



## 1. Project Data

<b>Project ID</b> P099062	<b>Project Name</b> CN-ShiZheng Railway		
<b>Country</b> China	<b>Practice Area(Lead)</b> Transport & ICT		
<b>L/C/TF Number(s)</b> IBRD-75570	<b>Closing Date (Original)</b> 31-Dec-2013	<b>Total Project Cost (USD)</b> 6,500,000,000.00	
<b>Bank Approval Date</b> 24-Jun-2008	<b>Closing Date (Actual)</b> 30-Nov-2015		
	<b>IBRD/IDA (USD)</b>	<b>Grants (USD)</b>	
Original Commitment	300,000,000.00	0.00	
Revised Commitment	297,055,689.91	0.00	
Actual	297,055,689.91	0.00	
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## 2. Project Objectives and Components

### a. Objectives

**Original Objective.** The PDO as stated in the Loan Agreement (LA, Schedule 1, page 4) and in the Project Appraisal Document (PAD) was: " To meet growing freight and passenger market demand in the railway corridor section between Shijiazhuang and Zhengzhou, while substantially improving the level of service offered to customers."

**Revised Objective.** "To meet growing freight and passenger market demand in the railway corridor between Shijiazhuang and Zhengzhou, while substantially improving the level of service offered to customers and to improve the maintenance of the catenary system on High Speed Rail lines."



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

Yes

**Did the Board approve the revised objectives/key associated outcome targets?**

Yes

**Date of Board Approval**

21-Aug-2012

**c. Components**

There was one original component.

**Railway corridor between Shijiazhuang and Zhengzhou** (estimated cost at appraisal US\$5,017 million; actual cost at closure US\$5,051.81 million). This activity aimed at constructing a new double-track electrified 355 kilometer (Km) High-Speed Railway (HSR) exclusively for passenger services between Shijiazhuang in Hebei Province and Zhengzhou in Henan Province in Central China and reserving the existing lines for movement of freight and slow passenger trains. Activities included: (i) Provision of goods including signaling through an Automated Train Protection (ATR) system for train safety, electrification equipment, concrete railway beams (sleepers) and related technical assistance for energy conservation measures. (ii) Construction of six new railway stations in Gaoyi, Xingtai, Handan, Anyang, Hebi and Xinxiang cities along the new rail line, and (iii) Resettlement and rehabilitation of displaced persons. An additional component was added through the Level 1 restructuring on August 21, 2012.

**Catenary Maintenance Vehicles** (estimated cost US\$115.00 million; actual cost at closure US\$113.93 million). This component aimed at purchasing advanced catenary maintenance equipment. This equipment allowed for more efficient maintenance of the overhead electrical wires that power the trains by allowing faster access to sites where maintenance needed to be carried out and allowed work to be performed on the catenary above both tracks simultaneously.

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

**Project cost.** Appraisal estimate (including baseline cost, costs associated with physical contingencies, interest during construction, rolling stock and front-end IBRD fee) was US\$6,109.10 million. The revised estimate including the additional component described above was US\$6,224.10 million. The additional component was financed through a combination of factors including: (i) Savings derived from international tenders (ii) Domestic financing for the signaling system and (iii) Cost savings associated with the lower than anticipated price of raw materials for bridge bearings. Actual cost at closure US\$5,197.29 million, 83.5% of the revised estimate.

**Project Financing.** The project was financed by an IBRD loan. The appraisal estimate was US\$300.00 million. Amount disbursed at closure US\$297.10 million.

**Borrower Contribution.** The Borrower contribution was estimated at US\$5,924.10 million (95% of the total appraisal estimate). The Government's actual contribution by closure was US\$4,897.49 million or 94% of the total incurred cost.



**Dates.** The following changes were made through a Level 1 Restructuring on August 21, 2012: (i) The PDO was revised. (ii) An additional component was added (iii) There was a reallocation of loan proceeds between categories, and (iv) The project closing date was extended by 23 months from December 31, 2013 to November 30, 2015.

