TECHNICAL ASSISTANCE
TO THE
PEOPLE’S REPUBLIC OF CHINA
FOR PREPARING THE
XI'AN-ZHENGZHOU RAILWAY PROJECT

May 2004
CURRENCY EQUIVALENTS
(27 April 2004)

Currency Unit – yuan (CNY)
CNY1.00 = $0.1208
$1.00 = CNY8.2770

ABBREVIATIONS

ADB – Asian Development Bank
EIA – environmental impact assessment
MOR – Ministry of Railways
PRC – People’s Republic of China
TA – technical assistance

TA CLASSIFICATION

<table>
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<tr>
<th>Poverty Classification</th>
<th>Sector</th>
<th>Subsector</th>
<th>Thematic</th>
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<tr>
<td>Other</td>
<td>Transport</td>
<td>Railways</td>
<td>Sustainable economic growth</td>
</tr>
</tbody>
</table>

NOTES

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

This report was prepared by M. Parkash,
East and Central Asia Department, Transport and Communications Division.
XI'AN ZHENGZHOU RAILWAY PROJECT
IN THE
PEOPLE'S REPUBLIC OF CHINA

[Map showing rail projects and regions in China, including proposed projects and existing rail networks.]
I. INTRODUCTION

1. The Government of the People's Republic of China (the PRC) requested technical assistance (TA) to prepare the proposed Xi'an-Zhengzhou Railway Project for Asian Development Bank (ADB) financing. The Fact-Finding Mission visited the project area in February-March 2004, carried out an initial poverty and social assessment and a rapid environmental assessment, and discussed technical and socioeconomic issues with representatives of the Government, Ministry of Railways (MOR), and provincial and local governments. This paper is based on the understanding reached by the Government and the Mission on the objectives, scope, terms of reference, cost estimates and financing plan, and implementation arrangements for the TA. The TA is included in ADB's country assistance program for 2004.¹

II. ISSUES

2. From 1978, when economic reforms were introduced, through to 2002, the PRC experienced sustained rapid economic growth. PRC’s exceptional economic performance continued in 2003 with economic growth rates of 9.1%. Rapid economic growth resulted in a rapid increase in demand for transportation. The annual growth of passenger transport was 9.2% and freight transport grew at 7.1% during the 1978-2002 period. In 2002, road traffic accounted for 55.3% of total passenger-kilometers (km) followed by railways with 35.2%, civil aviation with 8.9%, and coastal and inland waterways with 0.6%. The modal split for freight ton-km was 54.4% for coastal and inland waterways, 30.7% for railways, 13.4% for roads, 1.4% for pipelines, and 0.1% for civil aviation.

3. Rapid economic growth has led to a high demand for railway transportation, which is the primary mode of transport for long distance and bulk transport. Between 1978 and 2002, railway freight grew from 535 billion ton-km to 1,552 billion ton-km, equivalent to an annual growth rate of 4.5%; while passenger traffic grew at 6.5% annually, increasing from 109 billion passenger-km to 497 billion passenger-km. At the end of 2003, PRC’s railway system comprised 73,000 route-km. Despite such growth rates, the railway capacity lags behind demand, and bottlenecks in the railway system pose a major constraint to efficient economic growth in the PRC. Given the railway’s important role, the Government adopted an aggressive plan to improve the railways and planned network development to remove these bottlenecks.

4. The Government’s policy on railway development is focused on (i) removing constraints and expanding the system, (ii) encouraging joint venture with local railways to promote the development of local economies, (iii) improving efficiency by using new technology and modern management tools in planning and operation, (iv) reducing operating subsidies through appropriate pricing and commercialization of services, (v) instituting institutional and structural reforms to increase MOR’s autonomy and accountability, and (vi) encouraging nongovernment investment in infrastructure and related services.

5. The Tenth Five-Year Plan (2001–2005) identifies transportation, including railway development, as a priority. The Plan envisages (i) constructing 6,000 km of new lines to provide access to unserved areas, with the network length reaching a total of 75,000 route-km by 2005; (ii) constructing 3,000 km of double lines and electrifying 5,000 km of key lines to increase capacity; and (iii) increasing operating speeds on 5,000 km, with high speed on the total length of 15,000 km. The Plan envisages a total investment of CNY350 billion, including CNY270 billion for capital construction and CNY80 billion for rolling stock acquisition for the railway

sector. During 2003–2007, the investments for capital construction for the railway station are expected to reach CNY450 billion. In 2004, the State Council approved a new railway development plan, which seeks to expand the railway network from the present 73,000 km to 100,000 km by 2020 and identifies the need to have separate passenger and freight-dedicated lines on the busy trunk routes. The route length of the passenger-dedicated network will reach 5,000 km by 2010 and 12,000 km by 2020. Increasing train speed is identified as a major goal. Train speed will be raised to over 200 km per hour from the present 120 km per hour on the trunk network by 2020. Development of railways will receive priority in unserved areas and regions that have remained less developed, and the route network length will reach 16,000 km in the western region of the PRC by 2020.

