Report and Recommendation of the President to the Board of Directors

Project Number: 42496
February 2009

Proposed Loan
People’s Republic of China: Emergency Assistance for Wenchuan Earthquake Reconstruction Project

Asian Development Bank
CURRENCY EQUIVALENTS
(as of 12 February 2009)

Currency Unit – yuan (CNY)
CNY1.00 = $0.1463
$1.00 = CNY6.8337

The exchange rate of the yuan is determined under a floating exchange rate system. The rate used in this report is $1.00 = CNY6.8200, which was the prevailing rate during project fact-finding.

ABBREVIATIONS

ADB – Asian Development Bank
AP – affected person
EA – executing agency
EARF – environmental assessment and review framework
EIA – environmental impact assessment
EIAR – environmental impact assessment report
EIRT – environmental impact registration table
EMP – environmental management plan
IA – implementing agency
ICT – information and communication and technology
IEE – initial environmental examination
LIBOR – London interbank offered rate
PMO – project monitoring office
PRC – People’s Republic of China
SOE – statement of expenditure
SPCD – Sichuan Provincial Communications Department
TA – technical assistance

WEIGHTS AND MEASURES

km – Kilometer
km² – square kilometer
m – Meter
m² – square meter

NOTES

(i) The fiscal year (FY) of the Government and its agencies ends on 31 December. “FY” before a calendar year denotes the year in which the fiscal year ends, e.g., FY2008 ends on 31 December 2008.

(ii) In this report, “$” refers to US dollars.
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A. Government's Overall Reconstruction Plan
B. Detailed List of Contract Packages
C. Resettlement Framework
D. Environmental Assessment and Review Framework
**LOAN AND PROJECT SUMMARY**

**Borrower**
People’s Republic of China (PRC)

**Classification**
- Targeting classification: General intervention
- Sector: Multisector (Transport, education)
- Subsectors: Road transport, education sector development
- Themes: Economic growth, social development
- Subthemes: Widening access to markets and economic opportunities, human development

**Environment Assessment**
Category B. A summary initial environmental examination was undertaken (Appendix 15).

**Project Description**
The Project comprises two components: (i) reconstruction and upgrading of damaged roads and bridges in Sichuan and Shaanxi provinces, and (ii) reconstruction and improvements of damaged schools in Shaanxi Province. The Project will rehabilitate and reconstruct 368 high-priority earthquake damaged roads in the nineteen worst-affected counties of Sichuan Province and 10 subprojects in the four worst-affected counties of Shaanxi Province. The Project will rehabilitate and reconstruct 12 high-priority earthquake-damaged education facilities in the three worst-affected counties in Shaanxi Province. These components are designed to be mutually supporting in achieving the overall objective of restoring the affected communities’ access to infrastructure to pre-earthquake levels, and ensuring restored infrastructure is in strict compliance with the latest seismic code.

**Rationale**
Based on the Government’s damage and needs assessment and the request of the PRC Government, the Project identifies specific sectors requiring emergency assistance in two of the worst earthquake-affected provinces (Sichuan and Shaanxi). The Project seeks to (i) build on the immediate relief provided by the Government in the earthquake-affected provinces; (ii) contribute to coordinated rehabilitation and reconstruction by different development partners and the Government; and (iii) specifically address sustainable recovery priorities by providing indirect livelihood support through public infrastructure rehabilitation and reconstruction, which generates public employment and underpins the restoration of livelihood activities by rehabilitating roads, bridges, and schools. The project design draws on the Asian Development Bank (ADB) experience in delivering emergency assistance acquired in different developing member countries over the past two decades, and complements relief and other rehabilitation and reconstruction assistance provided by the Government, United Nations agencies, nongovernment organizations, bilateral development partners, and the World Bank.
By meeting the earthquake reconstruction needs of the next 3 years, the Project is consistent with ADB’s Disaster and Emergency Assistance Policy (2004). The Project supports The State Overall Plan for Post-Wenchuan Earthquake Restoration and Reconstruction approved by the Government on 19 September 2008.

**Impact and Outcome**

The impact of the Project is accelerated restoration of education and transport infrastructure in earthquake-affected areas of Sichuan and Shaanxi provinces. The Project will support the Government’s efforts to (i) restore the livelihoods and economic activities of the affected population; (ii) accelerate poverty alleviation in the earthquake-affected counties, many of which have a high incidence of poverty; and (iii) rehabilitate and reconstruct public and community-based infrastructure that is vulnerable to natural disasters. The outcome of the Project is restoration of people’s access to transport and education infrastructure to pre-earthquake levels in 19 counties of Sichuan and four counties of Shaanxi provinces.

**Project Investment Plan**

The total project cost is estimated at $441.6 million equivalent.

**Financing Plan**

A loan of $400 million from ADB’s ordinary capital resources will be provided under ADB’s London interbank offered rate (LIBOR)-based lending facility. The loan will have a grace period of 8 years with a maturity period of 32 years, an interest rate determined in accordance with ADB’s LIBOR-based lending facility, a commitment charge of 0.15% per annum, and such other terms and conditions set forth in the draft loan and project agreements.

**Period of Utilization**

Until 30 June 2012

**Estimated Project Completion Date**

31 December 2011

**Implementation Arrangements**

As the Project is for emergency assistance, implementation will start immediately after approval and be completed within 36 months.

**Executing Agency**

Sichuan Provincial Communications Department in Sichuan Province; and Hanzhong city government and Baoji city government in Shaanxi Province

**Implementing Agencies**

Sichuan Highway Administration Bureau in Sichuan Province; and county-level highway administration bureaus for roads and bridges, and county-level education bureaus for schools in Shaanxi Province.
**Procurement**

Procurement of goods, services, and works will be carried out in accordance with ADB *Procurement Guidelines* (2007, as amended from time to time) and the contemplated implementation schedule. ADB’s procedure for providing reconstruction assistance after disasters allows for flexibility so that project activities can start promptly. National competitive bidding procedures will be the preferred procurement mode.

**Consulting Services**

A total of 1,698 person-months of national construction supervision consultant services will be used to monitor project implementation of civil works, environmental protection, resettlement, and project performance.

**Project Benefits and Beneficiaries**

The Project will bring benefits to the project area by (i) reconstructing and improving road conditions and accessibility in townships and villages in Sichuan and Shaanxi provinces, (ii) reconstructing and improving 12 schools in Shaanxi Province, and (iii) creating local employment opportunities from project construction and related activities. The Project will provide equal benefits to females and males.

The economic benefits of the rural roads and bridges include (i) savings in vehicle operating costs as a result of improved traffic and road conditions, (ii) time savings for rural road users, (iii) savings in road accident costs as a result of fewer accidents, and (iv) economic benefits from generated traffic. The reconstruction and upgrading of rural roads in Sichuan and Shaanxi provinces will benefit about 5.6 million people, three-quarters of whom are rural and one-third of whom are poor. As reliable transport to markets becomes more readily available, cash crop farming in remote or isolated areas will be stimulated and access to off-farm employment opportunities will be broadened.

The Project will focus on reconstruction of and improvements to 12 model schools to appropriate design standards, including six junior secondary and six primary schools. This will bring immediate benefits to the schools’ 16,600 students (including more than 8,000 female students), and long-term benefits to future students drawn from the 460,000 residents of the areas serviced by the schools, about 40% of whom are from rural areas of remote counties.

The Project will contribute to the Government’s efforts to rebuild the economy, rehabilitate public infrastructure and utilities, reinstate seismic code compliance, and generate employment. The rehabilitation and reconstruction of damaged schools will enable education services to be restored, and will offer long-term benefits for affected persons by supporting opportunities for employment and participation in economic activities.
**Risks and Assumptions**

Implementation risks related to capacity for timely delivery of quality subprojects in the two sectors will be mitigated in several ways. Specific monitoring mechanisms to supervise implementation will include regular design and construction supervision as well as financial audits. To undertake such supervision, the executing agencies will be supported by dedicated project monitoring offices and consulting inputs. Another potential risk could be the lack of experience of the implementing agencies with ADB procedures. This will be mitigated through tailored training for the implementing agencies on ADB procedures immediately after the Project becomes effective. ADB will provide continuous support and supervision of project implementation to the implementing agencies, including conducting special review missions, if required.

**Technical Assistance**

The Government requested technical assistance (TA) grant support for capacity building for Wenchuan earthquake reconstruction. The TA grant support will have three components. TA grant support for project implementation will provide capacity-building assistance to the executing and implementing agencies to enable speedy and smooth implementation, particularly with respect to procurement, disbursement, monitoring, and quality control. TA for the education component will involve (i) establishment of two model schools, focusing on information and communication technology and on natural sciences; (ii) development of training materials, and provision of in-service training of teachers, including in areas such as student-centered learning; and (iii) capacity building of the teachers in the worst-affected counties. In the transport sector, the TA will provide capacity building regarding (i) road construction quality in remote and mountainous areas, and (ii) sustainable rural road operation and maintenance systems.
EMERGENCY ASSISTANCE FOR WENCHUAN EARTHQUAKE RECONSTRUCTION PROJECT IN THE PEOPLE'S REPUBLIC OF CHINA
I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on a proposed loan to the People's Republic of China (PRC) for the Emergency Assistance for Wenchuan Earthquake Reconstruction Project. The report also describes the proposed technical assistance (TA) for Providing Capacity Building Support for Wenchuan Earthquake Reconstruction and, if the Board approves the proposed loan, I, acting under the authority delegated to me by the Board, will approve the TA. The design and monitoring framework for the Project is in Appendix 1.

