

ASIAN DEVELOPMENT BANK

TAR:PRC 36432

**TECHNICAL ASSISTANCE
TO THE
PEOPLE'S REPUBLIC OF CHINA
FOR PREPARING THE
DALI-LIJIANG RAILWAY PROJECT**

June 2003

CURRENCY EQUIVALENTS

(as of 14 May 2003)

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

ABBREVIATIONS

ADB	–	Asian Development Bank
PRC	–	People's Republic of China
EIA	–	environmental impact assessment
km	–	kilometer
MOR	–	Ministry of Railways
DLR	–	Dali-Lijiang Railway
TA	–	technical assistance

NOTES

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

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I. INTRODUCTION

1. The Government of the People's Republic of China (the PRC) has requested Asian Development Bank (ADB) technical assistance (TA) to help prepare the proposed Dali-Lijiang Railway Project for ADB financing. The Fact-Finding Mission visited the project area in March 2003, 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 understandings 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 program for 2003.¹

II. ISSUES

2. Over the last two decades, the PRC experienced sustained rapid economic growth. PRC's economic performance has remained robust with economic growth rates of 7.9% in 2000, 7.2% in 2001, and 8.0% in 2002. The rapid economic growth has resulted in the annual growth of passenger transport by 9.2% and freight transport by 7.1% during 1978–2001 period. In 2001, road traffic accounted for 54.8% of total passenger-kilometers (km) followed by railways with 36.2%, civil aviation with 8.3%, and coastal and inland waterways with 0.7%. The modal split for freight ton-km was 54.6% for coastal and inland waterways, 30.6% for railways, 13.3% for roads, 1.4% for pipelines, and 0.1% for civil aviation.

3. The railway is the primary mode of transport for long distance and bulk transport in the PRC. At the end of 2001, the PRC's railway system comprised 70,086 route-km. The system annually carries about one third of the total freight and passenger traffic in the PRC. Between 1978 and 2001, railway freight grew from 535 billion ton-km to 1,457 billion ton-km, equivalent to an annual growth rate of 4.4%. Passenger traffic grew at 6.6% annually, increasing from 109 billion passenger-km to 477 billion passenger-km. Because of the spatial distribution of natural resources, processing plants, and production centers, railways will continue to have a major role in the transport sector. However, the railway capacity has lagged behind demand due to constraints in the railway system. Given the railway's important role, the Government has adopted an aggressive plan to improve the railways and planned network extensions and construction in the underserved areas with good potential to use rail services.

4. The Government's policy on railway development is focused on (i) removing constraints and expanding the system, (ii) encouraging the construction of joint venture local railways to promote the development of local economies, (iii) improving the efficiency of the system by using new technology and modern management tools in planning and operation, (iv) reducing operating subsidies through appropriate pricing and the 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 74,000 km, (ii) providing 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 the total length of such lines reaching

¹ The TA first appeared in *ADB Business Opportunities* in January 2003.

15,000 km. During the plan, a total investment of CNY350 billion, including CNY270 billion for capital construction and CNY80 billion for rolling stock is planned for the railway sector. Priority will be given to extend railway lines to unserved areas and regions that lack transport and have remained less developed. Economic development will be accelerated and incomes of poor people will be increased and poverty reduced. During the first 2 years of the plan (2001 and 2002), the actual investment in railway construction was about CNY154 billion.

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 through the Overseas Economic Cooperation Fund, now combined with the Export-Import Bank of Japan in the Japan Bank for International Cooperation, 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 eight national railway projects to expand railway capacity on high-priority corridors, modernize system-wide technology, and strengthen institutional capabilities and 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 10 loans totaling \$1.56 billion to finance the construction of about 1,737 km of provincial railways operated by joint ventures with MOR, and 3,768 km of new railway lines under three national railway projects.

