



Technical Assistance

TAR: PRC 38174

Technical Assistance to the People's Republic of China for Preparing the Western Roads Development Project

August 2005

Asian Development Bank

CURRENCY EQUIVALENTS

(as of 14 August 2005)

Currency Unit	–	yuan (CNY)
CNY1.00	=	\$0.1233
\$1.00	=	CNY8.108

ABBREVIATIONS

ADB	–	Asian Development Bank
EA	–	executing agency
EIA	–	environmental impact assessment
EIRR	–	economic internal rate of return
FIRR	–	financial internal rate of return
FYP	–	five-year plan
GDP	–	gross domestic product
GPCD	–	Gansu Provincial Communications Department
IPSA	–	initial poverty and social assessment
O&M	–	operation and maintenance
PRC	–	People's Republic of China
REA	–	rapid environmental assessment
RP	–	resettlement plan
SPCD	–	Sichuan Provincial Communications Department
TA	–	technical assistance
VOC	–	vehicle operating cost

TECHNICAL ASSISTANCE CLASSIFICATION

Targeting Classification	–	General intervention
Sector	–	Transport and communications
Subsector	–	Roads and highways
Theme	–	Sustainable economic growth
Subthemes	–	Promoting economic efficiency and enabling markets, and Fostering physical infrastructure development

NOTE

In this report, "\$" refers to US dollars.

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I. INTRODUCTION

1. During the 2005 Country Programming Mission for the People's Republic of China (PRC), the Government confirmed its request for technical assistance (TA) to prepare integrated roads development projects in Gansu Province and Sichuan Province.¹ The Asian Development Bank (ADB) Fact-Finding Mission visited the PRC in June 2005; traveled to the project areas; carried out an initial poverty and social assessment (IPSA) and rapid environmental assessment (REA); and discussed economic, social development, and project-specific issues with officials of the central and local governments. This report is based on the understanding reached with the Government on the objectives, scope, costs, terms of reference, and implementation arrangements for the TA, and the Mission's observations in the field. A design and monitoring framework, outlining the impact, outcome, outputs, and activities, is in Appendix 1.

II. ISSUES

2. PRC's economic growth over the last decade has substantially increased the demand for transport services. The economy's changing structure and increasing diversification have altered the pattern of transport demand. The demand for road transport has outpaced that of other transport modes. There is a need to rapidly move goods and passengers by roads, which are more flexible and responsive than other modes to the needs of a market economy. The shift in transport demand also reflects the loosening of anticompetitive restrictions in the road transport industry itself. Between 1990 and 2004, road traffic grew by 9.0% yearly for passenger traffic, reaching 876.5 billion passenger-kilometers (km); and by 6.0% yearly for freight, reaching 759.7 billion ton-km. In 2004, roads accounted for 53.7% of the country's total passenger traffic and 11.4% of the total freight traffic. With the country's rapid economic growth, low vehicle ownership rates, and large investment in automotive manufacturing, rapid expansion in the vehicle fleet will continue in the coming years. PRC's road network was 1.86 million km in 2004, an increase of 46,000 km from 2003. Of this, the expressway length increased from 29,745 km to 34,200 km during the same period.² However, the road network is still underdeveloped in quality and extent. High-standard roads³ account for only about 14% of the total road network; the remaining 86% (class III road and below) are medium- to low-grade paved and gravel roads. With only 1,431 km of roads per million inhabitants and 19.4 km per 100 km² in 2004, the density of PRC's road network is low, resulting in serious transport capacity constraints and bottlenecks.

3. The road network in Gansu Province is underdeveloped in both quality and extent. In 2004, Gansu's road network accounted for 2.2% of the country's total, with 40,751 km. Of this total, 31,614 km comprised: 686 km of expressways, 143 km of class I roads, 4,826 km of class II roads, and 25,961 km of class III-IV roads. Unclassified roads covered 9,137 km. The road density in Gansu was 9.0 km per 100 km², lower than the national average; and the proportion of road class II and above is significantly lower than the national average. In Sichuan Province, the road network also remains underdeveloped. Sichuan's road network accounted for 6.1% of the country's total, with 113,043 km. Of this, 76,401 km comprised: 1,758 km of expressways, 1,496 km of class I roads, 9,633 km of class II roads, and 63,514 km of class III-IV roads. Unclassified roads covered 36,642 km. The road density in Sichuan was 23.3 km per 100 km², slightly higher than the national average, but the proportion of road class II and above is significantly lower than the national average.

¹ The TA first appeared in *ADB Business Opportunities* (internet edition) on 5 April 2005.

² The PRC has the world's second longest expressway system after the United States.

³ This is defined as roads above class II that are generally capable of accommodating 3,000-7,500 vehicles per day in medium-sized truck equivalent within the expected design life.

4. The impact of road investments on poverty reduction is supported by the results of studies and evaluations of several completed road projects financed by ADB⁴ and the World Bank.⁵ Well-integrated road development helps ensure that the benefits derived from the expressway filter down to the poor. Benefits from transport cost savings and time savings, along with an increase in incomes, will be passed on through the transport chain to townships and villages. The results affirm the relevance of ADB's strategy in the PRC road sector. A case study in Shaanxi Province found that improved roads correlated with poverty reduction, and that (i) 3.2 poor people are lifted out of poverty for every CNY10,000 invested in roads; and (ii) for every 1% increase in kilometer of road per capita, household consumption increases by 0.08%.⁶

5. While the national trunk highway system is being developed, accessibility in most of PRC's rural area is still low. Currently, 145 townships and 50,124 villages, most of which are in the western region, have no access to all-weather roads. Many townships and villages still depend on earth tracks that are not suitable for motorized traffic and become impassable during rainy season. Even where all-weather roads have been built in the past, the standard of rural roads is low, maintenance is poor, and many roads are in need of rehabilitation. In view of the need to improve rural accessibility, the central Government completed 71,000 km of rural roads at the cost of CNY60.9 billion, supported by the local governments that constructed 68,000 km, costing CNY57.6 billion in 2004. The Government plans to invest CNY100 billion in developing rural roads during the 11th Five-Year Plan (2006–2010). By 2010, all villages in the eastern region will be linked with paved roads. The same targets will be applied to 80% of villages in the central region and 90% of towns in the western region. The Government's commitment to reducing poverty through transport infrastructure investment is reflected in the poverty partnership agreement between the Government and ADB.⁷

6. Gansu Province is one of PRC's five northwestern provinces. Remote and isolated, with harsh natural conditions, it is one of the least developed provinces. Its key problem is poverty: the per capita gross domestic product (GDP) in 2004 was CNY5,898, only 57% of the national average of CNY10,502. Per capita rural income was CNY1,852, or 63% of the national average of CNY2,963. Despite considerable investments, the road network is still inadequate and does not provide efficient transport access to markets and social services, such as education and health. The number of poor rural people below the provincial poverty line of CNY882 is 261,500 (33.6%) in the project area. One of the reasons for the high poverty incidence is slow economic growth, due partly to inadequate infrastructure, particularly poor local road conditions. Despite considerable investments, the road network is still inadequate, and does not provide efficient transport access to many parts of the province.