II. RATIONALE: SECTOR PERFORMANCE, PROBLEMS, AND OPPORTUNITIES

A. Natural Disasters in the People’s Republic of China

2. The PRC has both a very large population (1.3 billion in 2005) and a vast land area. The country’s complex climatic and varied geological conditions make it prone to many types of natural disasters, such as earthquakes, typhoons, floods, and snowstorms. Mountainous areas account for about 70% of the land area, and the nature of the PRC’s mountains, rivers, and valleys give rise to many geological and hydro-meteorological hazards, including frequent landslides, mudslides, and other geological hazards. The PRC is often affected by storm surges, cross-border biological hazards, forest and grassland fire hazards, and other significant hazards such as drought. PRC has a history of serious natural disasters of various types; disasters occur with high frequency over a wide geographical area, and often result in significant, widespread damage in densely populated areas.

3. The PRC has suffered more than 50 earthquakes of magnitude 7 or greater over the last 50 years. Four of these exceeded magnitude 8. More specifically, Sichuan Province itself is particularly prone to hazardous earthquakes. Records showed that six major earthquakes measuring magnitude 6.7–7.9 occurred in Sichuan Province between 1933 and 1989.

B. Earthquake in Wenchuan (Sichuan Province)

4. The massive earthquake—measuring magnitude 8.0—struck the southwest area of the PRC on 12 May 2008. The epicenter was in Wenchuan County, 92 kilometers (km) northwest of the Sichuan provincial capital of Chengdu. The earthquake affected a vast area, including 10 provinces (Sichuan, Shaanxi, Gansu, Chongqing, Yunnan, Hubei, Guizhou, Henan, Shanxi, Hunan); 417 counties (cities and districts); 4,667 towns; and 48,810 villages. The total disaster area covered 500,000 square kilometers (km²), in which the 51 worst-affected counties (cities and districts) in Sichuan, Shaanxi, and Gansu provinces covered 130,000 km². The Wenchuan earthquake had a high intensity with a large number of aftershocks. According to China's Seismic Network, 33,000 aftershocks were monitored in the main earthquake area between 12 May and 21 October 2008, including over 600 aftershocks measuring magnitude 4.0 and above, 60 aftershocks measuring magnitude 5.0 and above, and seven measuring magnitude 6.0–6.9.

5. The earthquake-affected areas in Sichuan, Shaanxi, and Gansu provinces are mainly mountainous and hilly, and the altitude across most of the area is high. These conditions...

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1 Earthquake magnitude is a quantitative measure of the wave amplitude an earthquake generates, and hence is a measure of its size. An increase of 1.0 in magnitude results in a 10-fold increase in the waveform amplitude and about a 31-fold increase in the energy released. Earthquake intensity is a qualitative measure of the actual shaking at a location during an earthquake, and is typically based on three features: (i) perception by people and animals, (ii) performance of buildings, and (iii) changes to natural surroundings.
caused secondary disasters, such as landslides, collapse and mud-rock flows. For example, the
earthquake resulted in many large-scale barrier lakes, which for a time threatened thousands of
people living at lower elevations in Mianyang county in Sichuan Province. The secondary
geological disaster caused by the earthquake had a widespread, profound and sustained impact
on the earthquake disaster-affected region. The disaster-affected region includes both
economically less-developed and impoverished regions and also more advanced regions, such
as the high-tech industrial zones of Chengdu, Deyang, and Mianyang.

C. The Government's Response

6. The State Council set up an earthquake disaster relief headquarters as soon as the
Wenchuan earthquake was reported. The premier assumed the post of commander-in-chief and
personally directed the disaster response and relief through nine working teams. Under the
guidance of the State Council, different government agencies worked with the local
governments to provide relief in disaster-affected areas. CNY27.5 billion was allocated for
disaster relief by the central Government, and this was supplemented by assistance provided by
provincial and local governments.

7. Financial assistance included a solatium of CNY5,000, which was provided for each
deceased person; a subsidy of CNY28,000, provided for the seriously injured; and a special
relief subsidy of CNY600 per month, which is being provided for orphans, the elderly, and
handicapped people. The Government provided a subsidy of CNY10,000 to farmers whose
houses were severely damaged, which was supplemented by the local government. The
Government also established a system of counterpart restoration and reconstruction support,
with provinces helping heavily affected counties—each province provided 1% of their revenue
over the last financial year to support reconstruction and rehabilitation in a heavily affected
county.

8. For the first time, the Government requested support from the local and international
community, and donations totaled CNY59.5 billion. The international community responded
quickly after the Wenchuan earthquake, and provided emergency assistance and support to the
PRC for the initial rescue efforts. The assistance from the international community was mainly
focused on providing funds and relief supplies, sending rescue and medical teams, and
providing technical support.

9. The three severely affected provinces (Sichuan, Shaanxi, and Gansu) responded quickly
to the disaster, and took effective measures to save affected persons (APs). The three
provincial governments launched a multi-level (provincial, city, and county) contingency plan to
facilitate rapid and effective rescue and relief activities in the affected areas. Local governments
organized search and rescue teams to rescue the people trapped in the collapsed structures
and isolated, remote mountainous areas (in Sichuan alone 84,017 people were rescued from
collapsed structures and 1.49 million were rescued from isolated mountainous areas and then
relocated); medical teams and ambulances were organized to rescue the wounded; medicines,
food supplies, milk powder, drinking water, tents, clothing, quilts, and other urgently needed
supplies were delivered to the affected areas; quick action was taken to restore critical
infrastructure such as water and power supplies, roads, bridges and telecommunications; urgent
measures were taken to reduce risks from the dangerous reservoirs that had formed; and
relocated people were provided with tents, food, drinking water, clothes, and other basic needs,
and arrangements were made to treat people with post-disaster psychological distress.
D. Damage and Needs Assessment

10. After the earthquake, the Government issued a regulation on 8 June 2008 on post-Wenchuan earthquake disaster recovery and reconstruction and formed a working team headed by the National Development and Reform Commission (NDRC) to conduct damage and needs assessments for infrastructure restoration and post-disaster reconstruction. Local and provincial governments collected damage data from counties, prefectures, and provinces, which was then consolidated by the Ministry of Civil Affairs (MCA). NDRC worked with the line ministries to prepare an overall reconstruction plan, which was made available via the internet for comments from the general public and other stakeholders. The Asian Development Bank (ADB) and other development partners were also invited to provide comments on the plan. The Government’s overall reconstruction plan (Supplementary Appendix A) was approved by the State Council on 19 September 2008.

11. In addition, the Government requested that ADB provide TA to support the emergency response to the Wenchuan earthquake. The TA included a component to conduct a preliminary assessment of the damage and needs of the social and physical infrastructure, drawing from the Government’s own assessment, and draw up a prioritized list of ADB programs and projects to assist reconstruction and recovery within the affected region. ADB consultants worked closely with the MCA and conducted an assessment of the impacts on social and infrastructure sectors—including urban and rural housing, public facilities, infrastructure, agriculture and ecology, industry, and public and commercial services—using relevant assessment criteria and standards. The summary of the damage and needs assessment is in Appendix 2.

12. In addition to the TA, ADB fielded a reconnaissance mission on 11–15 October 2008 and a fact-finding mission on 19–27 November 2008 to Sichuan and Shaanxi provinces to get first-hand knowledge for the preliminary damage and needs assessment, assess the scale of damage caused by the earthquake, and meet with different stakeholders.

E. Impact of the Earthquake

13. The Wenchuan earthquake caused extensive damage and heavy losses, mainly in Sichuan, Shaanxi, and Gansu provinces; and caused some damage in another seven provinces. The impacts of the earthquake were devastating—as of 25 September 2008, of the 46.25 million affected people, 69,227 were dead, 374,643 were injured, 17,923 were missing, and 1.5 million people had been evacuated. About 8 million homes were destroyed and 24.5 million damaged, and 17,951 educational institutions were destroyed or damaged. Transport, infrastructure, power supply, water and sanitation facilities, critical infrastructure such as hospitals and clinics and lifeline facilities, and communications were destroyed or badly damaged throughout the affected region. A large number of rural and urban houses collapsed, infrastructure facilities were damaged on a large scale, agriculture and industry suffered heavy losses, and there was severe environmental destruction. The earthquake caused high altitude landslides, rock falls, and debris flows, and formed barrier lakes. The total direct economic loss caused by the Wenchuan earthquake is estimated at CNY852,309 million; losses in Sichuan, Shaanxi, and Gansu provinces are estimated at CNY845,136 million (99.16% of the total).

14. The disaster’s financial impact represents 3.3% of the country’s gross domestic product for the 2007 fiscal year, and obviously impacts the country’s economy. The earthquake was the

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second significant disaster to hit the PRC in 2008 (after the snow disaster in the southern provinces). In addition, indirect losses from the Wenchuan earthquake could be much higher than estimated above, due to the nature and scale of the damage and loss incurred.