6. Japan is the major source of external financing in the PRC railway sector, followed by the World Bank and ADB. Since 1979, Japan has provided about ¥558 billion for 15 railway projects to expand rail transportation capacity. Since 1984, the World Bank has provided nine loans totaling over $2.2 billion for (i) eight national railway projects to expand railway capacity on high-priority corridors, modernize system-wide technology, and strengthen institutional capabilities; and (ii) one local railway project. ADB has focused on the development of railways in less developed inland provinces to promote growth and reduce poverty. ADB has provided 11 loans totaling $2.06 billion to finance the construction of about 1,737 km of provincial railways operated by joint ventures with MOR, and 4,138 km of new railway lines under four national railway projects.

7. ADB’s operational strategy in the PRC focuses on (i) expanding the railway system in unserved less developed and poor areas, (ii) modernizing and increasing the capacity on key routes of the national railway system to improve transport efficiency, (iii) commercializing railway operations to sustain efficient operations, and (iv) increasing railway competitiveness in the transport sector through restructuring and by policy reform. The strategy will continue to focus on railways development in underserved areas in poor interior provinces to link lower income regions with growth centers so as to facilitate pro-poor growth, a prerequisite to reducing poverty. The policy issues addressed in the railway sector include corporatization, marketing and business development, and tariff setting with improved cost recovery. ADB has enhanced policy dialogue with MOR and is providing technical assistance support for policy reforms to MOR. This consultation will continue to further the reforms in the sector.

8. The proposed project envisages the construction of 455 km of double-track Class I passenger-dedicated electrified railway line suitable for speeds of over 200 km per hour and of 10 new railway stations. The railway will traverse 16 counties of Henan and Shaanxi provinces and is the middle segment of the passenger-dedicated Xuzhou-Lanzhou (east-west) main trunk line starting from Zhengzhou city in the east, running westward through the cities of Luoyang, Sanmenxia, and Weinan and reaching its west end at Xi’an in northwest PRC. The project impact area includes 16 counties and cities (including 5 poverty counties) with a total population of about 31.7 million in Luoyang, Sanmenxia, Xi’an, Weinan and Zhengzhou. About 2.6 million people live on incomes below the national or provincial poverty line. The total rural population exceeds 14 million and there are over 3,300 poverty villages in the project impact area. A large number of the population in Luoyang, Sanmenxia, Weinan, and Xian that do not have access to highways, electricity, telephones and good drinking water; 890 villages do not have highway access; 241 villages do not have electricity; 373 villages do not have telephones; and 3,299 villages do not have access to good drinking water. The ensuing project will directly benefit a

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significant number of the poor, especially with the construction of 10 railway stations along the 455 km route. It is projected to create indirect benefits in a much larger area, including most cities, counties, townships, and villages of Luoyang, Sanmaxian, Weinan, Xi’an and Zhengzhou, because the proposed railway will serve as link to the tourist areas, and allow transport of the agricultural and local products of the region.

9. The rationale for the project reflects (i) railway network development; (ii) capacity enhancement; (iii) meeting the needs of the new railway development plan, and the western region development strategy, and (iv) promoting pro-poor economic growth along the line and in the region, thereby reducing poverty. The proposed alignment for the Xi’an-Zhengzhou Railway is 50 km shorter than the existing Longhai railway line. The proposed railway line will traverse Henan and Shaanxi provinces and connect with Beijing-Guangzhou, Shanghai-Xuzhou and Beijing-Wuhan main lines on the east and Xi’an-Baoji-Lanzhou, Xi’an-Baoji-Chengdu, Xi’an-Ankang, and Xi’an-Yan’an main lines on the west. The proposed line extends eastward to Shanghai and Xuzhou, connecting itself with Jing-Jiu and Jing-Hu routes; and westward to Baoji and Lanzhou, connecting with the Jing-Lan routes and Lan-Xin line. This is the main east-west corridor linking Beijing, Shanghai, other major cities and ports in the east, and Xi’an, Baoji, Lanzhou, Urumqi, Chengdu, Chongqing in the west.

10. The current capacity on the existing line is fully used. In 2002, with a design capacity of 46 million tons of freight and 52 pairs of passenger trains per day, 67 million tons of freight and 49 pairs of passenger trains were operated. By the year 2020 and 2030, transportation capacity is expected to increase to 88.5 million tons and 143 pairs of passenger trains, and 97.1 million tons of freight and 198 pairs of passenger trains, respectively. Presently both freight and passengers are transported on the same line. This practice limits speed and restricts the flow of traffic. MOR’s railway development plan proposes separating freight and passenger movement on the highly trafficked trunk routes by developing separate networks for moving passengers and cargo and increasing speed. The ensuing Project is the first of the eight passenger-dedicated railway lines that will use advanced technology and equipment and have substantial managerial and financial autonomy, including tariffs higher than those of the national network.