7. Sichuan Province is situated in southwestern PRC, with mountains on all sides. Its isolation has been reduced by improved navigation on the Yangtze River, by railway construction, and by the construction of several major highways. The majority of its population are concentrated on the flat, fertile plain in the east and central part, but it has several poverty-stricken areas on its mountainous periphery. Despite rapid development in recent years,

⁴ In Liaoning and Yunnan provinces, construction of expressways, complemented by upgrading local roads, was associated with a significant increase in rural incomes in the project area. This is reported in ADB. 2000. *Project Completion Report on the Liaoning Expressway Project in the People's Republic of China*. Manila; and ADB. 2001. *Project Completion Report on the Yunnan Expressway Project in the People's Republic of China*. Manila.

⁵ Hajj, Hatim, and V. Setty Pendakure. 2000. *Roads Improvement for Poverty Alleviation in China*. Working Paper No. 1. Washington, DC: World Bank, Transport Sector Unit. East Asia and Pacific Region.

⁶ ADB. 2000. *Technical Assistance for Assessing the Impact of Transport and Energy Infrastructure on Poverty Reduction*. Manila.

⁷ Available: http://www.adb.org/Documents/Poverty/pa_prc.pdf.

Sichuan ranks seventh lowest of all provinces in per capita GDP: CNY7,514 in 2004, or 72% of the national average. The per capita rural income was CNY2,580, or 88% of the national average. Of the 2.12 million people in the project area, 216,700 poor people, or 10%, live below the provincial poverty line of CNY1,000. One of the reasons for the high incidence of poverty is slow economic growth due partly to inadequate infrastructure. As in Gansu, the road network is still inadequate, particularly the local roads, and does not provide efficient transport access.

8. The proposed project in Gansu will be the second in that province to be funded by ADB. The first project⁸ is being implemented satisfactorily. The Gansu Provincial Communications Department (GPCD) has experience in implementing three internationally financed road projects.⁹ Lessons learned from these projects will be incorporated in the project design. The proposed project expressway, planned for completion in 2013, forms a southern section of the Lanzhou-Sichuan corridor and constitutes a 132-km access-controlled 4-lane expressway (Map). It will connect with Chengdu and Chongqing, two major growth centers in the southwestern region. The expressway is located in high mountainous terrain, and involves extensive construction of tunnels and bridges that will account for 56% of the expressway's total length. It presents a technical challenge, and therefore, a careful review of the design and construction methods will be an important feature of the TA. The existing road in this area is 269 km long, with steep gradients and many sharp turns, so the average vehicle speed on this road is low. The expressway will shorten the distance by more than 50%. Recent traffic counts indicate that the current traffic on the existing road is 2,776 vehicles per day, and has been growing at about 5% per annum in the last decade. The existing road conditions are deteriorating in some sections due to poor maintenance and are affecting road safety.

9. The proposed project in Sichuan will be the fourth project under ADB financing that will be undertaken by the Sichuan Provincial Communications Department (SPCD). The first project¹⁰ was completed successfully and opened to traffic in December 2003, while the second project¹¹ is progressing well. The third project¹² is being processed for consideration in 2005. Lessons learned from these ADB-financed projects will be incorporated in the project design. The proposed project expressway, connecting Dazhou and Wanyuan in eastern Sichuan, constitutes a 138-km access-controlled 4-lane expressway (Map). It forms part of the eight western development corridors between Arongqi and Beihai that will provide an important link, connecting the northwestern and southwestern regions by 2015. The expressway is located in hilly to mountainous terrain, and involves extensive construction of tunnels and bridges that will account for 38% of the expressway's total length. The proposed project presents a technical challenge; therefore, a careful review of design and construction methods will be an important feature of the TA. The existing road in this area is 142 km long, with steep gradients and many sharp turns, so the average vehicle speed on this road is low. Recent traffic counts indicate that the current traffic on the existing road is about 2,580 vehicles per day, and has been growing at about 4% to 9% per annum in the last decade. The technical standard is class II to class IV, but its physical

⁸ ADB. 2004. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the People's Republic of China for the Gansu Roads Development Project*. Manila.

⁹ These are the Liugouhe-Zhonghe expressway (completed in 2002) and Xujiamao-Jiepaicun highway (completed in 2001) financed by the World Bank. The Liuzhaike-Baiyin expressway (ongoing) is financed by the Japan Bank for International Cooperation and will open to traffic by October 2005.

¹⁰ ADB. 1998. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the People's Republic of China for the Chengdu-Nanchong Expressway Project*. Manila; and ADB. 2004. *Project Completion Report on the Chengdu-Nanchong Expressway Project in the People's Republic of China*. Manila.

¹¹ ADB. 2002. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the People's Republic of China for the Southern Sichuan Roads Development Project*. Manila.

¹² ADB. 2005. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the People's Republic of China for the Central Sichuan Roads Development Project*. Manila (draft).

conditions are deteriorating in some sections due to poor maintenance and are affecting road safety.

10. ADB's operational strategy¹³ in PRC's road sector is designed to remove infrastructure constraints and support policy and institutional reforms. Since 1991, ADB has provided 30 loans, totaling nearly \$5.6 billion, to finance about 4,100 km of expressways, together with 7,600 km of associated local road networks. Since 1995, local roads have been included in the scope of road projects to make ADB's interventions in the road sector more pro-poor. All the ADB loans are generally being implemented satisfactorily.¹⁴ The strategy supports (i) constructing roads that connect major growth centers and improve access in the western and central regions; (ii) integrating the national trunk highway system with local road networks; (iii) promoting road safety and vehicle emission reductions; (iv) strengthening the corporatization and commercialization of expressway organizations; (v) adopting appropriate pricing policies to ensure optimum use of road transport capacity; and (vi) using alternative methods of investment financing, including private sector participation.