1. Estimated Damages and Reconstruction Costs

15. Losses totalled CNY771.8 billion in Sichuan, CNY50.5 billion in Gansu, and CNY22.8 billion in Shaanxi province, with Sichuan accounting for 91.32% of the total. Losses in the three provinces’ social sectors equalled CNY465.3 billion (55.05% of total losses), and in infrastructure CNY188.1 billion (22.26%).

16. The total reconstruction cost for the 51 more severely affected counties (cities and districts) in Sichuan, Shaanxi, and Gansu provinces is estimated at around CNY1 trillion. The Central Post-quake Restoration and Reconstruction Fund established by the Government is expected to cover 30% of the total reconstruction cost. Nineteen provinces have set up partnerships with 24 counties in Sichuan, Shaanxi, and Gansu to provide in-kind assistance over a 3-year period to their counterparts, equal to not less than 1% of their budgetary financial revenues during 2007.

2. Impacts on Transport and Education Sectors

17. Transportation. Transportation infrastructure, which consists mainly of road and railway systems, suffered losses of CNY87.39 billion, including CNY66.69 billion in road and CNY20.70 billion in railway systems. An estimated 7,073 roads (40,012 km), 4,989 road bridges, and 158 road tunnels were damaged. Most damage was in Sichuan Province. The Chengdu–Mianyang highway, Mianyang–Guangyuan highway, Ya’an–Shimian highway and most of the national/provincial roads within Aba Prefecture were completely blocked as a result of the earthquake. The damaged railway system included 4,026 km of railway lines, 377 railway tunnels, 1,280.9 km of power lines, 83 items of electrical equipment, and 52 locomotives. Some major railway stations such as Mianyang, Guangyuan, Jiangyou, and Deyang were seriously damaged.

18. Transportation losses totaled CNY74.79 billion in Sichuan Province, CNY7.23 billion in Gansu Province, and CNY5.37 billion in Shaanxi Province. Road systems losses equaled CNY58.33 billion in Sichuan, CNY7.07 billion in Gansu, and CNY1.29 billion in Shaanxi. Losses in the railway systems totaled CNY16.46 billion in Sichuan, CNY162 million in Gansu, and CNY4.08 billion in Shaanxi. The transport sector assessment and proposed assistance is in Appendix 3.

19. Education. The earthquake had a devastating impact on the delivery of all social services in the affected areas. In addition to destruction or serious damage to physical facilities, many care providers (including teachers and other school staff) suffered death or serious injuries. Educational institutions at all levels—from primary schools to degree colleges—suffered substantial damage, with a total of 17,951 fully or partially damaged educational institutions, including 12,253 in Sichuan Province, 5,455 in Shaanxi Province, and 243 in Gansu Province. The counties with the most fully destroyed basic schools are Mao (153), Pingwu (137), Wenchuan (129), and Beichuan (83). Losses of education sector are estimated at CNY4,676 million.

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3 As estimated by the overall reconstruction plan, approved by the State Council on 19 September 2008.
20. Before the earthquake (at the end of 2007), Shaanxi Province had 18,953 primary and secondary education facilities, which were adequate for its population of around 37 million, and provided coverage to the province’s urban and rural population. The earthquake affected 40 counties in Shaanxi province, and four—Chenchang, Lueyang, Mian Xian, and Ningqing—were particularly hard hit; about 25% of all schools in Shaanxi (5,455 schools) were damaged. A large number of schools are at risk of collapsing as a result of the significant damage they sustained. The affected schools occupy 3.65 million square meters (m²) and the economic losses in Shaanxi’s education sector constitute CNY2.2 billion. The cost of reconstructing lost assets and restoring education services is estimated to be CNY5.7 billion. The education reconstruction needs are enormous and will take a substantial amount of time. The Government is already financing the reconstruction of 117 schools that will occupy 0.84 million m² and will cost CNY1.65 billion. The social sector assessment and proposed assistance is in Appendix 4.

F. Response of Development Partners

21. The international community responded quickly after the Wenchuan earthquake, and a total of 171 countries and over 20 international organizations provided emergency assistance and support, including funds and relief supplies, to the PRC. The United Nations and relevant international organizations were very concerned about the impact of the earthquake, and the United Nations set up a special fund to support the Government’s relief efforts.

22. On 1 November 2008, the State Council approved the use of emergency assistance loans from various international financial institutions for post-earthquake reconstruction, and $1.5 billion in loans have been requested by the Government from the various international financial institutions and bilateral donors. These will be allocated as grants to Sichuan, Shaanxi, and Gansu provinces for reconstruction, with the Government responsible for loan repayment.

23. The $1.5 billion in loans includes requests for (i) a loan from the World Bank of $710 million, of which $510 million is allocated to Sichuan for reconstruction of urban and public health facilities, and $200 million to Gansu for reconstruction of education facilities; (ii) a loan from ADB of $400 million, of which $300 million is for Sichuan for rural road reconstruction and $100 million for Shaanxi for reconstruction of rural roads and bridges and primary and middle schools; (iii) a loan from Agence Française de Développement of $200 million for urban infrastructure reconstruction and biogas facility restoration in Sichuan; (iv) a loan from International Fund for Agricultural Development (IFAD) of $30 million and a grant of $1.5 million for biogas facilities restoration in Sichuan; and (v) a loan from the European Investment Bank of $160 million for ecosystem restoration in Sichuan.

G. ADB’s Strategy and Response

24. ADB’s strategy under its Disaster and Emergency Assistance Policy⁴ is to support national and provincial governments and other stakeholders to overcome exogenous shocks caused by calamities to enable early restoration of economic and social activity in affected areas, especially by the poor. The strategy is designed to ensure that emergency assistance projects provide a bridging function to ameliorate the impacts of the disaster and dovetail into the development process by selecting the highest priority needs for emergency assistance in consultation with the central government, provincial and local governments, civil society, and other stakeholders, including other donors.

25. After receiving the request for emergency assistance from the PRC Government, ADB immediately provided TA of $1 million to PRC for providing emergency response to the Wenchuan earthquake. The TA provided support for the Government’s initial rehabilitation and restoration efforts in the earthquake disaster-affected areas. The TA also provided the opportunity to (i) assist the Government review the existing national disaster management system framework, with specific reference to the Wenchuan earthquake; (ii) conduct a preliminary assessment of the damage and needs of the social and physical infrastructure, based on the Government’s own assessment; and (iii) prepare a prioritized list of ADB programs and projects that will assist reconstruction and recovery within the affected region. ADB provided three policy notes to the Government on (i) recommendation for dealing with the transition from disaster response to recovery, (ii) post disaster rehabilitation and reconstruction, and (iii) key issues for developing earthquake insurance in the PRC. These notes highlighted key lessons from international experience and made recommendations for possible adoption by the Government. ADB is also providing TA for promoting public and private participation in disaster risk management.

H. Lessons

26. Lessons in Disaster Response. The earthquake impact issues that constrain the recovery of affected provinces confirm the importance of lessons drawn from previous ADB emergency assistance and ADB policies. This is the first emergency assistance loan to be processed for the PRC under ADB’s Disaster and Emergency Assistance Policy. General lessons can be drawn from past experience with projects developed for other developing member countries (DMCs) under this policy. The ongoing TA also identifies key lessons, which are also taken into consideration.

27. A review of ADB-wide experience with emergency rehabilitation assistance indicates the following essential factors: (i) projects must be prepared as quickly as possible; (ii) projects should focus on restoring facilities; (iii) to the extent possible, rehabilitation works should be completed within 2–3 years; (iv) as implementation places a heavy burden on executing agency staff, strong ADB supervision is needed during implementation; and (v) efforts should be made to ensure that ADB’s rapid response to disasters is matched by equally quick government action. Lessons from ADB’s earlier emergency projects include the following: (i) beneficiary participation must be ensured and increased in project preparation and implementation, especially in the maintenance of facilities; (ii) environmental and social aspects should be considered during project implementation, even though the need for a rapid response may not permit a detailed treatment of these issues prior to the approval of the assistance;

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5 The TA is ongoing (footnote 2).
(iii) arrangements for disbursement, including retroactive financing and the use of imprest accounts, should be utilized to give the executing agencies quick and simple access to funds; (iv) the project objectives and scope need to be carefully defined; and (v) criteria for subproject selection should include simple prioritization of subprojects and short implementation periods.

28. The Wenchuan post-earthquake reconstruction is a major investment. The Government should ensure reconstructed public and private buildings and infrastructure are protected from various types of hazards. A review of Wenchuan earthquake experience\(^9\) reveals that lessons from the damage should be fed into reconstruction planning, and future risks reduced through improved building standards and design. The safety of public buildings such as schools is particularly important, and risks should be reduced through strict adherence to the new construction standards. The primary lesson is that new buildings, including schools, need to be designed to withstand seismic shocks and built to a higher quality. Future compliance with the new construction code will require strong enforcement. During the reconstruction phase, the repair of damaged buildings needs to include seismic strengthening.