**Restructuring and Split Rating.** The project was restructured when 65% of the loan was disbursed and the balance was disbursed after restructuring. The assessment of the project's outcome will therefore be based on a split rating of achievements before and after the restructuring date.

### 3. Relevance of Objectives & Design

#### a. Relevance of Objectives

##### **Before Restructuring: High**

Given the size of the country, the PDO of increasing the capacity of railways to meet the growing demand for rail services and improving the service delivery of rail services was highly relevant, as the rail mode was more economical than the road mode for long distance movement of passengers and freight. Railways were more energy efficient and hence more conducive to protecting the environment than the road transport mode. Constructing railways was also more economical in terms of land use.

The importance of the original PDO to the Government was articulated in the following documents. In 2004, the State Council approved the Ministry of Railways (MOR) "*Mid and Long Term Railway Development Plan (MLTRDP)*" which articulated the construction priorities of Chinese Railways and provided the framework for developing future railway five year plans. The MLTRDP set the annual national investment needs for railways to keep pace with growing demand estimated at US\$12-15 billion through 2020. The 11th Five Year Plan for the 2006-2010 period planned to increase the annual rate of investment in railways by as much as 300% leading to planned investment nationally of approximately US\$23 billion in 2007 alone. Since the approval of the 11th Five Year Plan, the annual investment had increased significantly above the level envisaged; for example, it is now planned to invest US\$45 billion nationally in 2008 (PAD paragraphs 3 and 4). Hence the original objective was highly relevant to the Government's transportation strategy at appraisal. The original PDO was and continues to be relevant with the Bank strategy for China. At appraisal, the project contributed to the priorities set in the Country Partnership Strategy (CPS) for the 2006-2010 period on the dimensions of managing resource scarcity and environmental challenges. The PDO was also consistent with the current CPS for the 2013-2016 period and its two strategic themes of promoting green growth through low-carbon transport and the improvement of transport connectivity for more balanced regional development.

##### **After Restructuring: High**

The additional objective, aimed at further improving the level of maintenance of the catenary system, was substantially relevant to the long run sustainability of the original PDO (ICR, paragraph 22).

In summary, the relevance of the objective both to the Government strategy and Bank strategy for China was rated as High.

Rating

Revised Rating



High

High

**b. Relevance of Design**

**Before and after restructuring. Substantial.**

The statement of the original PDO was clear and the causal links between the project activities, their outputs and final outcomes were logical. In addition, the intended outcomes were measurable in principle. The construction of a new dedicated high speed railway (HSR), including the signaling and electrification equipment, concrete railway beams (sleepers) and related technical assistance, for passenger traffic would increase capacity for moving passengers who were prepared to pay more for savings in travel time between Shijiazhuang in Hebei Province and Zhengzhou in Henan Province. Since the existing lines were to be used mainly for long-haul movement of freight and slow passenger trains. the construction of the new dedicated HSR could be expected to increase the existing capacity on the parallel conventional tracks and this in could be expected to meet the growing demand for moving freight and passenger traffic on the slow passenger line.

The introduction of the catenary equipment maintenance vehicles (added to the original objective) was an innovation for China and is expected to contribute to improving the system’s reliability by improving periodic maintenance and fault detection, and thereby contribute to the long term sustainability of the HSR system. These outcomes could also be expected to contribute to the higher level objectives of managing resource scarcity and environmental challenges in China. The design identified the exogenous effects on the environment and social aspects and incorporated measures for addressing such effects. In summary the relevance of the original and revised project design was substantial.

**Rating**  
Substantial

**Revised Rating**  
Substantial

**4. Achievement of Objectives (Efficacy)**

**Objective 1**

**Objective**

Given that the PDO was changed following the project restructuring on August 21, 2012, a split rating is conducted through assessing the efficacy of outcomes before restructuring when 65% of the loan was disbursed and after restructuring when the balance 35% was disbursed. .