III. THE TECHNICAL ASSISTANCE

A. Impact and Outcome

11. The TA will help create an integrated road transport system supporting sustainable economic growth in Gansu and Sichuan provinces. The TA will (i) assist GPCD and SPCD in upgrading the feasibility studies, including environmental impact assessments (EIAs) and resettlement plans for the ensuing projects in conformity with ADB's requirements; and (ii) review road sector issues and provide the basis for strengthening the ongoing policy dialogue with the Government in the key areas, focusing on the poverty impact of road projects, road safety, vehicle emissions, commercialization and corporatization, private sector development, pricing policies for road users, and public transport services. The output will be projects suitable for ADB financing.

B. Methodology and Key Activities

12. The IPSA and REA carried out during fact-finding for the Gansu and Sichuan portions (Appendix 2) helped identify the social and environmental issues that need to be addressed during project preparation. The fact-finding also reviewed the need for assessing the social and environmental aspects for which ADB has established policies and norms of good practice. The IPSA examined poverty conditions, minority issues, resettlement effects, gender issues, and vulnerable groups, and concluded that the key social issues to be assessed during project preparation are poverty impact and resettlement effects. The IPSA concluded that both projects should be in involuntary resettlement category A,¹⁵ requiring a full resettlement plan. The REA concluded that both projects should be in environmental category A, requiring a full EIA. The TA will examine the available project documents, and prepare projects that are feasible from the technical, economic, and financial points of view and are in compliance with ADB's safeguard policies on the environment, resettlement, and indigenous people. The TA will help develop a results-based monitoring system with adequate baseline data. The key activities will include

¹³ ADB. 2005. Country Strategy and Program Update (2006–2008): People's Republic of China. Manila (draft).

¹⁴ The project completion reports of road projects concluded that 14 projects were generally successful and one was partly successful. The project performance audit reports for four road projects concluded that the projects were either highly successful or successful.

¹⁵ The proposed projects are likely to require about 1,240 ha of land, affecting about 2,700 people in Gansu Province; and about 765 ha of land, affecting 4,500 people in Sichuan Province.

field surveys, document review, data analysis, and discussion with stakeholders, including government officials, project beneficiaries, and affected people.

C. Cost and Financing

13. The total cost of the TA is estimated at \$1,000,000 equivalent comprising \$490,000 in foreign exchange and \$510,000 equivalent in local currency. The Government has requested ADB to finance \$800,000 equivalent, covering the entire foreign exchange cost and \$310,000 equivalent of the local currency cost. The TA will be financed on a grant basis by ADB's TA funding program. The Government will finance the balance of the local currency cost, equivalent to \$200,000, through the provision of counterpart staff, office facilities, and other support services. Detailed cost estimates are in Appendix 3. The Government has been advised that approval of the TA does not commit ADB to financing any ensuing project.

D. Implementation Arrangements

14. Two teams of consultants from an international consulting firm in association with domestic consultants will be engaged by ADB using the simplified technical proposal procedures in accordance with ADB's *Guidelines on the Use of Consultants* and other arrangements satisfactory to ADB for engaging domestic consultants. The TA will require about 17 person-months of international consulting services and 32 person-months of domestic consulting services to carry out the study as defined in the terms of reference (Appendix 4). The international consultants will have expertise in the following fields: (i) highway engineering, (ii) transport economics, and (iii) financial analysis/expressway operation. The international consultants will utilize domestic consultants with expertise in (i) highway engineering, (ii) transport economics, (iii) financial analysis/expressway operation, (iv) environmental analysis, (v) poverty and social analysis, (vi) resettlement, and (vii) road transport services.

15. GPCD and SPCD will be the Executing Agencies (EAs) for the respective parts of the TA. They will appoint suitable counterpart staff who will be responsible for supervising and coordinating TA activities, including monitoring of progress, resolving any issues that may arise during implementation, assisting in arranging meetings, and liaising with various Government agencies and organizations. The Ministry of Finance will ensure coordination among the National Development and Reform Commission, Ministry of Communications, State Environmental Protection Administration, GPCD, SPCD, and other government offices relevant to the TA. The consultants are expected to be fielded by November 2005, and their work will be carried out over 4.5 months, with completion in April 2006. Workshops involving the Government, ADB, and the consultants will be held in the PRC to review the consultants' reports.

IV. THE PRESIDENT'S DECISION

16. The President, acting under the authority delegated by the Board, has approved the provision of technical assistance not exceeding the equivalent of \$800,000 on a grant basis to the Government of the People's Republic of China for preparing the Western Roads Development Project, and hereby reports this action to the Board.

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets ^a	Data Sources/ Reporting Mechanisms	Assumptions and Risks
<p>Impact An integrated road transport system supporting sustainable economic growth in Gansu and Sichuan provinces</p>	<p>The gross domestic product and rural income increase in the project areas.</p> <p>Poverty incidence in project areas declines.</p> <p>A road transport system integrating local road and transport services will be established.</p>	<p>Provincial and county statistics office</p> <p>Provincial and county poverty reduction office</p> <p>Provincial communications departments and project completion report</p>	<p>Assumptions</p> <ul style="list-style-type: none"> • Government and ADB sign loan agreement. • Project design is implemented effectively as agreed upon during appraisal. • Forecast economic growth rates are realistic and achievable.
<p>Outcome Project design and feasibility study improved to a level suitable for ADB financing and agreed upon by Government and ADB</p>	<p>Memorandum of understanding signed by Government and ADB during appraisal mission of July 2006</p>	<p>Memorandum of understanding</p>	<p>Assumptions</p> <ul style="list-style-type: none"> • Government is willing to address necessary changes in priorities. • Government obtains necessary sources of funding.
<p>Outputs 1. Technical assessments completed</p> <p>2. Project design requirements accomplished</p>	<p>Inception report and interim report submitted to Government and ADB by November 2005 and December 2005, respectively</p> <p>Summary EIA, poverty and social analysis, resettlement plan, and results-based monitoring system submitted to Government and ADB by January 2006</p>	<p>ADB document registration</p> <p>Government document registration</p> <p>TA workshops to report findings of the consultants at inception, interim, and draft final report stages</p>	<p>Assumption</p> <ul style="list-style-type: none"> • Effective stakeholder participation and ownership are developed. <p>Risks</p> <ul style="list-style-type: none"> • Availability and access to information and government personnel may be restricted. • Access to geographical sites may be restricted.