29. The lessons and experiences of current relief and recovery coordination should be used to develop an appropriate disaster-management mechanism and authority, as well as a national plan that clarifies the roles and responsibilities of different government agencies and strengthens coordination among them. Risk management education and training of staff from appropriate agencies would greatly improve risk management in the country. Primary and secondary schools should raise risk awareness through the curriculum. Incorporating risk-mitigation safety measures into the basic training of engineers, contractors, and builders should also be considered as part of the reconstruction process. A major public awareness campaign on risks, preparedness, and vulnerability reduction should be implemented as soon as possible.

30. These lessons have been considered and incorporated in the design of the proposed Project. The Project being designed has three principles: simplicity, flexibility, and ease of implementation. With an implementation period of 36 months, the Project focuses on the immediate rehabilitation of physical and social infrastructure in the affected areas to facilitate the restoration of livelihoods. The proposed Project has been prepared based on detailed discussions with APs and other stakeholders, and visits to the affected project sites. The Project will complement assistance from government agencies and other multilateral and bilateral agencies and donors.

I. Rationale

31. Based on the Government’s damage and needs assessment and the request of the Government, the Project identifies specific sectors requiring emergency assistance in two of the worst earthquake-affected provinces in the PRC. The Project seeks to (i) build on the immediate relief provided by the Government in the earthquake-affected provinces; (ii) contribute to coordinated rehabilitation and reconstruction by different development partners and the Government; and (iii) specifically address sustainable recovery priorities by providing indirect livelihood support through public infrastructure rehabilitation and reconstruction, which generates public employment and underpins the restoration of livelihood activities by rehabilitating roads, bridges, and schools. The Project will contribute to reversing the devastating impact of the Wenchuan earthquake and to reviving economic activity, and enable people to resume and improve their livelihoods and return to normal life. This will be achieved

primarily by rehabilitating and reconstructing damaged and destroyed infrastructure as quickly as possible, which will particularly assist the poor and other vulnerable people.

32. The project design draws on ADB experience in delivering emergency assistance acquired in different DMCs over the past two decades, and complements relief and other rehabilitation and reconstruction assistance provided by the Government, United Nations agencies, nongovernment organizations, bilateral development partners, and the World Bank. By meeting the earthquake reconstruction needs of the next 3 years, the Project is consistent with ADB’s *Disaster and Emergency Assistance Policy*. The Project supports the overall reconstruction plan approved by the Government on 19 September 2008.

III. THE PROPOSED PROJECT

A. Impact and Outcome

33. The impact of the Project is the accelerated restoration of the education and transport infrastructure in the earthquake-affected areas of Sichuan and Shaanxi provinces. The Project will support efforts of the Government of the PRC to (i) restore the livelihoods and economic activities of the affected population; (ii) accelerate poverty alleviation in the earthquake-affected counties, many of which have a high incidence of poverty; and (iii) rehabilitate and reconstruct public and community-based infrastructure vulnerable to natural disasters. The outcome of the Project is restoration of people’s access to transport and education infrastructure to pre-earthquake levels in 19 counties of Sichuan Province and four counties of Shaanxi Province.

B. Outputs

34. The Project comprises two components: (i) reconstruction and rehabilitation of damaged roads and bridges in Sichuan and Shaanxi provinces, and (ii) reconstruction and rehabilitation of damaged schools in Shaanxi Province. These components are designed to operate in a mutually supportive fashion to achieve the overall objective of mitigating earthquake losses to the affected communities and providing urgent rehabilitation and reconstruction of priority education and transport infrastructure assets in strict compliance with latest seismic codes.

35. **Transportation Component.** The Project will rehabilitate and reconstruct 368 high-priority earthquake-damaged roads (about 3,500 km in length) in nineteen of the worst-affected counties of Sichuan Province and 10 subprojects (about 317 km in length) in four of the worst-affected counties of Shaanxi Province. Reconstruction will provide improved seismic designs, and will be undertaken with the adoption of appropriate and cost-effective earthquake-resistant design and construction standards. A general principle of “build back better” will be followed and roads will be constructed to a standard that is one level higher than existed previously.

36. **Education Component.** The Project will rehabilitate and reconstruct 12 high-priority earthquake-damaged education facilities in the three of the worst-affected counties in Shaanxi Province. Reconstruction will adopt improved earthquake-resistant design. Some essential furniture and equipment will also be procured for selected reconstructed and repaired schools. The “build back better” principle will be followed and rebuilt schools will be of better quality and design, and include ancillary facilities—e.g., dormitories, dining rooms, reading rooms, and toilet facilities—as part of the new construction.

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10 These are preliminary estimates and the number of subprojects may be adjusted based on cost considerations.
C. Special Features

37. A number of special features have been agreed to with the Government and are included in the project design.

(i) **ADB grant assistance to provincial governments.** For the first time, the ADB loan will be provided as a grant by the central Government to the provincial governments of Sichuan and Shaanxi. This represents a departure from past practice, thus enabling the provincial governments to utilize ADB assistance for non-revenue generating projects such as rural roads and schools.

(ii) **People-centric approach.** The earthquake affected a number of mostly poor and vulnerable people, and a people-centric approach to the Project has been adopted, with participatory project preparation. Extensive consultations were held with local villagers, local governments, transport users, school children, teachers, and other stakeholders. These consultations helped in (a) understanding opinions regarding the proposed Project; (b) conducting the environmental, economic, and social assessments; and (c) identifying the role of the various stakeholders. The Project has been prepared to enhance project benefits; ensure adverse impacts are avoided or mitigated; and ensure economic development benefits the poor, women, and the vulnerable in an equitable and sustainable manner. Leading groups for implementing the Project have been formed in the counties, with participation by relevant government agencies, including poverty reduction offices; the All-China Women's Federation; and health, civil affairs, and ethnic affairs bureaus. Local governments have provided assurance that consultations to implement the Project will continue, particularly regarding social and environmental aspects.

(iii) **Build back better.** This principle will be applied to both components. The intervention will typically replace preexisting assets, and hence will be reconstructed to the latest appropriate technical, earthquake-resistant standards. Rural roads will be built to one standard higher (unclassified to class IV, class IV to class III, and class III to class II); and ADB-financed schools will benefit from consolidation and will be developed as model schools with three general principles: (a) making education in these schools more modern by adopting modern teaching aids, better equipped science laboratories, and establishing multimedia labs; (b) making education for children more enjoyable by providing better infrastructure and services (dormitories, dining rooms, reading rooms, and toilet facilities); and (c) providing capacity building support to the teachers.

(iv) **Simple, flexible, and easy to implement.** The Project has been processed under ADB’s *Disaster and Emergency Assistance Policy*. The procedures for project loan processing, procurement, disbursement, consultant engagement, subproject selection, and the type of works to be done reflect this flexibility, without compromising on quality, transparency, and safeguards. The Project is designed to ensure proper targeting, subproject control and monitoring, and community participation while addressing local area resource and capacity constraints. ADB will focus on ensuring that the project implementation is efficient, effective, and expedient.
Cooperation and collaboration. The Project has been prepared through close consultation with other development partners such as World Bank\(^{11}\) and Agence Française de Développement.\(^{12}\) The project design and implementation arrangements are aligned to the maximum extent possible with the prevailing system in the PRC to minimize the administrative burden on the Government.

Building capacity at local level. Most ADB transport support has been at the provincial level. The Project will be implemented at the county level and thus seeks to build county capacity. Because of the Project’s urgency, ADB will organize a startup training workshop for each province to help county officials understand ADB’s project implementation requirements with respect to financial management, procurement and disbursement. Follow-up assistance in the form of capacity-building support to implementing agencies (IAs) to facilitate smooth and speedy project implementation will be provided by consulting services financed through the TA. Capacity-building support will also be provided to the teachers in the earthquake-affected counties.

D. Project Investment Plan

38. The total project cost is estimated at $441.6 million equivalent, including taxes and duties, interest during implementation and other charges. Table 1 summarizes the project investment plan; the detailed cost estimates are in Appendix 5.

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sichuan</td>
<td>Shaanxi</td>
<td>Total Cost</td>
</tr>
<tr>
<td>A. Base Cost(^{a})</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Transport Component</td>
<td>295.5</td>
<td>63.2</td>
<td>358.7</td>
</tr>
<tr>
<td>2. Education Component</td>
<td>0.0</td>
<td>19.7</td>
<td>19.7</td>
</tr>
<tr>
<td>Subtotal (A)</td>
<td>295.5</td>
<td>82.9</td>
<td>378.4</td>
</tr>
<tr>
<td>B. Contingencies(^{b})</td>
<td>22.4</td>
<td>8.3</td>
<td>30.7</td>
</tr>
<tr>
<td>C. Financing Charges During Implementation(^{c})</td>
<td>23.0</td>
<td>9.5</td>
<td>32.5</td>
</tr>
<tr>
<td>Total (A+B+C)</td>
<td>340.9</td>
<td>100.7</td>
<td>441.6</td>
</tr>
</tbody>
</table>

\(^{a}\) In 2008 prices. Includes taxes and duties.

\(^{b}\) ADB will finance up to $300 million for Sichuan Province and $100 million for Shaanxi Province. Amounts in excess of the Asian Development Bank financing will be financed by provincial governments.