11. The project area has abundant natural reserves of coal, zinc, and other nonferrous materials; and a large manufacturing industry and tourist sites. The project will be the main passenger transportation link between the prosperous east-west and the poorer western region. The proposed railway will pass through an alignment that is largely in a mountainous area and has remained cut off from mainstream development due to lack of transportation and remote location. The people living in the site, particularly the remote mountainous areas have remained largely poor. Many leave their towns and villages to find jobs. Economic growth necessary to reduce rural poverty has not been achieved because of inadequate transport. The provincial and local governments, and people living in the project area see the railway as a key investment necessary to create employment and income-generating activities for the people in the region and as a necessary prerequisite to reduce poverty.

12. The project will help develop the railroad network and enhance economic growth. The project is included in MOR’s updated Tenth Five-Year Plan as well as the railway development plan and will support the Government’s western region development strategy. The proposed railway will facilitate economic development and integration of the poor western region and is expected to stimulate industrial and natural resources development, tourism, and related

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industries. The railway will increase local people’s access to market and social services and give them an opportunity to improve their standard of living. Completed and ongoing ADB-financed railway projects show that such projects create jobs in construction, loading and unloading operations, other income-generating activities such as material and food supply, and small services around the construction sites. The lower transportation costs after project completion will make goods and services available at more economic prices to the people living in the area, including the poor, and provide them opportunities to sell their produce to broader markets. The railway will offer them more affordable, reliable, and punctual transport than is currently available. The project is consistent with ADB’s country operational strategy and will support the Government’s strategic policy objective of greater developmental emphasis on poor interior and underserved areas of the PRC by improving transportation linkage with growth centers.

13. The project envisages the construction of a passenger-dedicated railway line with subgrades, bridges, and tunnels. Because of the topography along the Xi’an-Zhengzhou railway route, tunnels and bridges will comprise 50% of the route length.

14. The project is a national project and will be implemented by MOR. A feasibility study is being prepared with cost estimates that reflect the current prices of materials and construction and traffic forecasts. MOR advised ADB that the project proposal is expected to be approved by the National Development Reforms Commission by May 2004. The feasibility study, the environmental impact assessment (EIA), and the draft resettlement plan will be submitted to ADB at the same time. The local governments of Luoyang, Sanmexian, Weinan, Xi’an and Zhengzhou prefectures confirmed that all the counties affected have implemented many projects involving resettlement. Resettlement under the project will be implemented as per the national laws and provincial regulations, and ADB’s involuntary resettlement policy.

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5 In the ADB-financed Daxian-Waxian Railway Project, the average net income along the proposed alignment of the railway increased by 25% in real terms during the construction period. The average real increase in Chongqing municipality for the same period was approximately 10%. Education is often the first spending priority for families. Because of an improved cash position, some poor people are reportedly no longer indebted for school tuition for the next generation.
III. THE TECHNICAL ASSISTANCE

A. Purpose and Output

15. The TA aims to (i) assist the Government in reviewing and strengthening the project feasibility study, the EIA, the resettlement plan, and related studies to meet ADB’s requirements for possible financing; (ii) identify policy measures and institutional development needs that will improve the railway operational efficiency and management, and ensure financial sustainability of its operations; and (iii) identify the social dimensions to be incorporated in the project design, including measures to enhance social development and reduce poverty in the project area. The output will be the design of a project suitable for ADB financing. The TA framework is in Appendix 1.

B. Methodology and Key Activities

16. The work under the TA will comprise (i) reviewing and strengthening the feasibility study to meet ADB’s requirements for (a) technical aspects related to construction and operation; (b) economic and financial analyses, including a review of the traffic forecast and financial performance of operation of the project facilities; and (c) financial management assessment, including a review of planning and budgetary control, financial and management accounting, internal control and audit systems; (ii) developing a set of verifiable performance indicators, including socioeconomic and poverty, and a sustainable mechanism for monitoring during and beyond the construction stage; (iii) recommending policy measures that will improve railway operational efficiency and management and assessing specific institutional development needs to commercially operate the project facilities and ensure financial sustainability; (iv) reviewing the potential for private sector participation in construction, provision of services, and tourism development; (v) reviewing and updating the EIA report and preparing a summary EIA with appropriate environmental monitoring and management plans; (vi) reviewing and refining the resettlement plan, so that involuntary resettlement will be consistent with ADB’s policy and guidelines; (vii) reviewing the initial poverty and social assessment and carrying out a detailed poverty and social analysis, including a baseline socioeconomic profile of the population living in the project area (Appendix 2); and (viii) undertaking a distribution analysis of the project and associated developments on poverty reduction (including poverty impact). The key activities are field surveys; document review; data analysis; and consultations with stakeholders, including government officials, project beneficiaries, and affected people, including minority people.