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
	Draft final report and final report submitted to Government and ADB by January 2006 and March 2006, respectively		
Activities with Milestones 1.1 Analyze the transport demand in the region (by November 2005) 1.2 Assess the adequacy of road infrastructure (by November 2005) 1.3 Assess the adequacy of transport services (by November 2005) 1.4 Review the technical and financial aspects related to local road maintenance (by November 2005) 1.5. Develop a result-based monitoring system, including performance indicators (by November 2005) 1.6 Recommend policy reform measures and institutional development needs (by November 2005) 1.7 Review the potential for private sector participation (by November 2005) 2.1 Carry out consultations with stakeholders, including government officials, project beneficiaries, and affected people, including women and the poor (December 2005) 2.2 Carry out social and poverty assessment (by December 2005) 2.3 Complete baseline survey (by December 2005) 2.4 Carry out financial and economic analyses (by January 2006) 2.5 Carry out institutional analysis (by January 2006) 2.6 Complete summary initial environmental examination and resettlement plan (by January 2006) 2.7 Finalize project design and monitoring framework (by March 2006)			Inputs <ul style="list-style-type: none"> • 17 person-months of international and 32 person-months of domestic consulting services • ADB: \$800,000 • Government: \$200,000

ADB = Asian Development Bank, EIA = environmental impact assessment, TA = technical assistance.

^a The indicators are not time bound and quantifiable at this stage, and will emerge as a result of the study.

SOCIAL AND ENVIRONMENTAL ASSESSMENTS

A. Gansu

1. Initial Poverty and Social Assessment

a. Linkages to the Country Poverty Analysis			
Is the sector identified as a national priority in country poverty analysis?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the sector identified as a national priority in country poverty partnership agreement?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<p>Contribution of the sector or subsector to reduce poverty in the People's Republic of China (PRC):</p> <p>The transport sector contributes to poverty reduction directly through improved access to markets, employment opportunities, and social services, and indirectly by stimulating economic development. The project area has lagged behind in economic development mainly because of poor environmental conditions, isolation, and lack of good transportation, which is currently limited to a class III or IV highway. The project will eventually link Wudu district and Wen county to Lanzhou, capital city of Gansu in the northwest; and to Chengdu, capital city of Sichuan and Chongqing municipality. The proposed expressway will reduce travel distance and time and cost for passenger trips and freight transport, thereby facilitating economic development, job creation, and improved access to social services.</p>			
b. Poverty Analysis		Targeting Classification: General intervention	
<p>What type of poverty analysis is needed?</p> <p>The project will directly contribute to poverty reduction in the project area by generating construction employment opportunities in the short term and improving access to market for specialty cash crops, such as medicinal herbs and mushrooms. The project will substantially improve transport infrastructure that will facilitate economic development and thereby indirectly provide greater employment and income-generating opportunities for local people.</p> <p>Further, the project will improve access to social services in the county centers and larger cities. The local people have poor transportation and very basic education and medical facilities. Poverty incidence in the project area is estimated to be 12% (320,700 people) based on the national poverty line of CNY668 income per capita and 37% (996,700 people) based on the provincial poverty line of CNY919 income per capita.</p> <p>A detailed poverty analysis will be carried out to identify the causes of poverty in the project area and demonstrate how the project will help reduce poverty by incorporating specific measures in the project scope. The analysis will be based on the <i>Handbook on Poverty and Social Analysis</i> and <i>Handbook for Integrating Poverty Impact Assessment in the Economic Analysis of Projects</i>.</p>			
c. Participation Process			
<p>Is there a stakeholder analysis? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Stakeholder analysis: Major stakeholders include Gansu Provincial Communications Department, local government, transport companies, local businesses, and local residents. Consultation began during the preparation of the preliminary feasibility study, which focused on the alternatives for the expressway alignment. Further consultation will be carried out for the environmental impact assessment (EIA), resettlement planning, and poverty and social analysis.</p>			
<p>Is there a participation strategy? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Local people will be consulted during the feasibility study, technical assistance (TA) implementation, and preliminary design to fix the expressway alignment, prepare village-level resettlement plans, formulate poverty enhancement measures including local roads and public transport service, and prepare for</p>			

construction employment opportunities. Project components will include local roads and public transport services.			
d. Gender Development			
Strategy to maximize impacts on women:			
The TA will investigate opportunities to enhance the benefits to women through improved public transport service and local road improvements, which lead to better access to education, health care, and markets. Focus will be on remote villages, where females tend to drop out of school and have limited skills for outside work. The resettlement plan will also formulate special measures to improve the conditions for women.			
Has an output been prepared? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
e. Social Safeguards and Other Social Risks			
Item	Significant/ Not Significant/ None	Strategy to Address Issues	Plan Required
Resettlement	<input checked="" type="checkbox"/> Significant <input type="checkbox"/> Not significant <input type="checkbox"/> None	A resettlement plan will be prepared in accordance with government regulations and the Asian Development Bank's (ADB) <i>Handbook on Involuntary Resettlement</i> .	<input checked="" type="checkbox"/> Full <input type="checkbox"/> Short <input type="checkbox"/> None
Affordability	<input type="checkbox"/> Significant <input checked="" type="checkbox"/> Not significant <input type="checkbox"/> None	The project will reduce the cost of transportation and goods purchased from outside.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Labor	<input type="checkbox"/> Significant <input checked="" type="checkbox"/> Not significant <input type="checkbox"/> None	The project will contribute to creating employment opportunities during construction and will not have any adverse impact on labor issues.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Indigenous Peoples	<input checked="" type="checkbox"/> Significant <input type="checkbox"/> Not significant <input type="checkbox"/> None	There are no ethnic minority townships or villages along the alignment, and only a few ethnic minorities (Hui and Tibetan) in the project beneficiary area. Minority populations are 54,180 (2% of the total) in Longnan city, 14,000 (2.6% of the total) in Wudu district, and 3,500 (1.4% of the total) in Wen county. Strategies will be identified to ensure that project benefits accrue to ethnic minorities.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Other Risks and/or Vulnerabilities	<input type="checkbox"/> Significant <input checked="" type="checkbox"/> Not significant <input type="checkbox"/> None	The risk of HIV/AIDS/STDs is considered low, but will be assessed during the TA.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