**Rationale**

**Sub-objective 1a:** To meet growing freight and passenger market demand in the railway corridor between Shijiazhuang and Zhengzhou (before and after restructuring): *Substantial*

**Outputs.**

355 km new double track electrified HSR line between Shijiazhuang and Zhengzhou, designed for 17 ton axle load that was appropriate for lightweight Electrical Multiple Unit (EMU) trains specially designed for high-speed operation, was constructed as targeted (ICR, Annex 2, page 24). The technical parameters of



this railway met international standards with respect to track, power supply, overhead electric system, signaling, communications, train control, dispatching system and energy conservation. Ballast-less track construction, safety systems such as fencing of railway right of way, an Automatic Train Protection (ATP) system, cab signaling, radio communication on trains and a safety systems that monitored weather conditions (including wind, rain, snow, seismic activity and fire) were provided. Ballast-less track construction as opposed to the conventional ballasted railway tracks require significantly less maintenance work and also provide long service life with constant serviceability conditions. Suitable protection against electromagnetic interference to communication was provided. Equipment for monitoring axle box temperature was provided (ICR, Annex 2, paragraph 5). Although trains on the entire line initially operated at 350 km/hour, the speed was reduced to 310 km/hour when the Shizheng line opened because of the national need to reduce energy consumption (ICR, Annex 2, paragraph 1).

Eight railway stations (Shijiazhuang, Gaoyi, Xingtai, Handan, Anyang, Hebi, Xinxiang and Zhengzhou) were constructed at project closure. This exceeded the target of six and hence served a larger passenger base.

Institutional support was provided by the Bank for preparing environmental impact assessment and Environmental Management plan.

### **Outcomes.**

According to the ICR (paragraph 41) the new HSR did not start to operate until 2013, after the project was restructured in August 2012. Nevertheless, for the purposes of this Review construction of the new HRS before restructuring was considered to be the essential building block and necessary achievement for meeting the outcome for this sub-objective - namely "To meet the growing freight and passenger market demand" which was not measurable until after restructuring,

At appraisal, the corridor between Shijiazhuang and Zhengzhou (the corridor was defined as a combination of the new high speed rail line supported by the project) was forecast to carry 181 pairs of trains (trains moving in both directions) daily (including 100 high speed pairs, 14 conventional lines and 67 freight trains). By 2015, the corridor carried 180 pairs daily (including 60 high speed pairs, 65 conventional trains and 55 conventional freight trains). The distribution between trains on the conventional line and trains on the high speed rail line on the corridor differed from what was expected at appraisal due to the Government decision to keep more trains in operation on the conventional line for social reasons (ICR, paragraph 40). The ICR also noted that recent figures from August 2016 showed that the corridor carried 201 pairs of trains daily (including 81 high speed trains, 65 conventional trains and 55 freight trains (paragraph 40).

Total passenger density on the corridor grew from 61 million passenger/route km in 2012 to 75 million in 2014 of which HSR accounted for 23 million. Between 2013 and 2014, passenger traffic in the HRS corridor grew at a similar growth rate as national passenger volume (9.5% for national passengers/route km and 8.6% on this corridor). Between 2007 and 2013 train pairs on the conventional line continued to grow by a cumulative 5% and trains on the conventional line were essentially operating at full capacity, depending on the segment. (ICR, paragraph 42).

The investment in high speed railway services before and after restructuring along the Shijiazhuang and Zhangzhou corridor had substantially met the growing demand for freight and passenger traffic.



## Rating

Substantial

## Objective 2

### Objective

In addition to the two sub-objectives discussed above which comprised the original objective was supplemented by an additional objective as part of the project's restructuring in August 2012, defined as Objective 2 (see Sections 2a and 2d of this Review)

### Rationale

**Objective 2:** To improve the maintenance of the catenary system on the high speed rail line between Shijiazhuang and Zhangzhou

### Outputs.

In addition to the outputs described above for sub-objectives 1a and 2b, specialized Catenary Maintenance Vehicles (CMVs) were purchased for improving periodic maintenance and fault detection.(ICR, page 6). The ICR noted that these vehicles "will travel to site at a maximum speed of 160 km/hr,providing a response time of no more than 30 minutes to any incident on the high-speed network, as required by the current standards" (Annex 3, paragraph 53)

The CMVs were equipped with twin working platforms instead of single ones and an extending arm that enabled them to work on the adjacent line, thus increasing maintenance efficiency. The first CMV was put in operation in February 2015 and most of the 28 CMVs being procured entered service in early 2016.