7. ADB's operational strategy in the PRC's transport sector focuses on alleviating capacity constraints in the roads and railway sector. Recognizing the important role of railways in the transport system and in promoting regional development, ADB's strategy for the railway sector focuses on (i) expanding the railway system by constructing new railway lines, particularly in inland poor areas of western region; (ii) modernizing and increasing the capacity on key routes of the national railway system; and (iii) improving the operations and managerial efficiency and the commercial orientation of railways. The strategy will continue to focus on railways development in underserved areas in poor interior provinces to link lower income regions with growth centers, to facilitate pro-poor growth that reduces 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 the consultation will be continued to further the reforms in the sector.

8. The proposed Project involves constructing 168 km non-electrified railway line in the hilly and mountainous area traversed by four rivers (Dulong, Jinsha, Lancang, Nujiang) in northwestern Yunnan Province. The new line will link the main city of Dali with Lijiang City (see map). The influence area includes four prefectures: Dali, Diquing, Lijiang, and Nujiang. The area has 5.2 million people, of which 87.8% (4.6 million) are rural and 57.1% (3 million) are minority nationalities. Three of the four counties in Lijiang Prefecture are eligible for national poverty funds.² Dali Prefecture has 478 poverty villages³ (47.3% of all villages). The project impact area includes 4 counties and cities with a total population of 1.4 million (76% are rural and 73% are ethnic minorities). Three of the four counties and cities (Eryuan and Heqing counties and Lijiang City) are officially designated as poverty areas by the province. Of the households in the influence area, 6% are in extreme poverty and more than one-third are economically vulnerable. Of the 466 villages, 169 (36%) are poverty villages.

9. Most people living in the area work in agriculture characterized by a low level of productivity. Despite rich natural resources and good tourist potential, the people have remained

² In the PRC, counties eligible for national poverty funds are called national key working counties.

³ A poverty village is defined as having an average per capita net income below CNY1,052, or more than 70% people below the poverty line, or areas facing the worst natural and poor living conditions.

largely poor and cut off from the mainstream development due to lack of transportation. The existing road passes through difficult terrain, has limited passing capacity, and is in poor condition. The railway link will connect the land-locked region of northwest Yunnan Province to Kunming, Shanghai, and Beijing cities; ports of Fangcheng, Beihai in the PRC, and Haiphong in Viet Nam and to South and Southeast Asia. The proposed Project will help promote regional cooperation in the Greater Mekong Subregion countries.

10. The Project will help develop the railroad network and enhance pro-poor economic growth. The Project is included in MOR's updated Tenth Five-Year Plan and will support the Government's Western Region Development Strategy.⁴ The proposed railway will facilitate the economic development and integration of the landlocked and poor region and is expected to stimulate industrial and natural resources development, tourism, and related industries. The railway will, in the construction and operation phases, increase market access for local people, thus giving them an opportunity to improve their standard of living. Completed and ongoing ADB-financed railway projects show that such projects can create a large number of jobs in construction, loading and unloading operations, other income-generating activities such as material and food supply, and small services around the construction sites.⁵ The lower transportation costs after project completion will make goods and services available at more economic prices to the poor population and provide them the opportunity to sell their commodities to broader markets. Most people living in the project area have not traveled beyond the nearest towns due to high transport fares. The railway will offer them more affordable, reliable, and punctual transport than currently available. The Project will improve the standard of living of local people and influence all aspects of their daily life, directly and indirectly, in a positive manner. 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.

11. The Project envisages the construction of a single-track railway line, including subgrades, bridges, and tunnels. Because of the wide undulating topography along the Dali-Lijiang Railway route, tunnels and bridges will comprise 45% of the route length.

12. The Project will be undertaken as a joint venture between MOR and the Yunnan provincial government 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 State Development Reforms Commission by July 2003. 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 Dali and Lijiang prefectures confirmed that all the counties have implemented resettlements and assured ADB that based on experience, resettlement under the Project will be implemented as per the national laws and provincial regulations, and ADB's Involuntary Resettlement Policy.

⁴ DLR is located in Yunnan province of the PRC's western region.