C. Cost and Financing

17. The cost of the TA is estimated at $650,000 equivalent, comprising of $372,000 in foreign exchange and $278,000 equivalent in local currency costs (Appendix 3). The Government has requested ADB to finance $500,000 equivalent to cover the entire foreign exchange cost and $128,000 equivalent of local currency costs. ADB will finance the TA on a grant basis from ADB’s TA funding program. MOR will provide the remaining $150,000 equivalent in local currency cost for the counterpart staff, office facilities, local communications, and support services. The Government and MOR were advised that approval of the TA does not commit ADB to financing any ensuing project.
D. Implementation Arrangements

18. The TA will require about 39 person-months of consulting services (15 international and about 24 domestic) spread over 5 months, including fieldwork. For implementing the TA, a team of international consultants assisted by domestic consultants will be selected and engaged in accordance with ADB's Guidelines on the Use of Consultants and other arrangements satisfactory to ADB for selecting and engaging domestic consultants. A consulting firm will be selected and engaged following the quality and cost-based selection method and simplified technical proposals will be required. The international consultants will have expertise in transport economics and traffic forecasting, financial analysis and financial management, railway engineering and operation, environmental sciences, institution building, and resettlement and social and poverty analysis. Expertise required from domestic consultants will be in the fields of transport economics, railway engineering and operation, environmental engineering, resettlement and socioeconomics. Appendix 4 gives the outline terms of reference (TOR) for consulting services.

19. The TA is expected to begin in September 2004 and be completed by February 2005. MOR as the Executing Agency will be responsible for supervising and monitoring TA activities, including engaging and supervising of consultants. The Government and MOR agreed to provide assistance required for implementing the TA. MOR will make available (i) all relevant reports, studies, and information; (ii) suitable office accommodation and appropriate and qualified counterpart staff; (iii) local transport facilities to visit the site; and (iv) any other assistance that the consultants may reasonably request, including liaison with the Government and local authorities.

IV. THE PRESIDENT’S DECISION

20. The President, acting under the authority delegated by the Board, has approved the provision of technical assistance not exceeding the equivalent of $500,000 on a grant basis to the Government of the People’s Republic of China for preparing the Xi’an-Zhengzhou Railway Project, and hereby reports this action to the Board.

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6 The Government and ADB have agreed to include this TA under the Pilot Study for Delegation of Consultant Recruitment and Supervision under Technical Assistance to Executing Agencies (Pilot Study) (Ref: Board Paper R157-03 dated 29 August 2003). The Government agrees to follow the implementation procedures outlined in the Pilot Board Paper and such other detailed procedures and practices as ADB may require from time to time. The Government has acknowledged that the terms and conditions of the Technical Assistance Framework Agreement (TAFA) executed between the Government and ADB dated 23 December 1996 apply to this TA. Pursuant to Section 3.01 of the TAFA, ADB has agreed to delegate consultant selection and supervision for firms under this TA to the Government. The TA Letter Agreement to be issued under the TAFA for this TA will accordingly reflect this arrangement. The Government has agreed that the consultants engaged and supervised under this TA will have the status of experts performing missions for ADB under the provision of the Agreement Establishing the Asian Development Bank as further detailed in the TAFA.
## TECHNICAL ASSISTANCE FRAMEWORK

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<tr>
<th>Design Summary</th>
<th>Performance Indicators/Targets</th>
<th>Monitoring Mechanisms</th>
<th>Assumptions and Risks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Goal</strong></td>
<td>Economic growth and socioeconomic development</td>
<td>Review of economic data in the project area: (i) gross domestic product (ii) per capita income (iii) poverty incidence</td>
<td>Government’s commitment to development of infrastructure and economic growth</td>
</tr>
<tr>
<td><strong>Purpose</strong></td>
<td>Improved railway network</td>
<td>Review of operating data before and after the project</td>
<td>Government is committed to railway institutional reforms.</td>
</tr>
<tr>
<td><strong>Outputs</strong></td>
<td>Project feasibility study improved to a level suitable for ADB financing</td>
<td>Consultant’s reports are reviewed and commented on by ADB and the Government</td>
<td>Competent consultants are recruited. The Government gives full cooperation.</td>
</tr>
<tr>
<td></td>
<td>Prepared summary EIA circulated to ADB’s Board 120 days before Board consideration of the loan</td>
<td>Review of EIA and summary EIA during the tripartite meeting with Government, ADB and consultants.</td>
<td>The Government provides sufficient data and information.</td>
</tr>
<tr>
<td></td>
<td>Issues on poverty and social aspects adequately addressed</td>
<td>Review of consultants’ report during the tripartite meeting</td>
<td>Government provides sufficient information and assistance for the analysis.</td>
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<tr>
<td></td>
<td>A resettlement plan that assesses the extent of impacts of involuntary resettlement, and includes mitigation measures</td>
<td>Review of resettlement plan during the tripartite meeting with Government, ADB, and consultants</td>
<td>Government policies on land acquisition and resettlement are consistent.</td>
</tr>
<tr>
<td></td>
<td>Issues on the development of ethnic minorities addressed</td>
<td>Review of consultants report during the tripartite meeting</td>
<td>The Government gives full cooperation.</td>
</tr>
<tr>
<td><strong>Inputs</strong></td>
<td>Timely recruitment of consultants in accordance with ADB guidelines</td>
<td>Evaluation of consultants’ proposals Contract negotiations Review missions</td>
<td>Well qualified and experienced consultants are engaged and delivery of good quality services is timely.</td>
</tr>
<tr>
<td></td>
<td>Nomination of efficient counterpart staff</td>
<td>Technical assistance (TA) review missions and</td>
<td>Good cooperation of Ministry of Railways, and</td>
</tr>
<tr>
<td></td>
<td>15 person-months of international services and 24 person-months of domestic consulting services</td>
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<td></td>
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<tr>
<td></td>
<td>Counterpart staff, information and data, office facilities, and</td>
<td></td>
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</table>