\(^{c}\) Includes interest and commitment charges. Interest during implementation has been computed at the 5-year forward London interbank offered rate plus a spread of 0.2%.

Source: Asian Development Bank estimates.

E. Financing Plan

39. The Government has requested a loan of $400 million from ADB’s ordinary capital resources to help finance the Project. The loan will have a grace period of 8 years with a

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\(^{11}\) The World Bank is funding $710 million for reconstruction of the urban, health, and education sectors in Sichuan and Gansu provinces.

\(^{12}\) Agence Française de Développement is funding $200 million for reconstruction of urban and biogas infrastructures in Sichuan Province.
maturity period of 32 years, an interest rate determined in accordance with ADB’s London interbank offered rate (LIBOR)-based lending facility, a commitment charge of 0.15% per annum, and such other terms and conditions set forth in the draft loan and project agreements. The Government has provided ADB with (i) the reasons for its decision to borrow under ADB’s LIBOR-based lending facility on the basis of these terms and conditions, and (ii) an undertaking that these choices were its own independent decision and not made in reliance on communication or advice from ADB.

40. The ADB loan will cover the civil works cost of rehabilitating and reconstructing the transport and education infrastructure, design, construction supervision, procurement, taxes and duties, and interest during implementation. The provincial and local governments will bear the counterpart financing of project management, and the remaining costs of construction for the packages that do not have 100% ADB financing (Table 2). The Government will make the loan proceeds available to the Sichuan and Shaanxi provincial governments on a grant basis under the implementation agreements on terms and conditions acceptable to ADB.

<table>
<thead>
<tr>
<th>Table 2: Financing Plan ($ million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source</td>
</tr>
<tr>
<td>A. Transport Component</td>
</tr>
<tr>
<td>1. ADB-Financed Civil Works</td>
</tr>
<tr>
<td>2. ADB-Financed Other costs</td>
</tr>
<tr>
<td>3. Government</td>
</tr>
<tr>
<td>B. Education Component</td>
</tr>
<tr>
<td>1. ADB-Financed Civil Works</td>
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<tr>
<td>2. ADB-Financed Other Costs</td>
</tr>
<tr>
<td>3. Government</td>
</tr>
<tr>
<td>C. Financing Charges during Implementation</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

ADB = Asian Development Bank. 
*Includes interest and commitment charges.
Source: ADB estimates.

F. Implementation Arrangements

1. Project Management

41. National Level. After the earthquake, the Government established a multi-disciplinary core group within the State Council to plan and coordinate the post-earthquake rehabilitation and reconstruction program in the affected provinces. This core group functions as an interdepartmental coordination mechanism for collecting data on damages, losses, rehabilitation and reconstruction needs, and outlays for earthquake-affected areas. An overall reconstruction plan for Wenchuan earthquake was developed and approved by the State Council as part of the restoration of earthquake damaged infrastructure and services, and a leading group has been formed at the national level to monitor the plan’s implementation.

13 This is in accordance with ADB’s Disaster and Emergency Assistance Policy (para. 90, footnote 4).
14 Taxes and duties are less than 5% of the total cost.
42. **Provincial Level.** Sichuan and Shaanxi provinces have established leading groups (headed by vice-governors) to monitor timely implementation of the international financial institutions-funded projects included in the overall reconstruction plan and provide policy guidance to the project management offices (PMOs).

43. **Project Level.** The executing agencies (EAs) will be Sichuan Provincial Communications Department in Sichuan province, and the Hanzhong and Baoji city governments in Shaanxi province. Each EA will establish a PMO, headed by a project director and supported by a team specialized in project management, technical aspects, and environmental and social issues as required. The PMOs will be responsible for (i) providing day-to-day assistance and guidance to the project IAs; (ii) consolidating project accounts; (iii) consolidating and submitting progress reports to ADB; (iv) conducting review of financial reports provided by the IAs; and (v) reviewing (a) compliance with specifications and plans, and (b) quality control by agencies undertaking reconstruction works.

44. **Implementing Agencies.** Sichuan Highway Administration Bureau (SHAB) will act as IA for the roads in Sichuan province. County highway administration bureaus will act as IAs for the roads and bridges and county education bureaus as IAs for schools in the respective counties of Shaanxi Province. The IAs will have PMOs for implementing and monitoring the subprojects. Details of the PMOs are in Appendix 6.

45. The IAs will be responsible for (i) implementing reconstruction works and activities; (ii) conducting detailed assessments, surveys, and planning of reconstruction, including public consultation and input from recipient local entities and beneficiaries as required; (iii) preparation and implementation of short resettlement plans, as required; (iv) prioritizing works, and preparing detailed designs, specifications, quantity schedules, bidding documents, contracts, and related documentation; (v) preparing regular progress reports for ADB through the respective EAs; and (vi) supervising construction, conducting quality control, approving progress payments to contractors, and maintaining records and accounts on an up-to-date basis and making these available to ADB, its missions, or auditors for inspection. The funds flow and project implementation arrangements for Sichuan and Shaanxi provinces are in Appendix 6.

2. **Subproject Selection Criteria, Approval, and Implementation**

46. The list of subprojects for ADB support was finalized after taking into account: (i) consistency of project readiness and the timing of ADB funding, (ii) whether socioeconomic impacts are of significant magnitude, (iii) whether a school or road section helps reduce the isolation of communities (subprojects that reduce isolation will be given priority), and (iv) avoidance of roads or schools that have resettlement and adverse environmental impacts.15 An initial list of subprojects was discussed during the reconnaissance mission, and then revised after taking into account the above criteria during the loan fact-finding mission. However, if any subproject is replaced during project implementation, it will be subject to prior review and approval by ADB before commencement. The procedures for selection, approval, and implementation of subprojects are in Appendix 7.

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15 The local governments plan to reconstruct these roads using domestic funds because domestic procedures for land acquisition and environment approvals are much faster.
3. Implementation Schedule

47. As the Project is for emergency assistance, implementation will start immediately after approval and be completed within 36 months. A detailed implementation schedule is in Appendix 8.

4. Procurement

48. Procurement of goods, services, and works will be carried out in accordance with ADB’s Procurement Guidelines (2007, as amended from time to time) and the contemplated implementation schedule. ADB’s procedure for providing reconstruction assistance after disasters allows for flexibility so that project activities can start promptly. National competitive bidding procedures will be the preferred mode of procurement. The local procurement procedures of the provincial governments are acceptable.

49. Goods and related services estimated at more than $1 million will be procured following international competitive bidding procedures. Shopping procedures will be followed for procurement of goods and related services estimated at between $100,000 and $1 million. For small, specialized equipment and materials contracts with a value of less than $100,000, direct contracting acceptable to ADB will be followed. Due to the nature of this Project, the bidding period for international competitive bidding will be shortened to 30 days and for national competitive bidding to 14 days.

50. Civil works contracts over $10 million will be procured through international competitive bidding and those estimated to cost $10 million or less will be procured through the national competitive bidding procedure. Prequalification with single stage, one-envelope procedures for complex works, and using the existing contractor registration system or contractors previously prequalified for works of similar size and nature, is acceptable. Further, in order to effectively respond to the urgent project needs, contracts estimated at less than $100,000 may be awarded to local contractors or those contractors who are working in the affected region on a direct contracting basis at negotiated rates or at rates of ongoing contracts. Civil works estimated between $100,000 and $1 million may be awarded following shopping procedures by inviting a limited number of registered or qualified contractors to participate in the bidding, including where practicable by advertising the invitation for bids in a national or provincial newspaper. ADB will conduct prior review of bidding documents, technical and price evaluation reports and award recommendations for all packages estimated to cost over $10 million. For contracts estimated to cost $10 million or less, ADB will review and approve the first contracts for each implementing agency; post-facto approval procedures will follow if procurement procedures are satisfactory. However, if ADB determines at a later stage that its guidelines were not followed, ADB may declare misprocurement and not accept the award or terms of the contract, in which case the Government will be unable to use loan proceeds to finance the contract. If the loan proceeds have already been used to finance such contracts at the time of such determination, the Government will refund to ADB any such expenditure incurred. Rebidding and extending of bid validity will be subject to ADB prior approval. Community participation in the procurement of

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16 Given the number of subprojects in the transport sector and their remote locations, a 36-month implementation schedule under the ADB’s Disaster and Emergency Assistance Policy is considered appropriate.
small works of a simple nature is encouraged.\textsuperscript{17} The procurement plan is in Appendix 9 and the detailed list of contract packages is in Supplementary Appendix B.

5. Consulting Services

51. The Project will require a total of 1,698 person-months of national consulting services.\textsuperscript{18} The construction supervision consultants will be hired to monitor project implementation of civil works, environmental protection, resettlement, and project performance. The outline terms of reference for construction supervision, resettlement monitoring, and project performance monitoring system data collection are in Appendix 10. Given the emergency nature of the projects, the consultants will be recruited through single source selection.