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, while the average real increase in Chongqing Municipality for the same period was approximately 10%. Education is often the first spending priority for PRC 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

13. 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 proposed to enhance social development and reduce poverty in the project area. The output will be a project suitable for ADB financing. The TA framework is in Appendix 1.

B. Methodology and Key Activities

14. The scope of the work under the TA will include (i) reviewing and strengthening the feasibility study to meet ADB's requirements for (a) technical aspects related to construction and operation; and (b) economic and financial analysis, including a review of the traffic forecast and financial performance of operation of the project facilities; (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 of 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 the involuntary resettlement will be implemented consistently 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); (viii) preparing a development plan for ethnic minorities, as per ADB guidelines; and (ix) undertaking a comprehensive distribution analysis of the Project and associated developments on poverty reduction (including poverty impact). The key activities will include field surveys; document review; data analysis; and consultation with stakeholders, including government officials, project beneficiaries, and affected people.

C. Cost and Financing

15. The total cost of the TA is estimated at \$640,000 equivalent consisting of \$378,000 in foreign exchange and \$262,000 equivalent in local currency cost (Appendix 3). ADB will provide \$500,000 to cover the entire foreign exchange cost and a portion of local currency cost amounting to \$122,000 equivalent. ADB will finance the TA on a grant basis from ADB's TA funding program. MOR will provide the remaining \$140,000 equivalent in local currency, for 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

16. The TA will require about 39 person-months of consulting services comprising about 15 person-months of international and 24 person-months of domestic consultants spread over a

total period of 5 months. For implementing the TA, a team of international consultants assisted by domestic consultants will be engaged by ADB in accordance with ADB's *Guidelines on the Use of Consultants* and other arrangements satisfactory to ADB for engaging domestic consultants. The consultants will be engaged using the quality and cost-based selection method. The international consultants will have expertise in transport economics and traffic forecasting, financial analysis, 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 and intermodal analysis, railway engineering and operation, environmental engineering, resettlement, and socioeconomics. Since the tasks and methodology are well defined in the outline terms of reference (Appendix 4), the simplified technical proposal procedure will be followed for engaging the consultants. The consultants will procure equipment in accordance with procedures acceptable to ADB.

17. The consultants are expected to commence work in August 2003 and to complete it in December 2003. MOR, as the Executing Agency, will be responsible for supervising and monitoring TA activities. The Government and MOR agreed to provide assistance required for implementation of the TA. MOR will make available (i) all relevant reports, studies, and information that may be required for implementation of the TA; (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

18. 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 Dali-Lijiang Railway Project, and hereby reports this action to the Board.

TECHNICAL ASSISTANCE FRAMEWORK

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
<p>Goal</p> <p>Promote pro-poor economic growth and socioeconomic development by developing efficient rail transport infrastructure.</p>	<p>Increased economic growth</p>	<p>Review of county level economic data:</p> <p>(i) gross domestic product (ii) per capita income (iii) poverty Incidence</p>	<p>Government's commitment to development of infrastructure and economic growth</p>
<p>Purpose</p> <p>Develop an efficient, safe, reliable, and environmentally sustainable railway transport system</p>	<ul style="list-style-type: none"> ▪ Improved railway network ▪ Reduced travel time and improved speed 	<ul style="list-style-type: none"> ▪ Review of operating data before and after the Project ▪ Midterm review and project completion report 	<p>Government's commitment to railway institutional reforms</p>
<p>Outputs</p> <ul style="list-style-type: none"> ▪ 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 ethnic minorities development plan in accordance with ADB guidelines 	<ul style="list-style-type: none"> ▪ Project feasibility study improved to a level suitable for ADB financing ▪ Based on the review of the EIA, a summary EIA is prepared and circulated to ADB's Board 120 days before Board consideration of the loan ▪ Issues on poverty and social aspects are adequately addressed ▪ Resettlement plan assesses the extent of impacts of involuntary resettlement, and includes mitigation measures ▪ Issues on the development of ethnic minorities are addressed 	<ul style="list-style-type: none"> ▪ Consultant's reports are reviewed and commented on by ADB and the Government ▪ Review of EIA and summary EIA during the tripartite meeting with Government, ADB and consultants. ▪ Review of consultants report during the tripartite meeting. ▪ Review of resettlement plan during the tripartite meeting with Government, ADB, and consultants ▪ Review of consultants report during the tripartite meeting 	<ul style="list-style-type: none"> ▪ Competent consultants are recruited ▪ Full cooperation of the Government ▪ The Government provides sufficient data and information ▪ Government provides sufficient information and assistance for the analysis. ▪ Consistency of Government policies on land acquisition and resettlement ▪ Full cooperation of the Government