2. Rapid Environmental Assessment

Screening	Yes	No	Remarks
1. Project Siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
<ul style="list-style-type: none"> ▪ Cultural heritage site 		X	There are no reported cultural relics along the proposed alignment. This will be confirmed during TA implementation.
<ul style="list-style-type: none"> ▪ Protected area 		X	There are a few natural reserves in the project area. None will be crossed by the alignment. To be confirmed during TA implementation.
<ul style="list-style-type: none"> ▪ Wetland 		X	Several rivers will be crossed, but no wetland areas will be affected.
<ul style="list-style-type: none"> ▪ Mangrove 		X	
<ul style="list-style-type: none"> ▪ Estuarine 		X	
<ul style="list-style-type: none"> ▪ Buffer zone of protected area 		X	None reported. To be confirmed during TA.
<ul style="list-style-type: none"> ▪ Special area for protecting biodiversity 		X	None reported. To be confirmed after receiving the EIA report.
2. Potential Environmental Impacts Will the project cause			
<ul style="list-style-type: none"> ▪ encroachment on historical/cultural areas? ▪ disfiguration of landscape by road embankments, cuts, fills, and quarries? 	X	X	None reported on the alignment. To be confirmed by specialists during TA. The alignment goes through mainly river valley in mountainous area; measures for landscape will be required at the design stage.
<ul style="list-style-type: none"> ▪ encroachment on precious ecology (e.g., sensitive or protected areas)? 	X		Routing indicates no encroachment on protected areas. However, there are some endangered wildlife in adjacent county (panda, golden monkey, bear); investigations will be required during the TA.
<ul style="list-style-type: none"> ▪ alteration of surface water hydrology of waterways crossed by roads, resulting in increased sediment in streams affected by increased soil erosion at construction site? 	X		There is risk since some sections go along the Bailongjiang River, but mitigation measures will be included in the environment management plan.
<ul style="list-style-type: none"> ▪ deterioration of surface water quality due to silt runoff and sanitary wastes from workers camps and chemicals used in construction? 	X		Appropriate sanitation measures will be required to prevent water pollution.

Screening	Yes	No	Remarks
<ul style="list-style-type: none"> ▪ increased local air pollution due to rock crushing, cutting and filling works, and chemicals from asphalt processing? 	X		There is potential for impact on local air quality from the project. Siting and operation of construction equipment will minimize any potential pollution.
<ul style="list-style-type: none"> ▪ noise and vibration due to blasting and other civil works? 	X		Noise and vibration from tunneling activities and blasting will impact some areas. Mitigating measures will be required to minimize impacts in some areas.
<ul style="list-style-type: none"> ▪ other social concerns relating to inconveniences in living conditions in the project areas that may trigger cases of upper respiratory problems and stress? 	X		There is the risk that increased dust generation may impact some residential areas. The EIA will assess these areas and develop remediation measures.
<ul style="list-style-type: none"> ▪ hazardous driving conditions where construction interferes with preexisting roads? 	X		Construction will impact access to some existing roads. Proper construction procedures will be required to minimize hazards.
<ul style="list-style-type: none"> ▪ poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations? 	X		Appropriate sanitation and solid waste facilities will be provided. Construction workers will be made aware of public health risk.
<ul style="list-style-type: none"> ▪ creation of temporary breeding habitats for mosquito vectors of disease? 	X		Potential exists. Mitigating measures will be identified during preparation of the EIA.
<ul style="list-style-type: none"> ▪ dislocation and compulsory resettlement of people living in right-of-way? 	X		A full resettlement plan will be prepared.
<ul style="list-style-type: none"> ▪ accident risks associated with increased vehicular traffic, leading to accidental spills of toxic materials and loss of life? 	X		Road safety program will be strengthened with the project, thereby reducing accident risk. Emergency response measures will be implemented.
<ul style="list-style-type: none"> ▪ increased noise and air pollution resulting from traffic volume? 	X		Emissions are expected to increase slightly with increasing traffic.
<ul style="list-style-type: none"> ▪ increased risk of water pollution from oil, grease and fuel spills, and other materials from vehicles using the road? 		X	Road conditions will improve, thereby reducing accident risk.

HIV/AIDS = human immunodeficiency virus/acquired immunodeficiency syndrome, STD = sexually transmitted disease.

d. Gender Development			
<p>Strategy to maximize impacts on women: The technical assistance (TA) will investigate opportunities to enhance the benefits to women through improved public transport service and local road improvements, which lead to better access to education, health care and markets. Focus will be on remote villages, where females tend to drop out of school and have limited skills for outside work. The resettlement plan will also formulate special measures to improve the conditions for women.</p>			
<p>Has an output been prepared? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No This will be prepared during the TA</p>			
e. Social Safeguards and Other Social Risks			
Item	Significant/ Not Significant/ None	Strategy to Address Issues	Plan Required
Resettlement	<input checked="" type="checkbox"/> Significant <input type="checkbox"/> Not significant <input type="checkbox"/> None	A resettlement plan will be prepared in accordance with government regulations and the Asian Development Bank's <i>Handbook on Involuntary Resettlement</i> .	<input checked="" type="checkbox"/> Full <input type="checkbox"/> Short <input type="checkbox"/> None
Affordability	<input type="checkbox"/> Significant <input checked="" type="checkbox"/> Not significant <input type="checkbox"/> None	The project will reduce the cost of transportation and goods purchased from outside.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Labor	<input type="checkbox"/> Significant <input checked="" type="checkbox"/> Not significant <input type="checkbox"/> None	The project will contribute to creating employment opportunities during construction and will not have any adverse impact on labor issues.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Indigenous Peoples	<input type="checkbox"/> Significant <input checked="" type="checkbox"/> Not significant <input type="checkbox"/> None	There are no ethnic minority townships or villages or significant concentrations of ethnic minorities in the project area.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Other Risks and/or Vulnerabilities	<input type="checkbox"/> Significant <input checked="" type="checkbox"/> Not significant <input type="checkbox"/> None	The risk of HIV/AIDS/STDs is considered low, but will be assessed during the TA.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