- **Goal:** Promote sustainable economic growth and socioeconomic development by developing efficient rail transport infrastructure in the project area.
- **Purpose:** Develop an efficient, safe, reliable, and environmentally sustainable railway transport system.
- **Outputs:**
  - Review and strengthen the Government’s feasibility study in conformity with Asian Development Bank (ADB) requirements.
  - Review and strengthen the environmental impact assessment (EIA), and prepare a summary EIA in accordance with ADB guidelines.
  - Review the initial poverty and social assessment and prepare a poverty and social analysis.
  - Review and modify the Government’s resettlement plan to meet ADB’s policy on involuntary resettlement.
  - Prepare a minority people’s plan in accordance with ADB guidelines, if required.
- **Inputs:**
  - 15 person-months of international services and 24 person-months of domestic consulting services.
  - Counterpart staff, information and data, office facilities, and assistance provided by Ministry.
<table>
<thead>
<tr>
<th><strong>Design Summary</strong></th>
<th><strong>Performance Indicators/Targets</strong></th>
<th><strong>Monitoring Mechanisms</strong></th>
<th><strong>Assumptions and Risks</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>assistance provided by Ministry of Railways and other concerned agencies</td>
<td>delivery of funds as required</td>
<td>performance of the consultants; quality of consultant’s reports</td>
<td>other agencies; availability of qualified staff</td>
</tr>
<tr>
<td>ADB supervision of TA implementation</td>
<td>Timely submission of information and data</td>
<td>Inception mission, monthly progress reports and tripartite meeting</td>
<td>ADB closely monitors TA implementation and missions are fielded on time</td>
</tr>
<tr>
<td></td>
<td>Timely review of TA implementation and appropriate guidance provided by ADB</td>
<td></td>
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</tr>
</tbody>
</table>
SUMMARY INITIAL POVERTY AND SOCIAL ANALYSIS

A. Linkages to the Country Poverty Analysis

<table>
<thead>
<tr>
<th>Sector identified as a National Priority in Country Poverty Analysis?</th>
<th>Yes</th>
<th>Sector identified as a National Priority in Country Poverty Partnership Agreement</th>
<th>Yes</th>
</tr>
</thead>
</table>

Contribution of the sector/subsector to reduce poverty in the People’s Republic of China: The transport sector and railway subsector contribute to poverty reduction through improved access to markets, employment opportunities during construction, affordable access to outside, and economic development.

B. Poverty Analysis: Proposed Poverty Classification: Other

Poverty analysis will be carried out to assess the impact of the new railway on the existing railway services (passenger and freight) that currently serve the poor. The analysis will be carried out based on the Handbook on Poverty and Social Analysis and Handbook for Integrating Poverty Impact on Economic Analysis of Projects of the Asian Development Bank (ADB).

C. Participation Process

Stakeholder Analysis: Public consultation will be carried out by the Executing Agency, local government officials, and design institutes during preparation of the feasibility study, preliminary design study, social/poverty assessment, environmental impact assessment, and resettlement planning.

Participation strategy required: to be determined

D. Gender and Development

Strategy to maximize impacts on women: The project is expected to be gender neutral; however, gender issues will be considered as part of the social/poverty analysis and resettlement planning.

Gender plan prepared? To be determined if a plan is required.

E. Social Safeguards and Other Social Risks

<table>
<thead>
<tr>
<th>Significant/ Nonsignificant/ None</th>
<th>Plan Required</th>
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Resettlement: Significant
A resettlement plan will be prepared following the Land Administration Law and ADB policy. The plan will be disclosed to the public and affected people. Internal and external monitoring arrangements will be put in place. Full

Affordability: Nonsignificant
The proposed tolls will be higher than those for current service, but people will still have the option for standard passenger services, which will be improved when capacity on the Xi'an Zhengzhou corridor is increased by the project. None

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a Initial poverty and social analysis and/or summary poverty reduction and social strategy criteria for assessing the significance of social issues are available in the ADB Handbook for Poverty and Social Analysis version available at http://adb.org/Documents/Handbooks/Poverty_Social/default.asp

b If not known, a contingency should be included in the technical assistance budget to predict the need for a plan.

c A plan will be required at design stage if any of the potential issues are found significant.