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
<p>Inputs</p> <ul style="list-style-type: none"> ▪ 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 of Railways and other concerned agencies ▪ ADB supervision of TA implementation 	<ul style="list-style-type: none"> ▪ Timely recruitment of consultants in accordance with ADB guidelines ▪ Nomination of efficient counterpart staff and delivery of funds as required ▪ Timely submission of information and data ▪ Timely review of TA implementation and appropriate guidance provided by ADB 	<ul style="list-style-type: none"> ▪ Evaluation of consultants proposals ▪ Contract negotiations ▪ Review missions ▪ Technical Assistance (TA) review missions and performance of the consultants; quality of consultant's reports ▪ Inception mission, monthly progress reports and tripartite meeting 	<ul style="list-style-type: none"> ▪ Engagement of well qualified and experienced consultants and timely delivery of good quality services ▪ Good cooperation of Ministry of Railways, and other agencies; availability of qualified staff ▪ Close monitoring of TA implementation by ADB and timely fielding of missions

SUMMARY INITIAL POVERTY AND SOCIAL ANALYSIS

A. Linkages to the Country Poverty Analysis

Sector identified as a National Priority in Country Poverty Analysis? Yes	Sector identified as a National Priority in Country Poverty Partnership Agreement (draft pending approval) Yes
Contribution of the sector/subsector to reduce poverty in the People's Republic of China: Transport sector and railway subsector contribute to poverty reduction directly through improved access to market, employment opportunities during construction, affordable access to outside, and economic development.	

B. Poverty Analysis: Proposed Poverty Classification: Other

<p>Poverty analysis will be carried out to summarize the causes of poverty in the project area, identify areas of highest poverty incidence, prepare a complementary local roads program, quantify how the Project will help reduce poverty, and incorporate other social measures within the scope of project implementation. The analysis will be conducted following guidance on the <i>Handbook on Poverty and Social Analysis</i> and <i>Handbook for Integrating Poverty Impact on Economic Analysis of Projects</i> of the Asian Development Bank (ADB).</p>

C. Participation Process

<p>Stakeholder Analysis: Public consultation will be carried out by the Executing Agency, local government officials, design institute, and other institutes during preparation of the feasibility study, poverty and social assessment, environmental impact assessment, resettlement plan, and ethnic minorities development plan.</p> <p>Participation strategy required: Yes</p>
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D. Potential Issues

	Significant/ Not Significant/ Uncertain/ None	Strategy to Address Issues	Plan Required
Resettlement	Significant	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 resettle- ment plan
Gender	Not significant	A railway project of this kind is normally gender neutral. ADB policy on gender and development will be followed by the Executing Agency during project preparation and implementation. Gender aspects will be incorporated in the ethnic minorities development plan and the Resettlement Plan.	None
Affordability	None	The Project is affordable by the Executing Agency, and its services and proposed tariffs will be affordable to users. This will be verified in the economic and financial assessments.	None