6. Anticorruption

52. ADB’s \textit{Anticorruption Policy} (1998, as amended to date) was explained to and discussed with the Government. Consistent with its commitment to good governance, accountability, and transparency, ADB reserves the right to investigate, directly or through its agents, any alleged corrupt, fraudulent, collusive, or coercive practices relating to the Project. To support these efforts, relevant provisions of ADB’s \textit{Anticorruption Policy} are included in the loan regulations and the bidding documents for the Project. In particular, all contracts financed by ADB in connection with the Project shall include provisions specifying the right of ADB to audit and examine the records and accounts of the EAs and IAs, and all contractors, suppliers, consultants, and other service providers as they relate to the Project.

53. The EAs will: (a) involve the agencies responsible for oversight of each IA in bidding and construction in order to monitor construction quality control and supervise effective work; (b) introduce a dual-signing system in which the civil works contract winner also signs an anticorruption agreement with the concerned IA; (c) periodically inspect the contractors’ activities related to fund withdrawals and settlements; (d) support the PMOs and the IAs to ensure good governance, accountability, and transparency in project operations; and (e) initiate liaison meetings with the relevant agency, as needed, to discuss any warnings about, or information on, alleged corrupt, fraudulent, collusive, or coercive practices relating to the Project. The provincial governments will ensure that proper accounting and audit procedures are in place to ensure efficient and economic use of the ADB financing proceeds. Accounts and financial statements in relation to the Project and the subprojects will be maintained and certified by independent auditors acceptable to ADB.

7. Advance Contracting

54. Given the Project’s urgency, advance contracting was requested by the Government for approval for the procurement of goods, services, and civil works, and recruitment of consultants. This request is supported and approved by the Management. The Government was advised that ADB’s approval of such advance contracting does not commit ADB to finance the Project.

\textsuperscript{17} To encourage community participation and use of indigenous materials, methods to incorporate community participation in procurement may be used for rural and municipal infrastructure. Small works contracts with an estimated cost of $20,000 or less in each case may be awarded to community organizations in accordance with practices and procedures acceptable to ADB.

\textsuperscript{18} Sichuan Province is allocated 1,404 person-months and Shaanxi Province 294 person-months of consulting services. These will be provided through consulting services contracts for each province.
8. Disbursement Arrangements

55. In accordance with ADB’s Disaster and Emergency Assistance Policy, quick disbursement is essential for effective and timely emergency assistance. Given the emergency nature of the project and adequate financial management capacity in both Sichuan and Shaanxi provincial financial bureaus, two imprest accounts (one for each province) will be established immediately after loan effectiveness and operated by the respective provincial financial bureaus. These imprest accounts will be set up in a commercial bank acceptable to ADB. The proceeds of the imprest advance will be released to the EAs when requested as reimbursement for expenditures already incurred under the Project.

56. The initial amount to be deposited into each of the imprest accounts will not exceed the lesser of (i) 6 months of estimated expenditures to be financed from the imprest accounts, or (ii) 20% of the loan amount. Procedures under ADB’s Loan Disbursement Handbook (2007, as amended from time to time) and detailed arrangements agreed upon between the Government and ADB, including the statement of expenditure (SOE) procedure, will be adopted for reimbursing and liquidating eligible expenditures. Individual payments to be reimbursed or liquidated under the SOE procedure should not exceed $200,000 per payment, unless otherwise agreed with ADB during project implementation. The imprest accounts will be operated by the respective provincial financial bureau of each province, in accordance with ADB’s Loan Disbursement Handbook.

9. Retroactive Financing

57. ADB has agreed to the provision of retroactive financing, up to a maximum of 25% of the loan proceeds, for reasonable eligible expenditures incurred and paid for after the occurrence of the earthquake but not earlier than 12 months before the date of the loan agreement. The provision of retroactive financing does not commit ADB to finance the Project.

10. Accounting, Auditing, and Reporting

a. Reports

58. The respective EAs will establish a reporting system for submitting quarterly progress reports detailing progress relating to contract awards, disbursements, and project implementation. These reports will provide feedback to management regarding procedures that may need to be updated or improved, and will provide the basis for a consolidated quarterly report to ADB. Within 3 months of physical completion of the Project, the EAs will provide ADB an overall project completion report providing detailed evaluation of project design, costs, contractor and consultant performance, traffic counts, social and economic impacts, and other details requested by ADB.

59. Regular field reviews will be carried out by ADB together with the PMOs to monitor physical progress of subprojects and compliance with other ADB requirements such as procurement, quality control, accounting, safeguards, and beneficiary participation. A midterm review, to be conducted in 2010, will assess the need for changes in the implementation arrangements to achieve the overall project objectives.
b. Accounts and Audit

60. The Government will maintain separate records and accounts for the loan and imprest accounts. The provincial governments, operating through their respective PMOs, will establish and maintain separate records for subprojects, works, goods, and services financed out of loan proceeds and will also maintain separate project accounts in accordance with generally accepted accounting principles for all expenditures incurred on the Project and subprojects from the loan proceeds.

61. Detailed consolidated annual project accounts, as maintained by the PMOs, will be audited by independent auditors whose qualifications, experience, and terms of reference are acceptable to ADB, and will be submitted to ADB within 6 months of the end of the fiscal year. The annual audit report will include an audit of the imprest accounts and SOE procedure, and will specifically include a separate audit opinion on the use of loan proceeds through the imprest accounts, and compliance with SOE procedures. The EAs have been made aware of ADB’s policy and requirements relating to timely submission and quality of the audited accounts.

c. Project Performance Monitoring and Evaluation

62. The PMOs will establish a systematic project performance monitoring system. A set of performance monitoring indicators are identified and included in Appendix 11. The baseline data established for each of the selected indicators will be incorporated in the project administration memorandum, with additional data collected during implementation.

IV. TECHNICAL ASSISTANCE

63. The Government requested TA grant support for capacity building for Wenchuan earthquake reconstruction. The TA grant support will have three components. TA for project implementation will provide capacity-building support to the EAs and IAs for speedy and smooth implementation, particularly with respect to procurement, disbursement, monitoring, and quality control. TA for the education component will involve (i) establishment of two model schools, focusing on information and communication technology and on natural sciences; (ii) development of training materials, and provision of in-service training to teachers, including in areas such as student-centered learning; and (iii) teacher capacity building in the worst-affected counties. TA in the transport sector will build capacity regarding (i) road construction quality in remote and mountainous areas, and (ii) sustainable rural road operation and maintenance systems. The details of the TA are in Appendix 12.

V. PROJECT BENEFITS, IMPACTS, ASSUMPTIONS, AND RISKS

A. Project Benefits

64. In Sichuan, about 3,500 km of rural roads have been identified for ADB financing in 19 of the 39 severely affected counties. Within these 19 counties, 40% of the rural roads were damaged. The ADB project will reconstruct and upgrade 28% of the damaged roads. In Shaanxi, 317 km of rural roads and more than 50 bridges have been identified for ADB financing in the four most severely affected counties, including 128 km of class III and 154 km of class IV roads, and 35 km of village roads and bridges.

65. The economic benefits of the rural roads and bridges include (i) savings in vehicle operating costs as a result of improved traffic and road conditions, (ii) time savings for rural road
users, (iii) savings in road accident costs as a result of fewer accidents, and (iv) economic benefits from generated traffic. The reconstruction and upgrading of rural roads in Sichuan and Shaanxi will benefit about 5.6 million people, three-quarters of whom are rural; one-third are poor. Improved availability of reliable transport to markets will stimulate cash crop farming in remote or isolated areas, and broaden access to off-farm employment opportunities. Failure to reconstruct or upgrade rural roads will result in rural people in remote parts of the project area having less mobility; as a result, they will face greater difficulties in restoring their livelihoods after the earthquake, and poor households in those regions will be unable to benefit from the broader economic development. In addition, the reconstruction will provide significant employment and skill training benefits for rural people.

66. The Project also includes the reconstruction and upgrading of schools. The ADB Project will focus on reconstruction and improvements for 12 schools, including six junior secondary and six primary schools. These will bring immediate benefits to the schools’ 16,600 students (including more than 8,000 females), and long-term benefits to future students among the 460,000 residents of the areas serviced by the schools, about 40% of whom are from rural areas of these remote counties.

67. The Project will contribute to the Government’s efforts to regenerate the economy, rehabilitate public infrastructure and utilities, and generate employment. The rehabilitation and reconstruction of damaged schools will restore the provision of education services. Reconstruction of education facilities will offer long-term benefits for APs by supporting opportunities for employment and participation in economic activities. Local communities and beneficiaries will actively participate in the selection, design, implementation, and operation and maintenance of all works carried out under the Project. The Project addresses the needs of vulnerable groups, including children in remote and poor areas.

68. The merging of selected schools in the three affected counties of Shaanxi under the education component will lead to improved economies of scale and increased efficiency in educational expenditures in affected areas through savings in administrative, instructional, and other related educational costs. The schools that were damaged by the earthquake had old buildings, poor toilets, and lacked facilities such as dormitories, reading rooms, and dining rooms, which was not conducive to learning. Construction of dormitory facilities adjacent to the reconstructed school buildings will enhance enrolment rates among students, including girls, in remote and mountainous areas of Shaanxi Province. Provision of ancillary facilities such as reading and dining rooms, multimedia laboratories, science laboratories, and more hygienic toilets will make education more modern and enjoyable.