d Significant involuntary resettlement requires a full resettlement plan; nonsignificant requires a short resettlement plan.
<table>
<thead>
<tr>
<th>Labor</th>
<th>Nonsignificant</th>
<th>Railway and station construction and new transportation services will generate employment. Efforts will be made to ensure that the poor have access to these opportunities. The local government will assist to identify available labor, with priority on people from poverty areas.</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indigenous people/ Ethnic Minorities</td>
<td>Nonsignificant</td>
<td>The project area includes some Hui people who mainly reside in urban centers; they will benefit equally from the project. If any are adversely affected by land acquisition or housing displacement, the issue will be addressed in the RP.</td>
<td>None</td>
</tr>
</tbody>
</table>
### COST ESTIMATES AND FINANCING PLAN

($ '000)

<table>
<thead>
<tr>
<th>Item</th>
<th>Foreign Exchange</th>
<th>Local Currency</th>
<th>Total Cost</th>
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</tr>
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</table>

#### A. Asian Development Bank Financing

1. Consultants
   a. Remuneration and Per Diem
      i. International Consultants 290.0 0.0 290.0
      ii. Domestic Consultants 0.0 84.0 84.0
   b. International and Local Travel 30.0 3.0 33.0
   c. Reports and Communications 3.0 2.0 5.0
2. Equipment
   8.0 0.0 8.0
3. Training, Seminars, and Conferences 0.0 2.0 2.0
4. Surveys 0.0 25.0 25.0
5. Miscellaneous Administration and Support Costs 0.0 2.0 2.0
6. Contingencies 41.0 10.0 51.0

**Subtotal (A)** 372.0 128.0 500.0

#### B. Government Financing

1. Office Accommodation and Transport 0.0 50.0 50.0
2. Remuneration and Per Diem of Counterpart Staff 0.0 60.0 60.0
3. Others 0.0 40.0 40.0

**Subtotal (B)** 0.0 150.0 150.0

**Total** 372.0 278.0 650.0

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\( ^{a} \) Financed by the Asian Development Bank’s technical assistance funding program.

\( ^{b} \) Including computer hardware and software, photocopier, facsimile machine, and other equipment to be procured under the consultant’s contract in accordance with procedures acceptable to ADB, and whose ownership will be transferred to the Government.

Source: Asian Development Bank estimates.
OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

A. Scope

1. The technical assistance (TA) includes (i) railway engineering and operations, (ii) economic and financial analyses, (iii) policy measures to improve railway operational efficiency and management, (iv) an environmental impact assessment (EIA) report with appropriate environmental monitoring and management plans, (v) a resettlement plan, and (vi) poverty and social analysis.

B. Terms of Reference

2. The tasks under the TA will include, but will not necessarily be limited to, the following.

1. Railway Engineering and Operations

3. The railway engineering and operation experts will undertake these tasks.

(i) Review the Ministry of Railway’s (MOR’s) plan for developing express passenger transport corridors and an intercity passenger transport system. Examine and evaluate benefits in terms of capacity, and cost and time of travel. Set out clear benefits as from developing separate corridors for passengers and freight.

(ii) Review the Government’s plans for developing the transportation network and other infrastructure in the project area, including building/upgrading the complementary road network to the Xi’an-Zhengzhou railway and construction of link and access roads to the hinterland, other infrastructure, and social development programs. Document details of projects/programs giving estimated cost, funding source, implementing agency, schedule, and envisaged benefits.

(iii) Analyze the project and discuss alignment alternatives to determine if the least-cost solution is proposed while minimizing environmental impact and involuntary resettlement. Review the capacity of connecting railway lines, identify network constraints that may affect traffic to and from the Xi’an-Zhengzhou railway, and review plans for their mitigation.

(iv) Review all technical aspects presented in the feasibility study and preliminary designs, including safety aspects during construction and operation, and maintenance of the new railway.

(v) Review and update the cost estimates on the basis of current prices of goods and services, including the costs of environmental mitigation measures and monitoring, land acquisition, and resettlement. Prepare a list of contract packages (with justification and estimated contract amount) for Asian Development Bank (ADB) financing, which may be procured using international competitive bidding procedures in accordance with ADB’s Guidelines for Procurement.

(vi) Review the implementation arrangements, and the organizational setup for project management and maintaining project accounts, and recommend any required changes. Prepare an implementation schedule and a schedule for disbursing of loan funds and counterpart funds.

(vii) Review the requirements for developing tourism, including facilities and operational arrangements. Assess which of these could be offered to the public and private sectors on a profit-sharing basis to facilitate tourism development in the project area.

(viii) Prepare a logical framework that outlines the goals, purposes, outputs, and activities/inputs under the proposed project.
2. Economic Analysis

4. The transport economists will undertake the following tasks.

(i) Include in the economic analysis (a) an economic analysis of the project as described in this section, (b) an economic analysis of the program for developing associated transport infrastructure such as roads and other infrastructure that will help maximize poverty reduction, (c) an economic analysis taking into account items (a) and (b) combined, and (d) a distribution analysis for items (a) and (b) taken separately and combined. Prepare the economic analysis in accordance with ADB’s Guidelines on Economic Analysis of Projects, Handbook for Integrating Poverty Impact Assessment in the Economic Analysis of Projects, and Handbook on Poverty and Social Analysis.