2. Rapid Environmental Assessment

Screening	Yes	No	Remarks
<p>1. Project Siting</p> <p>Is the project area adjacent to or within any of the following environmentally sensitive areas?</p>			
<ul style="list-style-type: none"> ▪ Cultural heritage site 		X	There are no reported cultural relics along the proposed alignment. This will be confirmed during TA implementation.
<ul style="list-style-type: none"> ▪ Protected area 		X	There are no protected areas along the alignment. This will be confirmed during TA.
<ul style="list-style-type: none"> ▪ Wetland 		X	Several rivers will be crossed, but no wetland areas will be affected.
<ul style="list-style-type: none"> ▪ Mangrove 		X	
<ul style="list-style-type: none"> ▪ Estuarine 		X	
<ul style="list-style-type: none"> ▪ Buffer zone of protected area 		X	
<ul style="list-style-type: none"> ▪ Special area for protecting biodiversity 		X	None reported. This will be confirmed during the TA.
<p>2. Potential Environmental Impacts</p> <p>Will the project cause...</p>			
<ul style="list-style-type: none"> ▪ encroachment on historical/cultural areas? 		X	None on the alignment.
<ul style="list-style-type: none"> ▪ disfiguration of landscape by road embankments, cuts, fills, and quarries? 	X		Much of the expressway passes through mountainous terrain. There will be significant cut and fill during construction.
<ul style="list-style-type: none"> ▪ encroachment on precious ecology (e.g. sensitive or protected areas)? 		X	Initial routing indicates no encroachment on protected areas. This will be confirmed during the TA.
<ul style="list-style-type: none"> ▪ alteration of surface water hydrology of waterways crossed by roads, resulting in increased sediment in streams affected by increased soil erosion at construction site? 	X		There is a risk, but mitigation measures will be included in the environment management plan.
<ul style="list-style-type: none"> ▪ deterioration of surface water quality due to silt runoff and sanitary wastes from worker-based camps and chemicals used in construction? 	X		Appropriate sanitation measures will be required to prevent water pollution.

Screening	Yes	No	Remarks
<ul style="list-style-type: none"> ▪ increased local air pollution due to rock crushing, cutting and filling works, and chemicals from asphalt processing? 	X		There is a potential impact on local air quality from the project. Siting and operation of construction equipment will minimize any potential pollution.
<ul style="list-style-type: none"> ▪ noise and vibration due to blasting and other civil works? 	X		Noise and vibration from tunneling activities and blasting will impact some areas. Mitigating measures will be required to minimize impacts in some areas.
<ul style="list-style-type: none"> ▪ other social concerns relating to inconveniences in living conditions in the project areas that may trigger cases of upper respiratory problems and stress? 	X		There is a potential that increased dust generation may impact some residential areas. The environmental impact on the area will be assessed and remediation measures developed.
<ul style="list-style-type: none"> ▪ hazardous driving conditions where construction interferes with pre-existing roads? 	X		Construction will impact access to some existing roads. Proper construction procedures will be required to minimize hazards.
<ul style="list-style-type: none"> ▪ poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations? 	X		Appropriate sanitation and solid waste facilities will be provided. Construction workers will be made aware of public health risks.
<ul style="list-style-type: none"> ▪ creation of temporary breeding habitats for mosquito vectors of disease? 	X		Potential exists. Mitigation measures will be identified during preparation of the environmental impact assessment.
<ul style="list-style-type: none"> ▪ dislocation and compulsory resettlement of people living in right-of-way? 	X		A full resettlement plan will be prepared.
<ul style="list-style-type: none"> ▪ accident risks associated with increased vehicular traffic, leading to accidental spills of toxic materials and loss of life? 	X		Road safety program will be strengthened with the project, thereby reducing accident risk. Emergency response measures will need to be implemented.
<ul style="list-style-type: none"> ▪ increased noise and air pollution resulting from traffic volume? 	X		Emissions are expected to increase slightly with increasing traffic.
<ul style="list-style-type: none"> ▪ increased risk of water pollution from oil, grease and fuel spills, and other materials from vehicles using the road? 		X	Road conditions will improve, thereby reducing accident risk.

HIV/AIDS = human immunodeficiency virus, STD = sexually transmitted disease, TA = technical assistance.

COST ESTIMATES AND FINANCING PLAN
(\$)

Item	Foreign Exchange	Local Currency	Total Cost
A. Asian Development Bank (ADB) Financing^a			
1. Consultants			
a. Remuneration and Per Diem			
i. International Consultant	362,000	0	362,000
ii. Domestic Consultant	0	208,000	208,000
b. International and Local Travel	50,000	6,000	56,000
c. Reports and Communications	1,000	20,000	21,000
2. Office Equipment ^b	30,000	0	30,000
3. Surveys, Miscellaneous Administration and Support Costs	0	50,000	50,000
4. Government Representatives for Contract Negotiations ^c	6,000	0	6,000
5. Contingency	41,000	26,000	67,000
Subtotal (A)	490,000	310,000	800,000
B. Government Financing			
1. Office Accommodation and Support Services	0	100,000	100,000
2. Remunerations and Per Diem of Counterpart Staff	0	80,000	80,000
3. Others	0	20,000	20,000
Subtotal (B)	0	200,000	200,000
Total	490,000	510,000	1,000,000

^a Financed by ADB's technical assistance (TA) funding program.

^b Including computer hardware and software, photocopier, fax machine, and other office equipment to be procured under the consultant's contract. Ownership will be transferred to the Government at TA completion.

^c Includes the cost of Government observers to attend contract negotiations at ADB headquarters.

Source: ADB estimates.

OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

1. Consulting services will fall into seven major categories. The consultants' specific tasks under each category are described in the following paragraphs.

A. Highway Engineering

2. Review all technical aspects in the feasibility studies and available engineering designs. In view of the difficult topography in the project area, undertake a thorough technical review including (i) horizontal and vertical alignment; (ii) subsurface investigation, particularly where tunnels are proposed; (iii) availability and quality of local construction materials; (iv) pavement, bridge, and tunnel design options; (v) drainage facilities; (vi) siting and configuration of interchanges, toll stations, and service areas; (vii) provision for cross-expressway access; and (viii) road safety features. Assess the need for reviewing the prefinal design documents for major structures, depending on their complexity; and if found necessary, carry out the review before finalizing the documents.

3. On the basis of traffic volumes, forecast traffic, traffic mix, and axle loads,¹ review the adequacy of the proposed road capacity and pavement design, and recommend measures to prevent overloading on the project expressway, e.g., installing vehicle weighing stations at selected entry points, and other measures.

4. Prepare an inventory of the local roads for each county of the project area. Identify an improvement program for secondary and tertiary road networks, including provincial, county, township, and village roads. Incorporate the local roads development program into the project and design it to enhance the distribution of the anticipated project benefits to the hinterland and the rural population in the project area. Give particular attention to including roads in poverty and minority counties and townships as appropriate. Review the local government's road asset management systems at provincial, county, township, and village levels, and recommend measures for improvement.