69. By establishing two model schools under the TA grant—focusing on information and communication technology and on natural sciences—the Project will develop a model that can be replicated in other schools in the affected counties. Teachers will benefit from the training in student-centered methodologies that will be provided under the TA grant. Reconstruction of schools, provision of essential school equipment, and training of teachers in interactive learning and other modern teaching methodologies will demonstrate new approaches that can be replicated and will help the provincial government build a better education system in Shaanxi Province.

B. Social and Poverty Benefits

70. Eight of the 23 project counties (six in Sichuan and two in Shaanxi) are national poverty counties. The Wenchuan earthquake brought immense suffering to many rural and poor
households that were not equipped to deal with the disaster and the reconstruction efforts. Consequently, the government program has three reconstruction priorities: (i) housing, schools, and hospitals; (ii) rural infrastructure; and (iii) public buildings. The population of the 23 project counties is 12.1 million, 77% of whom are rural, with a significant proportion below the government poverty line. There are 669 towns and townships and 7,753 administrative villages, including many poverty villages. Rural poverty results from remote and isolated locations, and a lack of access to transport, good farmland, good schools, and a water supply. There are some ethnic minority villages located in three of the 23 counties, but none of the project roads, bridges, or schools are located in these ethnic minority villages.

71. The Project will bring benefits to the project area by (i) reconstructing and improving road conditions and accessibility in townships and villages, (ii) reconstructing and improving 12 schools in Shaanxi in compliance with seismic codes, and (iii) creating local employment opportunities from project construction and related activities. The Project will provide equal benefits for women and girls through (i) improved rural roads, which will facilitate improved transport services to remote mountain villages, which will in turn improve access to better health and education facilities; and (ii) model schools with improved classrooms, laboratories, washrooms, canteens, and dormitories. Under the PRC's compulsory education program primary and junior secondary schools have no tuition fees, so girls have equal opportunity to attend school. Constructing schools complete with facilities will encourage people living in remote locations, where suitable school education is not available, to send their children (including girls) to these schools. A summary poverty reduction and social strategy is in Appendix 13.

72. Rural road construction will support enhanced livelihoods by ensuring all rural communities have access to basic facilities, services and goods, and will help individuals and households manage risks by providing targeted employment. The program will provide for the development of quality rural access infrastructure and a mechanism whereby temporary employment will provide a safety net for vulnerable rural people. The quality rural road network will connect all villages to basic rural infrastructure and services such as markets, health care, and schools. It will provide increased employment opportunities by using labor-intensive methods and a private sector-led approach for all works. The rural road program will enhance the capacity of communities and the private sector to manage, deliver, and maintain public infrastructure and transportation facilities through capacity development programs. The Project will build capacity for earthquake-resistant construction, strengthened local government mechanisms, encourage gender sensitization, and encourage community-based disaster preparedness programs. Safety will be enhanced through provision of higher geometric and structural standards for roads and modern seismic-resistant building codes for schools.

C. Land Acquisition and Resettlement Impacts

73. Rural road reconstruction generally involves upgrading the width and quality of existing roads within the available rights-of-way. Based on the feasibility study investigation, no land acquisition or demolition of structures is anticipated for the roads in Sichuan. This will be confirmed by the local land and resources bureaus once the designs are finalized. If land does need to be acquired, it will require approval by the land and resources bureaus, in which case a resettlement plan will be prepared and submitted to ADB for review and concurrence. A small amount of land may be occupied temporarily by contractors during construction; however, such land occupation will not be involuntary and the use of such land will also require approval from the land and resources bureau. Since the temporary land use will be determined during
construction, such use will be monitored and included in the external monitoring and evaluation reports.

74. Four of the 10 rural road and bridge subprojects in Shaanxi will involve some land acquisition. Estimation of impacts and approval of land use procedures is currently underway, and will be finalized based on final designs. Resettlement plans for these four subprojects (Hanjiang Bridge in Mian Xian County, the two class III roads in Ningqing County, and Shiyangmiao Qianhe Bridge in Chencang District) will be prepared by the IAs and submitted to ADB for review and concurrence. The costs of land acquisition and resettlement are included in the cost estimates of the relevant subprojects, and will be financed by the local governments.

75. ADB’s Involuntary Resettlement Policy (1995) key policy requirements and procedures for preparing resettlement plans and conducting due diligence are set out in the resettlement framework (Appendix 14). Any resettlement plans for subprojects should be submitted to ADB for review and concurrence prior to commencement of land acquisition for that particular subproject. A national resettlement expert(s) acceptable to ADB will be engaged by the EAs. The cost of the national resettlement expert will be included in the project cost and will be financed from the loan. The resettlement framework is in Supplementary Appendix C.

D. Environmental Impacts

76. Given the nature of the project’s physical works (i.e., reconstruction of damaged road sections and school buildings), the Project is classified as environmental category B in accordance with ADB’s Environment Policy (2002). The project component initial environmental examinations (IEEs) have been provided by the county governments on the basis of environmental assessment documents required by the PRC’s Environmental Impact Assessment Law (2002). The Project’s IEEs indicate that the Project is not expected to have significant adverse environmental impacts; any adverse environmental impacts will be mainly limited to the construction stage. These impacts will be reversible in the short term and will affect a limited area, and are therefore manageable. The summary IEE is in Appendix 15 and the environmental assessment and review framework is in Supplementary Appendix D.

E. Sustainability

77. A key selection criterion for subprojects to be financed through the Project is an assessment of financial sustainability. This includes an assessment of availability of counterpart financing for implementation purposes as well as for future incremental recurrent costs. Based on these arrangements and given the current macroeconomic environment, the Project is felt to be financially sustainable.

F. Risks

78. To mitigate any lack of adequately strong commitment in implementing the Project in an efficient and timely manner, so that the earthquake-damaged or -destroyed education and transport infrastructure is rehabilitated and reconstructed, the two provinces have each set up a high-level leading group chaired by the respective vice-governor for project monitoring.

79. Implementation risks related to capacity for timely delivery of quality subprojects in the various project sectors will be mitigated in several ways. In terms of implementation supervision, specific monitoring mechanisms will include regular financial audits as well as regular design and construction supervision. The two EAs will be supported in undertaking this supervision by
dedicated PMOs and consulting inputs. Another potential risk is the IAs’ lack of experience with ADB procedures. This will be mitigated through tailored training for the IAs on ADB procedures immediately after the project-related TA becomes effective. ADB will provide continuous support and supervision to the IAs for project implementation, including conducting special review missions, if required.

VI. ASSURANCES

80. In addition to the standard assurances, the Government, Sichuan provincial government, and Shaanxi provincial government have given the following assurances, which are incorporated in the legal documents:

(i) The Sichuan and Shaanxi provincial governments will ensure that all subprojects meet, to the satisfaction of ADB, the agreed selection criteria and implementation arrangements, and that all subprojects are properly monitored to the satisfaction of ADB.

(ii) The Government will cause the Sichuan and Shaanxi provincial governments to ensure that (a) all counterpart financing necessary for the Project is provided in a timely manner, and (b) additional counterpart funding is provided in the event of any shortfall of funds or cost overruns to complete any subprojects that have already commenced construction.

(iii) The Sichuan and Shaanxi provincial governments will ensure that the executing agencies and implementing agencies actively seek community participation in the selection, design, and implementation of all works carried out under the Project, including maintenance of the project facilities. To that extent, a provision will be included in all tender documents that contractors will give preference to local labor, where applicable.

(iv) The Sichuan and Shaanxi provincial governments will ensure that the facilities provided under the Project are operated and maintained appropriately, and that adequate budgetary and other resources are provided for operation and maintenance.

(v) Shaanxi provincial government will ensure that the recurring and operational budget for all schools to be reconstructed under the Project and the operation and maintenance budget will be provided in a timely manner.

(vi) The Sichuan and Shaanxi provincial governments will ensure that all construction of roads, bridges, and schools is carried out in strict compliance with the appropriate engineering specifications and building code approved by the Government for seismic-resistant buildings.

(vii) The Sichuan and Shaanxi provincial governments will ensure that adequate environmental mitigation measures in accordance with (a) the Government’s environmental regulations and (b) ADB’s Environment Policy (2002) are incorporated into all subproject design and implementation. The Government will ensure that the environmental management plan (EMP) to mitigate any adverse environmental impacts is implemented, and in the event that unexpected impacts occur, remedial measures are prepared in consultation with ADB. The Sichuan
and Shaanxi provincial governments will ensure that the agreed environmental assessment review framework is applied in selecting subprojects, that a subproject for which an environmental assessment study is required has such a study completed, and that a subproject for which government environmental clearance is required obtains such clearance prior to the award of any contracts for that subproject.

(viii) The Sichuan and Shaanxi provincial governments will cause the EAs and IAs to ensure (a) all the subprojects are screened for resettlement impacts and those subprojects with impacts have short resettlement plans prepared and approved in accordance with the resettlement framework; (b) all resettlement plans are implemented in accordance with their terms; (c) all land and rights-of-way required by the Project are made available in a timely manner; (d) the provisions of the resettlement plan, including compensation and entitlements for APs, will be implemented in accordance with all applicable government laws and regulations and ADB’s Involuntary Resettlement Policy (1995); (e) compensation and resettlement assistance are given to the APs prior to dispossession and displacement; (f) timely provision of counterpart funds for land acquisition and resettlement activities; (g) any obligations in excess of the resettlement plan budget estimate are met; and (h) the APs will be at least as well off as they would have been in the absence of the Project.