(ii) Review the project rationale and give the basis for ADB involvement. Assess the relevance of the project and its priority in the strategy for the transport sector, and the developmental strategy of ADB, the Government, and the millennium development goals.

(iii) Assess service differentiation in road transport in terms of types of transport services demanded, complementarity of services, and competition. Review the demand for transport of goods by the railway based on origin-destination data, and traffic forecast by commodity. Review the demand for passenger traffic based on an origin and destination survey. Develop a passenger profile for the railway. Subdivide the forecast of freight and passengers into categories to show the source of the traffic so as to enable the benefits of the railway to be estimated. Subdivide the forecast into traffic diverted from road, traffic diverted from other modes, and generated traffic. The traffic forecast should cover 25 years from the start of project operation, under two scenarios (a) a base-case scenario, and (b) a low scenario that considers the experience gained and lessons learned with similar projects in the past, in which the actual traffic was less than the forecasts due to delays in implementing the envisaged developmental projects that were expected to provide traffic for the project, as well as any other reasons.

(iv) Identify all project costs and benefits, comparing with- and without-project situations. Estimate the economic internal rate of return and net present value on the basis of nonincremental and incremental economic benefits and economic costs (including economic capital, operation, and maintenance costs) in constant economic prices. In economic analysis, evaluate the environmental aspects, and analyse poverty reduction benefits envisaged under the project. During project operation, include in the economic analysis the effects on poverty reduction of affordable goods due to cheaper rail transportation, increased prices of goods received by rural producers at the markets in urban areas, and less costly personal travel. Also include the incremental tourism benefits related to the project.

(v) Undertake a sensitivity analysis to assess the effects of adverse changes in key assumptions that underline the economic analysis, including, but not limited to, project costs, traffic, and implementation delay. Express the results as a sensitivity indicator and a switching value. If the project is sensitive to the value of a key variable, recommend measures to minimize the risk. Carry out a quantitative risk analysis in accordance with ADB’s Handbook for Integrating Risk Analysis in the Economic Analysis of Projects.

(vi) Together with item (i), for project monitoring develop a set of verifiable monitorable performance indicators, including operations, financial,
environmental, socioeconomic, and poverty reduction parameters. Specify baseline targets for the socioeconomic and poverty indicators, and a sustainable mechanism for monitoring during and beyond the construction stage. Assess the developmental impact of the project, focusing on generated economic activities. Draw up a project performance management system.\(^7\)

### 3. Financial and Institutional Issues

5. The financial and institutional experts will carry out these tasks.

(i) Undertake a financial analysis of the project as per ADB’s *Guidelines for the Financial Governance and Management of Investment Projects*, including a financial return in constant prices and financial projections for 10 years at current prices. Calculate the financial internal rate of return and the weighted average cost of capital for comparison with the financial internal rate of return. Conduct a sensitivity analysis including the effects of changes in the exchange rate. Prepare the financial projections of the existing railway administration in the project area on a proforma basis.

(ii) Review the potential for private sector participation in the construction of project facilities and the provision of services for operation and tourism development, and assess the financial impact.

(iii) Review the status of reforms in the railway sector since 1985. Document the status of their implementation, the achievements and the lessons learned, and the impact of reforms on the operational efficiency and profitability of the national railway and the project. Review the new railway development plan of 2020 and the reforms that are proposed to be implemented in the future, together with their likely impacts. The status should be reflected in a matrix together with supporting background and description.

(iv) Review and recommend additional areas for reform in the railway sector in general and the project in particular, which may be pursued under the Project. Examine the adequacy of operational, financial, and institutional arrangements for separating freight and passenger traffic.

### 4. Environment

6. The environmental experts will carry out these tasks.

(i) MOR has contracted the First, Second, and Fourth Survey and Design Institute (SSDI) to carry out investigations and prepare a draft EIA report before the TA starts. The TA consultant will (a) review the EIA and rapid environmental assessment to ensure they conform to ADB’s *Environment Policy, 2002 and Environmental Assessment Requirements and Environmental Review Procedures*; (b) assist MOR to carry out further investigations and analysis, as required, and to finalize the environmental impact statement, management plan, and monitoring plan by incorporating and comments from ADB and the provincial environmental protection bureau; and (c) prepare the summary EIA.

(ii) Based on the preliminary environmental scope, the major issues to be assessed in the EIA include impacts on (a) ecological resources, (b) cultural heritage sites and tourism, (c) soil erosion, (d) noise and air quality, (e) potential spills of hazardous or toxic chemicals, and (f) disturbance of local community by

\(^7\) Using the Handbook on Project Performance Management System available on ADB’s web site (http://www.adb.org).
construction activities. Include detailed plans for (a) protection of sensitive ecological areas, (b) protection or enhancement of tourism, (c) mitigation of construction activity impacts, (c) containment and clean-up of hazardous or toxic chemical spills, and (d) health and safety for construction workers and the local community.\(^8\)

(iii) The consultant will (a) determine the costs of the proposed environmental measures, (b) appraise the level of cost against expected environmental benefits, (c) assist MOR to incorporate appropriate mitigating measures into the project design, (d) prepare contractor specifications for environmental management and monitoring, and (e) prepare terms of reference and budget for independent environment monitoring and evaluation. The TA consultant will also assist MOR with public consultation and EIA preparation.