### Outcomes.

To monitor the impacts of the CMV, an indicator of power failure incident was introduced using an index 100 in 2013 as baseline. The power failure rate was calculated as the number of times overhead catenary systems experienced power failure incidents in the HSR network per passenger-km on HSR passenger dedicated lines. The index improved to 49 in 2014 and 15 in 2015 indicating a 51% and 85% improvement in performance respectively (ICR, paragraph 44). However, It is not clear to what extent the reduction in the power failure rate was uniquely due to the efficacy of the CMVs.

Despite the lack of direct evidence of the efficacy of the CMVs, this Review agrees with the ICR that it is reasonable to conclude that CMVs contributed substantially to the improvement of the maintenance of the catenary system on the HRS between Shijiazhuang and Zhangzhou in 2014 and 2015. Therefore the outcome of this sub-objective after restructuring is rated *substantial*.



**Rating**  
Substantial

## 5. Efficiency

### **Economic Analysis.**

A Cost-Benefit Economic analysis was conducted for the construction of the HSR component of the project. This component accounted for about 60% of the project cost at appraisal and 78% of the actual project cost. The benefits of the project were assumed to come from three factors: (i) Reduction in travel time for the traffic diverted to the new HSR line; (ii) Freeing up capacity on the existing lines for freight and slow passenger trains, which would otherwise travel by the road mode; (iii) Wider economic benefits through reduction in road accidents and congestion; and (iv) environmental benefits due to reductions in vehicle emission and changes in greenhouse gases (GHG). Other benefits that were not factored in the economic analysis included efficiency gains associated with agglomeration benefits due to an increasing number of companies becoming closely connected (ICR, page 13). The economic value put on reduction in GHG was assumed to be US\$30/ton increasing over time to US\$80/ton, consistent with values used in World Bank project evaluations. The Economic Net Present Value (NPV) based on a 12% discount rate at closure was Chinese Yuan Renminbi (RMB) 21 billion as compared to the NPV of RMB 64 million at appraisal. The average ex post Economic Internal Rate of Return (EIRR) was 15% (based on an EIRR of 20% for the HSR and an EIRR of 9% for freeing up capacity on the existing line for freight and slow passenger trains), as compared to the ex-ante average EIRR of 20% (with an EIRR of 13% for the HSR and an EIRR of 25% for freeing up capacity on the existing line). The EIRR for the capacity component was lower at closure due to lower freight demand than expected at appraisal and the EIRR for HSR was higher due to the greater diversion of passenger traffic from other modes.

With respect to the Catenary Maintenance Vehicles (CMVs) the ICR noted that "Compared to the existing equipment, much of which is now over 15 years old, the new vehicles are more efficient by having twin working platforms instead just one" (Annex 3, paragraph 53). An economic evaluation of the CMV component at closure repeated the economic evaluation of this component at restructuring when CMVs were introduced in 2012. The economic evaluation considered two types of incremental costs and benefits. Costs included reduced routine inspection and maintenance costs and benefits included reduced costs to both the railway and passengers due to faster response to incidents. The result was a net present value (NPV) at a 12% discount rate was RMB 271 million and the economic internal rate of return (EIRR) was 30% (ICR, Annex 3, Table 5).

### **Administrative and Operational Issues.**



The project was delivered below cost -with the actual cost being 83% of the appraisal estimate. There were cost savings and this enabled adding an activity aimed at providing for reducing inspection and maintenance costs. The actual financing required was lower than the estimate at appraisal as rolling stock was leased and not purchased. Most of the project activities were completed ahead of time and the line was opened in December 2012, ahead of the original loan closing date. Although the project closing date was extended, this was for completing the newly created catenary equipment maintenance component and the project was completed with loan funds almost fully disbursed.