	Significant/ Not Significant/ Uncertain/ None	Strategy to Address Issues	Plan Required
Labor	Not significant	Railway and station construction and new transportation services will generate employment, particularly for the poor. The local government will assist to identify available labor, with priority on people from poverty areas.	None
Ethnic Minorities	Significant	The Project impact area includes 73% minority nationalities, including Bai, Naxi, and Yi. They will be affected by land acquisition and compensation is addressed in the resettlement plan. Since many of the ethnic minorities are poor, additional measures will be taken to enhance their benefits from the Project.	Ethnic Minorities Development Plan
Other Risks/ Vulnerabilities	Not Significant	<p>Impact on Tourism: Dali, Erhai Lake and Lijiang are major tourist attractions. The Project will enhance the expansion of tourism. During construction, there will be mitigation measures to protect the ecology, cultural heritage sites and other tourism activities.</p> <p>Impact on HIV/AIDS: Although the province has HIV cases, the Project is not expected to increase the incidence because the area has already been opened up to tourism. Yunnan Department of Health has programs to address the problem.</p>	Department of Health Plans

HIV/AIDS = human immunodeficiency virus.

COST ESTIMATES AND FINANCING PLAN
(\$ '000)

Item	Foreign Exchange	Local Currency	Total Cost
A. Asian Development Bank Financing^a			
1. Consultants			
a. Remuneration and Per Diem			
i. International Consultants	300.0	0.0	300.0
ii. Domestic Consultants	0.0	96.0	96.0
b. International and Local Travel	30.0	3.0	33.0
c. Reports and Communications	3.0	2.0	5.0
2. Equipment ^b	8.0	0.0	8.0
3. Surveys	0.0	9.0	9.0
4. Miscellaneous Administration and Support Costs	0.0	2.0	2.0
5. Representative for Contract Negotiations	6.0	0.0	6.0
6. Contingencies	31.0	10.0	41.0
Subtotal (A)	378.0	122.0	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	30.0	30.0
Subtotal (B)	0.0	140.0	140.0
Total	378.0	262.0	640.0

^a Financed by the Asian Development Bank.

^b Including computer hardware and software, photocopier, fax machine, and other equipment to be procured under the consultant's contract and whose ownership will be transferred to the Government.

Source: Asian Development Bank estimate.

OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

A. Scope

1. The scope of the technical assistance (TA) includes (i) railway engineering and operations; (ii) economic and financial analysis; (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) a poverty and social analysis, including an ethnic minorities development plan.

B. Terms of Reference

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

1. Railway Engineering and Operations

3. The consultants will have the following tasks:

- (i) Review the Government's planning for development of the transportation network and other infrastructure in the project area, including building/upgrading of the complementary road network to the Dali-Lijiang 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.
- (ii) 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 Dali-Lijiang Railway, and review plans for their mitigation.
- (iii) Review all technical aspects presented in the feasibility study and preliminary designs, including safety aspects during construction and operation, and how the new railway line will be maintained.
- (iv) 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*.
- (v) Review the implementation arrangements, and the organizational setup for project management and maintaining project accounts, and make recommendations for any required changes. Prepare an implementation schedule and a schedule for disbursement of loan funds and counterpart funds.
- (vi) Review the requirements and proposals for industrial sidings, and recommend how their construction may be facilitated for the benefit of the railway and the shippers.
- (vii) Review the requirements for tourism development including provision of facilities and operational arrangements. Assess which of these could be offered to 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 consultants will have the following tasks:

- (i) The economic analysis should include but not be limited to (a) an economic analysis of the Project as described in this section, (b) an economic analysis of the program for development of 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 including poverty impact ratio for items (a) and (b) taken separately and combined. The economic analysis should be done in accordance with ADB's *Guidelines on Economic Analysis of Projects*, and *Handbook for Integrating Poverty Impact Assessment in the Economic Analysis of Projects*.
- (ii) Review the project rationale and provide a basis for ADB involvement. Assess the relevance and priority of the Project to the strategy for the transport sector, and the developmental strategy of ADB, the Government, and the Millennium Development Goals.
- (iii) Assess service differentiation with road transportation 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. The forecast of freight and passengers should be subdivided into categories to show the source of the traffic to enable the benefits of the railway to be estimated. The forecast should be subdivided 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 takes into consideration 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 the implementation of envisaged developmental projects that were expected to provide traffic for the Project and/or 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. The economic analysis should include evaluation of the environmental aspects, and analysis of poverty reduction benefits envisaged under the Project. The economic analysis for the Project during operation will include the effects on poverty reduction through the provision of goods at affordable prices due to cheaper rail transportation, increased prices of goods received by rural producers at the markets in urban areas, and less costly personal travel. The economic analysis should 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 underlie 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.⁶