5. Review bills of quantities, unit prices, and costs of (i) civil works for expressway construction and road improvement, and (ii) equipment and other facilities to be procured under the project. Review the current road maintenance, operation, and management systems. Estimate the costs of routine and periodic maintenance for the expressway and local road development components. Recommend suitable road maintenance operation and management systems and necessary equipment. Review and update the project cost estimates and indicate the foreign exchange (direct and indirect) and local currency costs, giving due consideration to the actual costs of recently awarded contracts of a similar nature in Gansu and Sichuan.

6. Review (i) current design methodology in relation to road safety; (ii) road safety monitoring system and latest accident statistics in Gansu, Sichuan, and the project area; and (iii) road safety data and management systems in Gansu and Sichuan. Design a suitable road safety component for inclusion in the project in discussion with the Executing Agency and the Provincial Public Security Bureau.

7. In cooperation with the social and poverty specialist and transport economist, explore the possibility of introducing the roadside station concept² in the service areas or other suitable areas along the expressways or other major roads as part of the project.

¹ If information about axle loads is not available, the consultants will undertake an axle loads survey along the project roads.

² The concept was developed in Japan as part of road infrastructure to contribute to local community development, and it has been adopted in Thailand with assistance from the Japan Bank for International Cooperation. See World Bank. 2004. *Guidelines for Roadside Stations*. Washington, DC.

B. Transport Economics

8. Review the current status and future plans (Tenth Five-Year Plan [10FYP] and Eleventh Five-Year Plan [11FYP] of road development in the People's Republic of China (PRC), Gansu Province, and Sichuan Province, including the project area (maps will be prepared for this purpose). Identify the role of the project in the framework of the Western Development Strategy in supporting pro-poor growth and poverty reduction in the western part of the PRC in general and Gansu Province and Sichuan Province in particular.

9. Review the revenue and expenditures in the Gansu and Sichuan road sector in the past decade and make projections for the 10FYP and 11 FYP (2001–2010). Analyze the level of expenditures for maintenance of local roads (as against expressways and national highways) in the past decade and financing plans for future maintenance. Examine the role of the road sector in the fiscal position of the province and analyze how the sector contributes to poverty reduction.

10. Review existing traffic counts and origin-destination surveys, and obtain any additional necessary information on the present pattern of traffic by vehicle type and mode in the zone of influence of the project. Assess capacity of the existing road networks and the effects of the capacity constraints on vehicle operating costs (VOCs), travel time, and patterns of transport movement.

11. Using the most recent data for each vehicle type, prepare traffic forecasts at a range of toll rates for the project for normal, generated, and diverted traffic. Traffic diversion from the railways and waterways should also be assessed, as appropriate. Based on the effect of the toll rates on traffic diversion, prepare traffic forecasts for the project at various toll rates. In developing the traffic forecasts, take into account the long-term gross domestic product and other forecasts for the PRC prepared by the Asian Development Bank (ADB).

12. Undertake economic evaluation in accordance with ADB's *Guidelines for Economic Analysis of Projects*³ for the expressway and the local road components and for the project as a whole over the construction and operation period by calculating the economic internal rate of return (EIRR). Take into account construction, operation and maintenance (O&M) costs, VOCs, passenger and freight time savings, producer surplus, accident savings, and any other quantifiable benefits attributable to the project. Undertake sensitivity analysis by appropriately varying benefits, costs, implementation period, traffic diversion, generated traffic, shadow price factor, and a combination of these factors. Calculate switching values and compare with evidence for existing expressway projects. The sensitivity analysis of the EIRR and the financial internal rate of return (FIRR) to changes in the toll rates should cover a sufficiently wide range to indicate the toll level at which (i) the EIRR falls to the cutoff rate of 12% and (ii) the FIRR reaches the maximum value. Present the result of the sensitivity analysis graphically. Carry out risk analysis⁴ using the monte carlo method by considering the possible values for key variables based on past PRC experience, and the probability with which they may occur. Recommend ways in which project risks can be reduced. With the assistance of the social and poverty specialist, carry out distribution analysis of project benefits, calculate the poverty impact ratio, and undertake a cause-and-effect analysis, following the methodology set forth in ADB's *Guidelines for the Economic Analysis of Projects*.

13. To ensure that the project achieves its envisaged objectives, develop a results-based monitoring system, using the design and monitoring framework in an ADB format, including monitoring indicators that will be used to assess project performance, and baseline and target values for the selected indicators, covering economic, transport, socioeconomic, poverty impact,

³ ADB. 2001. *Handbook for Integrating Poverty Impact in Economic Analysis of Projects*. Manila.

⁴ ADB. 2002. *Handbook for Integrating Risk Analysis in the Economic Analysis of Projects*. Manila.

environmental, and resettlement aspects. Develop a detailed monitoring framework for selected townships in the project area and a control area, and collect baseline data and target values for key indicators. Prepare implementation arrangements, including data sources and reporting mechanism.

C. Financial Analysis and Expressway Operations

14. Review and update the proposed financing plan of the project including the share of ADB, Ministry of Communications, Gansu Province, Sichuan Province, domestic banks, and other sources, as appropriate. Calculate a discounted return to equity over the project life, and assess its attractiveness to private investment. Review project cost estimates and proposed drawdown schedules as provided by the engineers. Compute price contingencies and interest and other financing charges during construction in accordance with *Guidelines for the Financial Governance and Management of Investment Projects Financed by the Asian Development Bank*. Assess and prepare financial projections for the proposed operating entity over 10 years of expressway operation, including balance sheets, income statements, and cash flow statements in nominal terms.

15. Carry out financial evaluation for the project over the construction and operation period by calculating the FIRR, using proposed toll rates, and compare it with the weighted average cost of capital (WACC). The FIRR and WACC should be computed on an after-tax basis in real terms using constant 2005 prices. In collaboration with the transport economist, determine and justify appropriate toll rates by vehicle type, taking into account the relationship between the toll rates and cost of providing the road services; and ensure consistency of approach and assumptions between financial and economic analyses activities.

16. Assess the financial management of the operating entities, including (i) corporate planning and budgetary control, (ii) financial and management accounting, (iii) cost accounting, and (iv) internal control and audit system. Suggest appropriate financial covenants to monitor financial conditionalities of the project. In light of ADB's Policy on Governance—*Sound Development Management* (1995), recommend ways to improve corporate governance of the expressway operating entity, e.g., by entering into a concession agreement with the provincial communications department.