### Efficiency Rating

Substantial

a. If available, enter the Economic Rate of Return (ERR) and/or Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

	Rate Available?	Point value (%)	*Coverage/Scope (%)
Appraisal	✓	15.00	60.00 <input type="checkbox"/> Not Applicable
ICR Estimate	✓	20.00	78.00 <input type="checkbox"/> Not Applicable

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

## 6. Outcome

Relevance of objective to Government and Bank strategies for China was rated as High both before and after restructuring. Relevance of design was rated as Substantial both before and after restructuring. Efficacy of the sub-objectives was rated as Substantial when 65% was disbursed and Substantial after restructuring when the balance 35% was disbursed. Efficiency was rated as Substantial.

Taking into account the ratings discussed above and given the shares of disbursements before and after restructuring was  $(0.65*5+0.35*5) = 5$ . the overall outcome is Satisfactory reflecting Substantial achievement of project development outcomes.

### a. Outcome Rating

Satisfactory

## 7. Rationale for Risk to Development Outcome Rating

**Financial Risk:** High Speed Rail (HSR) services were generating a much greater operating surplus over above rail operating costs than assumed at appraisal - with the current yield (revenue per passenger km) from HSR services at project closure being RMB 0.50 compared to the forecast yield of RMB 0.29 at appraisal. With



revenue per passenger km being over twice the cost of operating the trains and maintaining the infrastructure (assuming no charges for depreciation and debt servicing), the ICR states that there is "every incentive to continue operations for the foreseeable future" (ICR, paragraph 59). This Review questions had two reactions to this information. First, why were the costs of depreciation and debt servicing ignored in the revenue/cost comparisons when these costs are factors that need to be accounted for in order to sustain future HSR? Second, why are revenues typically over twice the cost of operating the trains (excluding depreciation and debt servicing) and maintaining the infrastructure when railways are arguably a major public service in China? In light of these uncertainties and contradictions about financial risk this Review rates the financial risk for the project as *modest*.

**Technical Risk:** Given that similar trains were operating with high levels of reliability and safety in China since 2007, this Review agrees with the ICR rating of the technical risk as *negligible* (ICR, paragraph 60).

**Social Risk.** According to the ICR "Detailed passenger attitude surveys indicate that most passengers would be willing to pay a surcharge of 50% on high speed services as compared to conventional rail" (paragraph 61). This Review's reaction is that attitude surveys may not have captured the real price elasticity of demand for HRS. Indeed the China Railway Corporation maintained the slower passenger rail service in recognition of the needs of poorer customers and their limited capacity to pay for HSR services (ICR, paragraph 43). In view of these uncertainties regarding the optimal pricing of tickets for HRS the social risk is assessed by this Review as *modest*

**Government commitment:** China has been investing much more than planned to keep pace with increasing demand for rail services. The Long Term Railway Development Plan of 2004 envisaged an investment of US\$12-15 billion per year through 2020. The investment has increased substantially to over US\$90 billion per annum since 2009. In view of this level of commitment, this ICR agrees with the rating of the risk of lagging Government commitment to rail transport as *negligible* (ICR, paragraph 62).

#### a. Risk to Development Outcome Rating

Modest

## 8. Assessment of Bank Performance

### a. Quality-at-Entry

The project built on the lessons learnt from prior Bank financed projects in the railways sector. As in the case of the two other Bank-financed Railway Projects in China around the same time (the NanGuang Railway Project and the GuiGuang Railway Project), the project design envisaged the creation of a project company and transfer of assets created by the project to the company by the Ministry of Railways (MOR) to strengthen ownership of the project and for future operations. Project preparation included a screening to identify the poorest cities and the impact of the rail line on poverty issues. Risks were identified at appraisal (including substantial risks associated with the economic and financial sustainability given the high cost of the project). Appropriate risk mitigation measures were incorporated at design stage and the overall project risk carefully assessed and rated as moderate. Relevant arrangements were incorporated in the project's design for fiduciary and environmental safeguards compliance (discussed in Section 11 of this Review).