5. **Poverty and Social Analysis**

7. The poverty and social experts will carry out these tasks.

(i) Prepare socioeconomic and poverty profiles for the areas (counties and townships) to be served by the railway and local roads. Collect data through statistical records, field surveys, and interviews with key informants (e.g., local government officials, women’s federations, business associations, community groups, etc.) and participatory community appraisal techniques. Conduct surveys to develop a profile of transport services and costs, and assess whether access is affordable to low-income groups. This information will also serve as a baseline for performance monitoring.

(ii) Based on the initial poverty and social assessment, conduct a poverty and social analysis in accordance with ADB’s *Handbook on Poverty and Social Analysis* and *Handbook for Integrating Poverty Impact on Economic Analysis of Projects*. Assess how the proposed railway will help improve people’s incomes and livelihoods. In collaboration with the economist and resettlement specialist, estimate the (a) number of project beneficiaries by area, occupation, and income level (poor, low, medium, and high); (b) number of adversely affected people by type of impact; and (c) poverty impact ratio. Recommend measures to enhance benefits and minimize adverse impacts, particularly on the poor and ethnic minorities.

(iii) Assess other social issues including ethnic minorities, gender, vulnerable groups and recommend appropriate measures to address impacts and promote development opportunities during construction, operation, and maintenance of the road. If the social analysis indicates that the project will affect ethnic minorities significantly or adversely, prepare a minority people’s development plan as set out in ADB’s *Indigenous People’s Policy 1998*. If the project is gender sensitive, formulate strategies and an action plan to enhance project benefits and improve the gender balance.

(iv) Conduct surveys to develop a profile of transport services and costs currently existent in the project areas, and assess whether accessibility is affordable for low-income groups. Consult with the local government to identify development initiatives that can complement the railway project, particularly those targeted at the poor and vulnerable; and identify opportunities for possible sources of funding for these initiatives. Evaluate and design explicit provisions to ensure high access by the poor.

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\(^8\) Local health departments should be consulted for input on community health issues to be included in the EIA.
(v) Assist MOR to establish consultation and participatory processes that will continue throughout project design, construction, and operation. Assist in preparing the performance monitoring and evaluation systems, including a reporting format and measurement of indicators.

6. Resettlement

8. The resettlement experts will have the following tasks.

(i) Review the draft resettlement plan and prepare modifications as required to comply with ADB’s *Handbook on Resettlement: A Guide to Good Practice*. Conduct resettlement household surveys\(^9\) to ensure adequate understanding of social impacts. The resettlement plan must include a village-level assessment of impact on project-affected people, land, assets, and occupations.

(ii) Define categories of impact and eligibility of affected people for compensation and prepare a matrix of entitlements covering compensation, and other assistance for all types of impacts to achieve full replacement for lost assets, income, and livelihoods.

(iii) For seriously affected villages, prepare village economic rehabilitation plans to restore incomes of affected people and host people. Identify specific measures for severely affected poor people, ethnic minorities, or other vulnerable households.

(iv) Assist MOR and relevant local government officials to initiate and expand consultation with the affected communities, local leaders, proponents, and stakeholders who may be opposed to the project. Prepare a consultation plan for MOR and a format for documenting consultation with affected people. Assist MOR to prepare a resettlement information booklet\(^10\) and distribute copies to all affected villages and households.

(v) Assess and justify that (a) the compensation standards are based on replacement value, and (b) the overall resettlement budget is sufficient to acquire the land and implement the resettlement plan based on the proposed entitlements and rehabilitation plans.

(vi) Review the organizational structure and capacity for resettlement implementation and recommend improvements and actions required before the start of land acquisition. Assist MOR to prepare a detailed resettlement implementation schedule and a plan for internal and external monitoring and evaluation.

C. Schedule and Reporting Requirements

9. Submit (i) an inception report within 3 weeks of starting work, including a preliminary social analysis; (ii) brief monthly progress reports; (iii) a draft summary EIA together with the EIA and a supplement to the EIA if necessary; a draft resettlement plan, and an interim report within 3 months of starting work; (iv) the draft final report, within 4 months of starting work, to be discussed at a tripartite meeting involving the Government, ADB, and the consultant; and (v) the final report, within 2 weeks of the tripartite meeting. All reports will be submitted to ADB in the English language (in three copies) and to the Government and MOR in the English and the Chinese languages (in three copies).

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\(^9\) For household surveys, ADB requires 10–20% of affected people and enterprises, including 20% of seriously affected people.

\(^10\) ADB has sample formats.