3. Financial and Institutional

5. The consultants will have the following tasks:

- (i) Undertake a financial analysis of the Project as per ADB's *Guidelines for the Financial Governance and Management of Investment Projects Financed by ADB*, including a financial return at 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, the lessons learned, and the impact of reforms on the operational efficiency and profitability of the national railway and the Project. Review reforms that are proposed to be implemented together with their likely impacts. Reflect the status in a matrix together with supporting background and description. 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.

4. Environment

6. The consultants will have the following tasks:

- (i) The Ministry of Railways (MOR) has contracted the Second Survey and Design Institute (SSDI) to carry out investigations and prepare a draft EIA report prior to the commencement of the TA. The TA consultant will 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*. The consultant will 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 the comments from ADB and the provincial environmental protection bureau. The consultant will also prepare the summary EIA.
- (ii) Based on a preliminary environment scoping, the major issues to be assessed in the EIA include impacts on (a) ecological resources, (b) cultural heritage sites⁷ 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

⁶ Using the Handbook on project performance management system available on ADB's website (<http://www.adb.org>).

⁷ Lijiang is a United Nations Educational, Scientific and Cultural Organization World Heritage site.

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 local community.⁸

- (iii) The consultant will (a) determine 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 assist MOR with public consultation and EIA preparation.

5. Poverty and Social Analysis

7. The consultants will have the following 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,⁹ and interviews with key informant (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 accessibility is affordable for 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 (draft)* and *Handbook for Integrating Poverty Impact on Economic Analysis of Projects*. Assess how the proposed construction of the 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 for the poor and ethnic minorities.
- (iii) Prepare an ethnic minorities development plan as set out in ADB's *Indigenous People's Policy 1998*. The plan will assess issues related to ethnic minorities and gender, and provide strategies and an action plan to enhance project benefits and increase the project benefits for ethnic minorities and improve gender balance.
- (iv) Conduct surveys to develop a profile of transport services and costs, which are currently available in the project areas, and assess whether accessibility is affordable for low-income groups. Consult with local government to identify development initiatives that could complement the railway project, particularly those targeted at the poor and ethnic minorities, and identify opportunities for possible sources of funding for these initiatives. Evaluate and design in explicit provisions to ensure high access by the poor.
- (v) Assist MOR to establish consultation and participatory processes that will continue throughout project design, construction, and operation.

⁸ Local health departments should be consulted for input on community health issues to be included in the EIA.

⁹ Second Survey Design Institute will conduct village and household socio-economic surveys of all villages along the alignment and 300 households randomly selected from these villages. The raw data will be provided in electronic format surveys prior to the TA commencement and at no additional cost to the consultant.

6. Resettlement

8. The consultants will have the following tasks:
- (i) Review the draft resettlement plan and prepare modifications as required to comply with ADB's *Handbook on Resettlement 1998*. Conduct resettlement household surveys¹⁰ to ensure adequate understanding of social impacts. The resettlement plan must include a village-level impact assessment of project-affected people, land, assets, and occupations.
 - (ii) Define categories for 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 booklet¹¹ and distribute it 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 a minority people's development plan, within 2 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 3 copies) and to the Government and MOR in the English and the Chinese languages (in 3 copies).

¹⁰ For household surveys, ADB requires 10–20% of affected people and enterprises, including 20% of seriously affected people are included. Second Survey Design Institute will conduct these surveys if the alignment is fixed prior to the TA commencement.

¹¹ ADB has sample formats available.