The design did not include adequate provision to assess project progress at the implementation phase



through a scheduled Mid-Term Review (MTR). Although a MTR was not scheduled, all contracts had been awarded by the project's mid term. Further, since the Core Bank Team was located in the country office and, rather than occasionally meeting the client twice a year during supervision missions, the team met China Railway every six weeks to follow up on the implementation program (ICR, paragraph 14). This was designed to contribute to a much higher level of engagement with the Government during implementation than usual throughout the project implementation period.

There were, however, shortcomings in M&E design which are described in Section 10 of this review. Nevertheless, this Review rates the project's quality at entry as *satisfactory*.

### **Quality-at-Entry Rating**

Satisfactory

#### **b. Quality of supervision**

Eleven Implementation Status Reports were filed over a seven-year period, implying supervision missions of approximately twice a year. The supervision was diligent and included the required expertise. Of course, as noted above, the location of the Bank's project team in the country office enabled it to meet China Ministry of Railways every six weeks or so and this aided in close tracking of the project's implementation. Although Bank financing accounted for only about 5% of a US\$6 billion project, the Bank's involvement almost certainly contributed to the Government's compliance with Bank policies and requirements pertaining to safeguards and fiduciary management.

There was evidence in the ICR of the Bank's involvement in a dialogue on railway policy and joint workshops on issues associated with national transport strategy as foreshadowed in the PAD (paragraph 9). The ICR noted additional activities during supervision. The Bank's multi-project engagement in China's railway sector enabled it "to engage in policy dialogue and to provide institutional support, including multiple railway notes. These contributed to sector reforms, including financing options, optimization of testing and commissioning, and the understanding of wider economic impact of high speed rail" (paragraph 56). Despite the generally satisfactory supervision, the results framework was not revised to reflect the Government's decision to keep more trains in operation on the conventional lines and there were no indicators directly aimed at capturing the benefits of the activity associated with the Catenary Maintenance Vehicles.

### **Quality of Supervision Rating**

Satisfactory

### **Overall Bank Performance Rating**

Satisfactory

## **9. Assessment of Borrower Performance**

### **a. Government Performance**

The Government's commitment to meet the growing demand for rail services through increasing capacity was evidenced by the increase in investment in the railway sector and contributing about 94% of the total incurred cost for this project. The Government complied with loan covenants (including fiduciary and safeguards). The Ministry of Railways (MOR) demonstrated strong ownership in the project, provided



adequate resources to the implementing units and actively participated in Bank supervision missions and this aided in ensuring that the project was executed in accordance with the agreements reached with the World Bank.

### **Government Performance Rating**

Satisfactory

#### **b. Implementing Agency Performance**

The Foreign Capital Technology Import Center (FCTIC) under the Ministry of Railways (MOR) was in charge of implementing the project. Given that the Shizheng line passes through ) the territory of two regional railway administrations, Beijing and Zhengzhou, Project Management offices were established in both places. The central China Railways Corporation (CRC), the Foreign Capital and Technical Import Center (FCTIC) and the two Railway Companies (the Dedicated Passenger Railway Company Limited (JSC) and the JingGuang Dedicated Passenger Railway Henan Company Limited (JGHC) adhered to project implementation requirements and responded efficiently on all project management and implementation issues. This coupled with their engagement with Bank missions aided in the timely completion of the project. The agencies monitored environmental and social issues and the Railway Companies made timely payment of compensation to Project Affected Persons (PAPs).

### **Implementing Agency Performance Rating**

Satisfactory

### **Overall Borrower Performance Rating**

Satisfactory

## **10. M&E Design, Implementation, & Utilization**

### **a. M&E Design**

The key M&E indicators - the average number of pairs of passenger trains of maximum speed of 300 km per hour, average number of pair of passenger trains of maximum speed of 200 km per hour, average number of freight trains operated per day on the Xinxiang to Zhenzhoo section of the existing railway line and average travel time of passengers on the class A 300 km per hour achieved between Shijiazhuang and Zhengzhou - were appropriate for monitoring the PDO associated with meeting the growing passenger market demand in the new HSR network.