17. Review the current status of private sector participation in expressway development and operations in Gansu Province and Sichuan Province and assess the potential for operating the project expressway as a corporation or as a concession by the private sector. Identify appropriate arrangements to implement such a strategy, considering options such as leasing, securitization, joint venture, build-operate-transfer, and other arrangements for O&M.

D. Road Transport Service

18. Assess the provision of trucking and public transport services in the project area considering pricing, quality, and frequency of service. Assess the degree of competition and the proportion of the reduced transport costs that are likely to be passed on to end users. Review the current conditions of road transport services, including passengers and freight in Gansu in general and Longnan City in particular, and examine how such services could be improved to provide efficient services in poor remote areas. Recommend suitable components, e.g., public transport center, freight distribution center, improvement of bus services, and any others, for inclusion in the project. For Sichuan Province, review the current conditions of public transport in the project area and determine the need to incorporate the public transport component into the project so as to improve services to poor remote areas.

E. Social and Poverty Analysis

19. Prepare socioeconomic and poverty profiles for the project area. Collect data through statistical records, field surveys, key informant interviews, and participatory community appraisal techniques. Include data on population, income levels, occupations, unemployment, education, health conditions, and other relevant socioeconomic data. Separate data by gender. The data and profiles should be sufficiently comprehensive to serve as the baseline for socioeconomic performance indicators. Assess poverty incidence using the government poverty lines and \$1 a day (equivalent to CNY900 per year).

20. Based on the initial poverty and social analysis, conduct a full poverty and social analysis in accordance with ADB's *Handbook on Poverty and Social Analysis*. Assess how the proposed project may help improve people's livelihood systems. Assess gender issues, identify ethnic minorities and other vulnerable groups, and recommend appropriate measures to address impacts and promote development opportunities during construction and operations of the project. Estimate (i) the number of project beneficiaries by area, occupation, and income level (poor, low, medium, and high); and (ii) the number of adversely affected people, by type of impact. If any ethnic minorities are affected, formulate special measures to safeguard their livelihood and customs. In particular, develop strategies to ensure project benefits accrue to ethnic minorities in the Gansu project area. Specify how the project will improve benefits (market access, employment opportunities, lower transport costs, reduced travel time, etc.) for local people, by income group. Recommend measures to enhance benefits and minimize adverse impacts, particularly for the poor. The cost of such measures and the means for implementation will be clearly proposed for possible incorporation into a social development action plan implemented as part of the Project.

21. Assist in establishing consultation and participatory processes during project preparation that will continue throughout project design, construction and operation. Identify stakeholders and consult representatives so that their needs and demands can be considered for incorporation into the project or as parallel initiatives.

F. Environmental Impact Assessment

22. Review the project environmental impact assessments (EIAs), as prepared by the executing agencies (EAs), to ensure they conform to ADB's *Environment Policy* (2002) and *Environmental Assessment Guidelines* (2003). Assist the EAs to carry out further investigations and analysis, as required, to ensure that the EIAs conform to the above ADB policies and guidelines. Finalize the EIAs by incorporating comments from ADB. Also prepare summary EIAs (SEIAs) in accordance with ADB's *Environmental Assessment Guidelines* (2003).

23. Ensure that each EIA includes (i) description of the project; (ii) description of the environment, including physical resources, ecological resources, economic development, and social and cultural resources; (iii) assessment of project alternatives; (iv) anticipated environmental impacts (direct, indirect, induced, and cumulative) and mitigating measures; (v) economic assessment; (vi) environmental management plan, including institutional management and mitigating measures for identified environmental impacts; (vii) environmental monitoring plan; and (viii) public consultation and information disclosure.

24. Based on a preliminary environment scoping, assess the major specific environmental concerns, including (i) impacts on surface water, (ii) impacts on groundwater, (iii) impacts on air quality, (iv) soil erosion, and (v) impacts of construction activities on the community. Estimate the costs of implementing the proposed environmental mitigating measures and the environmental monitoring plan. Assess the level of costs against expected environmental benefits, where possible, in a quantifiable manner. Assist the highway engineers in incorporating appropriate

environmental mitigating measures into the project design; make recommendations on the environmental training requirements. Prepare contractor specifications for environmental management and monitoring. Prepare the terms of reference and budget for independent environment monitoring and evaluation.

25. Assist the EAs in conducting appropriate public consultation, as required, in accordance with ADB's requirements. Public consultation and disclosure for this project (category A) requires (i) public consultation on environmental issues during the early stages of EIA fieldwork, and (ii) public consultation on environmental issues when the draft EIA report is available, and prior to loan appraisal by ADB. Ensure that the EIA includes proposed measures for public consultation during project construction and operation.

G. Resettlement Planning

26. Review the draft resettlement plan (RPs) and prepare modifications, as required, to comply with ADB's *Involuntary Resettlement Policy* (1995), *Handbook on Resettlement* (1998), and other relevant requirements. The RPs should address all project components including the expressway, local roads, access roads, and construction areas. Review the results of the socioeconomic profiles, village surveys and household surveys conducted by the EA (data should be disaggregated by gender). Quantify the types and degree of impacts on the affected people, including income levels and sources, housing conditions, occupations, expenditure patterns, landholdings, skills base, and assets (production and living). Assess the socioeconomic condition, needs, and priorities of women affected by land acquisition and resettlement; and identify specific measures to assist them and ensure that land acquisition and resettlement do not disadvantage women.

27. Document in each RP the extent to which the project design and alignment have avoided or minimized land acquisition and displacement of people and businesses. Include in the RPs village-level impact assessment of project-affected people, land, assets, and occupations. Identify potential impoverishment risks and vulnerable groups, including those severely affected through loss of land, those with low income, and others (e.g., the disabled, the elderly, ethnic minorities, unemployed, illiterate, women, children) and develop special mitigating measures, as required.

28. Assess the policy and legal framework for resettlement, identify any gaps between ADB and PRC policies and propose measures to bridge the gap. In collaboration with the EA and local government officials, define impact categories and compensation eligibility of affected people, and prepare an entitlements matrix covering compensation and other assistance for all types of impacts to achieve full replacement for lost assets, income, and livelihood systems.

29. Assist the EAs and expressway companies to prepare a public consultation and disclosure plan, develop a format for documenting consultation with affected people, and initiate a participatory process for RP preparation and implementation among affected communities, local leaders, proponents, and other stakeholders. Assist the EAs to prepare a resettlement information booklet for distribution to all affected villages and households.