreement/Comments” column could cross-reference other sections of the ICR Review, as appropriate.

**13. Lessons:**
- The less developed western provinces of China can close the knowledge gap rapidly by sharing experiences from other provinces and elsewhere. This was exemplified in the Third Xinjiang Project, especially in the areas of road maintenance management and transport facilitation.
- Diligent geological survey and proper design for low volume roads should not be neglected in areas of known geological instability.
- Improving road safety, especially on four-lane highway sections requires blending a combination of design and operational knowledge. When moving from a controlled expressway to a road featuring at-grade intersections, engineering design and appropriate signage play a critical role. Similarly, wider roads are not necessarily safer roads without appropriate complementary measures.
- Target indicators should be carefully chosen to avoid ambiguous or non-attributable results. In this regard, experience from past projects elsewhere should be carefully considered before a final selection is made.

**14. Assessment Recommended?**  
- Yes  
- No

**15. Comments on Quality of ICR:**

Overall, this a well written and incisive ICR. It provides some interesting lessons and is frank about some of the problems with M&E. This said, there are some minor issues. The relevance of the project design was not given under section 3.1 (although the information was available elsewhere in the document, notably in section 2.1 and 5.1). The Beneficiary Survey results shown in Annex 5 of the ICR appear to be drawn from the RAP and are not the results of an additional survey. There is no explanation of why it was decided to offer compensation near the upper limits of the regional stipulation to people affected by local road improvements.

**Quality of ICR Rating:** Satisfactory