However, the M&E design contained some moderate shortcomings. It did not include enough indicators to capture the extent to which the project contributed to meeting passenger demand at the corridor level, because it omitted the role of conventional trains that still remained predominant during the project's implementation phase. The intermediate indicator to measure progress of project output, namely "progress rate of works and procurement of goods" was also not defined. It was not clear whether this indicator measured progress in physical terms (such as percent of infrastructure works completed) or in financial terms (such as percent of total investment).

The indicator intended to monitor the performance of the Catenary Maintenance Vehicle (CMV)



component added at restructuring and aimed at measuring power failure incidents (discussed in Section 4 of this Review) did not enable the assessment of benefits directly attributable to the CMVs. In addition, targets were not revised following the Government's decision to maintain more of the existing conventional rail lines for both freight and passenger trains.

## **b. M&E Implementation**

According to the ICR, data on baselines, target values and intermediate values were monitored and evaluated on a six-monthly basis by the Ministry of Railways. The Ministry then reported this information to the China Railway Corporation through the Foreign Capital Technology Import Center (FCTIC)..

## **c. M&E Utilization**

The ICR noted that information from the M&E system "was reviewed as part of annual audit reports with progress compared to targets" (paragraph 29).

## **M&E Quality Rating**

Substantial

# **11. Other Issues**

## **a. Safeguards**

### **Environmental Assessment.**

The project was classified as a Category A project. Two safeguard policies were triggered: Environmental assessment (OP/BP 4.01): Involuntary Resettlement (OP/BP 4.12). The construction of the dedicated passenger line was within the same general transport corridor of the existing Beijing-Guangzhou line, which is the busiest railway line in China. An Environmental Impact Assessment (EIA) was conducted at appraisal (PAD, page 55). The potential environmental impacts that were identified at appraisal included, soil erosion, water conservation and ecological impact due to civil works, dust, noise and social disturbance during construction. During the operation stage, the major environmental impacts included noise or vibration, safety, social severance and waste management of passenger stations (PAD, page 16). A stand alone Environmental Management Plan (EMP) was prepared and publicly disclosed at appraisal. The EMP specified appropriate environmental management and supervision setup, mitigation measures, environmental monitoring plans, training plans and budget allocation for implementing mitigation measures and strengthening the borrower's capacity.

The ICR (page 8) reports that there was compliance with environmental safeguards during implementation. An independent external environmental monitoring consultant was engaged throughout the project implementation phase. The environmental mitigation measures were implemented according to design and this included: Restoration of all temporarily occupied land (such as camp sites) through grass/tree



replantation and farmland reclamation used as railway station/freight yards were returned to local communities or returned to local governments as agreed: Noise barriers and insulation windows were installed as designed and monitored during trial operations: and, soil erosion control measures were completed for slope bank protection at restoration/reclamation sites.

**Social safeguards: Involuntary Resettlement.**

A Socio-Economic Assessment (SEA) conducted at appraisal indicated that potential negative social impacts associated with the project included land acquisition and household relocation (PAD, page 15). The assessment indicated that the project would require acquisition of approximately 1,171.2 hectares of collective land on which 9,815 persons lived, relocation of 3,029 households with 15,087 persons, and otherwise affect 46 enterprises and nine schools with 4,134 persons. During construction, an additional 886 hectares of collective land was to temporarily used, with compensation paid to the Project Affected People (PAP) and subsequently returned to the owners. A Resettlement Plan (RP) was prepared with household relocation and livelihood relocation schemes, based on consultation with households for which resettlement was sought. The RP was publicly disclosed at appraisal.

The ICR (page 8) notes that there was compliance with social safeguards for resettlement. At project closure, the implementing agency had completed land acquisition (10 square km of land acquisition of which 5.5 square km were in Hebei and 4.5 square km in Henan province) compared to the appraisal estimate of 11.5 square km - and had paid the required compensation. A total of 4,752 households were relocated (of which 3,195 were in Hebei province and 1,557 in Henan province) as compared to the 3,029 households estimated at appraisal. The compensation paid to the relocated households (average of RMB 450 in Henan and RMB 600-800 in Hebei) was higher than envisaged in the RP.

**b. Fiduciary Compliance**

The Foreign Capital and Technical Import Center (FCTIC) of the Ministry of Railways (MOR) was in charge of Fiduciary issues (financial and procurement management. The FCTIC had managed several Bank-financed projects and had the in-house capacity for managing fiduciary issues according to Bank guidelines

**Financial Management.** A financial management assessment conducted at appraisal concluded that the staff of the implementing agency were familiar with the Bank's financial management requirements and procedures (PAD, Annex 7, page 36) and the overall financial management risk was rated as Modest (page 40). The ICR (para 31) noted that, despite minor delays in submission of financial reports that were rectified during implementation, financial management was deemed to be satisfactory during project execution. All audits were unqualified.

**Procurement.** An assessment of the procurement arrangements conducted at appraisal concluded that the procurement risk was rated as average (PAD, Annex 8, paragraph 6) and a procurement plan was developed (PAD, Annex 8, para 7). The ICR (page 8) noted that the project did not face any procurement issues or delays, despite its large size..

**c. Unintended impacts (Positive or Negative)**

None identified in the ICR



**d. Other**

The ICR noted three issues associated with the ShiZheng railway project

(a) Although **"Impacts (of the project) are best assessed about five years after operation starts; nevertheless, it already appears that the ShiZheng Rail Project has been a major contributor to the economic transformation of the region"** (paragraph 53).

(b) "The project has had a significant impact in all cities on transport patterns and in general the take-up has been faster than many local authorities expected" (paragraph 54)

(c) "High speed train service remains expensive for part of the population and explains the decision by CRC to retain a higher number of conventional passenger trains on the corridor at this point, while men to women passenger ratio could be enhanced by better connectivity between HSR stations and the city centers" (paragraph 55).

**12. Ratings**

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Satisfactory	Satisfactory	---
Risk to Development Outcome	Negligible	Modest	Like the ICR, this Review rated financial risk as "modest" but also rated social risk as "modest" rather than "negligible" in the ICR. Overall the risk was therefore rated "modest".
Bank Performance	Satisfactory	Satisfactory	---
Borrower Performance	Satisfactory	Satisfactory	---
Quality of ICR		Substantial	---

**Note**

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 ICR drew the following three lessons from implementing this project with some adaptation and editing.

**(1) Effective unified control over railway program and other large developments, design, financing and implementation can achieve success, even when the Bank's financial contribution is very small.** In the case of this project, the China Railway Corporation was solely responsible for planning, financing and implementing individual projects and creating delivery mechanisms. The unified control over the project coupled with the overall commitment of the Government and the implementing agencies enabled timely



completion of activities, despite the relatively marginal financial contribution from the Bank.

**(2) A large and linear infrastructure investment project requires not only good preliminary design and strict control over compliance with standards but also a focus on post project measures to ensure sustainability.** In the case of this project the detailed design as implemented did not deviate significantly from the preliminary design, thus enabling smooth progress in construction. Strict control over standards and technical specifications for railway construction and material inputs supported smooth implementation of the project. Experience from recently opened railway lines underlined the significance of Catenary Maintenance Vehicles (CMVs) to provide high levels of services to customers and based on this China developed a priority program aimed at strengthening maintenance and operation of its HSR network through the CMVs.

**(3) Addressing passenger needs in the context of affordability is critical for achieving the full impact of the high speed rail network.** Given that HSR networks require major budget allocations, investments in such networks require economic and financial justification. Hence work on tariffs and services that address the specific needs of different users of rail transport, including estimating the price elasticity of demand among potential passengers for high speed rail, is required for justifying future investments in such networks.

#### 14. Assessment Recommended?

No

#### 15. Comments on Quality of ICR

The ICR is concise, well-written and provides a good analysis. Given that this was classified as a "Category A" project, the ICR provides a thorough description of the possible environmental impacts and the measures to ensure compliance. However, the ICR provides very little detail on the reasons for the Government decision to retain the existing lines for freight and slow passenger services. More details on the Government's decision could have helped in providing more clarity to the analysis on both economic and social achievements of the project.

##### a. Quality of ICR Rating

Substantial