(ix) The Sichuan and Shaanxi provincial governments will cause the EAs and IAs to (a) ensure that civil works contractor specifications include requirements to comply with the resettlement framework and relevant resettlement plans, including temporary land occupation requirements; (b) supervise the contractors to ensure compliance with the requirements of the resettlement plan, applicable laws and regulations, and ADB’s Involuntary Resettlement Policy; and (c) encourage contractors, as a priority, to provide employment to at least 50% of the APs of employable age.

(x) The Sichuan and Shaanxi provincial governments will cause the EAs and IAs to ensure that (a) adequate staff and resources are committed to supervising and monitoring the implementation of the resettlement plans and maintaining related documentation; and (b) an independent resettlement expert(s) acceptable to ADB is engaged by the EAs, if necessary, to conduct due diligence and report to ADB, provide guidance to IAs on resettlement plan preparation, carry out independent monitoring and evaluation of resettlement, and prepare and submit annual monitoring reports to ADB.

(xi) The Sichuan and Shaanxi provincial governments will cause the EAs and IAs to encourage the contractors to maximize the employment of poor local people who meet the job and efficiency requirements for construction of the project roads, bridges and schools.

(xii) The Sichuan and Shaanxi provincial governments will cause the EAs and IAs to ensure that civil works contractors comply with national labor legislation. Bidding documents and civil works contracts will include clauses prohibiting child labor for construction and maintenance activities, ensuring equal pay for men and women for work of equal value, and requiring a timely payment for workers on a monthly basis. The compliance will be monitored by the IAs.
(xiii) The Sichuan and Shaanxi provincial governments will cause the EAs and IAs to
(a) take all reasonable and necessary steps to encourage women living in the
project area to participate in the planning and implementation of the Project,
including causing the contractors to maximize their employment of women in
connection with the Project; (b) ensure that for works that can be done by both
male and female workers, female workers will be given equal opportunities for
employment; and (c) ensure that the Project is implemented in accordance with
ADB’s *Policy on Gender and Development* (1998).

VII. RECOMMENDATION

81. I am satisfied that the proposed loan would comply with the Articles of Agreement of the
Asian Development Bank (ADB) and recommend that the Board approve the loan of
$400,000,000 to the People’s Republic of China for the Emergency Assistance for Wenchuan
Earthquake Reconstruction Project from ADB’s ordinary capital resources, with interest to be
determined in accordance with ADB’s London interbank offered rate (LIBOR)-based lending
facility; a term of 32 years, including a grace period of 8 years; and such other terms and
conditions as are substantially in accordance with those set forth in the draft Loan and Project
Agreements presented to the Board.

Haruhiko Kuroda
President

11 February 2009
## DESIGN AND MONITORING FRAMEWORK

### Impact

<table>
<thead>
<tr>
<th>Performance Targets and/or Indicators</th>
<th>Data Sources and/or Reporting Mechanisms</th>
<th>Assumptions and Risks</th>
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</thead>
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<tr>
<td>Accelerated restoration of transport and education infrastructure in the earthquake-affected areas of Sichuan and Shaanxi provinces</td>
<td>Government statistics</td>
<td>Assumption: The Government provides support as intended to the overall reconstruction plan.</td>
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</table>

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Government statistics</th>
<th>Assumption: Adequate government provision of funds</th>
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</table>

<table>
<thead>
<tr>
<th>Outputs</th>
<th>Government statistics</th>
<th>Assumptions:</th>
</tr>
</thead>
</table>

### Outputs

1. Rehabilitation of earthquake-damaged roads and bridges in 19 counties of Sichuan Province and four counties of Shaanxi Province
   - In Sichuan Province, about 3,500 km of roads are rehabilitated/constructed by December 2011 with improved design standards
   - In Shaanxi Province, about 317 km of roads are rehabilitated/constructed by 2011 with improved design standards

2. Rehabilitate earthquake-damaged educational institutions in three counties of Shaanxi Province

3. Capacity development support
   - By October 2011, capacity-building support, through technical assistance, is provided (i) to IAs for speedy and smooth project implementation, (ii) to schools and teachers, and (iii) for sustainable road operation and maintenance systems

### Activities with Milestones

1. Road and bridge reconstruction
   - Technical design is completed by December 2010.
   - All procurement is completed by March 2011.
   - Civil works are started in April 2009 and completed by November 2011.
   - Physical works completed by December 2011.

2. School reconstruction
   - Technical design is completed by April 2009.
   - All procurement is completed by July 2009.
   - Civil works are completed by December 2010.
   - Physical works completed by December 2011.

3. Capacity building
   - Technical assistance is completed by October 2011.
   - Training of IAs started by March 2009 and training of teachers is completed by September 2010.

### Inputs

- **ADB**: $400 million
  - $339.5 million, transport
  - $19.7 million, education
  - $8.3 million, contingencies
  - $32.5 million, financing charges during implementation
- **Government**: $41.6 million

### Technical Assistance

- **ADB**: $700,000
- **Government**: $150,000

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ADB = Asian Development Bank, IA = implementing agency, km = kilometer.
SUMMARY OF DAMAGE AND NEEDS ASSESSMENT

1. The damage and needs assessment undertaken by the Government and validated by the technical assistance consultants[1] noted that the Wenchuan earthquake caused extensive damage and heavy losses in Sichuan, Shaanxi, and Gansu provinces, and some damage in seven other provinces. Many rural and urban houses collapsed, there was large-scale damage to infrastructure facilities and severe environmental destruction, and agriculture and industry suffered heavy losses. The earthquake resulted in an uncommonly high number of hazardous geologic events, such as landslides, rock falls, and debris flows, and created barrier lakes. The disaster’s total impact represents 3.3% of the country’s gross domestic product in FY 2007, and had a significant impact on the economy of the People’s Republic of China (PRC). Direct economic losses caused by the Wenchuan earthquake are estimated at CNY852,309 million, and losses in Sichuan, Shaanxi, and Gansu provinces are estimated at CNY845,136 million (99.16% of the total). In addition, indirect losses from the Wenchuan earthquake could be much higher than estimated above, due to the nature and scale of the damage and loss incurred.

2. Losses equalled CNY771,770 million in Sichuan Province (91.32% of the total for the three provinces), CNY50,535 million (5.98%) in Gansu Province, and CNY22,830 million (2.70%) in Shaanxi Province. Losses in the three provinces’ social sectors were CNY465,275 million (55.05% of total losses), with CNY188,136 million in infrastructure losses (22.26% of total losses).

A. Social Sector

3. Housing. Numerous houses in both rural and urban areas collapsed during the earthquake. The total damage to housing is CNY403,894 million, representing almost half of the total damage and losses, with damage concentrated within a 109,857 square kilometre (km²) area. More than half (57%) of the damaged housing was residential; damage to residential housing in rural areas is estimated at CNY124,843 million, and in urban areas at CNY106,848 million. Most of the damage to the housing sector was concentrated in Sichuan Province, which includes the 10 worst-affected districts and the 29 most seriously affected counties (cities or districts). These districts sustained CNY363,220 million in total damages, representing 90% of the total damages caused by the Wenchuan earthquake. In addition, property losses suffered by citizens in Sichuan, Shaanxi, and Gansu provinces were reported to be CNY37,408 million.

4. Education. A total of 17,951 educational institutions were fully or partially damaged in the earthquake-affected areas, resulting in losses of CNY4,676 million, including CNY4,074 million in Sichuan, CNY541 million in Gansu, and CNY61 million in Shaanxi. There are 12,253 damaged educational institutions in Sichuan Province, 5,455 in Shaanxi Province, and 243 in Gansu Province. The counties with the most fully destroyed primary schools are Mao (153), Pingwu (137), Wenchuan (129) and Beichuan (83); the jurisdictions with the greatest number of affected primary students are An County (121,905), Jiangyou City (98,923), Pengzhou City (90,819), and Dujiangyan City (79,701). The education sector includes universities, colleges, technical secondary schools and vocational schools, middle schools, primary schools, and kindergartens.

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5. **Health Care Facilities.** Losses in the health and nutrition sector were estimated to be CNY2,558 million in the three provinces affected by the Wenchuan earthquake, with 18,834 health care facilities damaged or destroyed.

6. **Science and Technology.** Many science and technology facilities were affected by the earthquake. Excluding building damage, losses in the science and technology sector were experienced in technological museums and science popularization museums, as well as in scientific facilities and instruments. Estimated science and technology sector losses due to the earthquake are CNY591 million, based on information gathered from the affected institutions in the earthquake areas and provided by the Ministry of Civil Affairs (MCA).

7. **Cultural Facilities.** Losses to cultural facilities in Sichuan, Shaanxi, and Gansu provinces—including cultural museums, libraries and theatres—were estimated at CNY2,724 million. In Sichuan Province, 1,126 cultural museums, 38 libraries, and 147 theaters were damaged.

8. **Environmental Protection Facilities.** Every city has a series of environmental protection and inspection institutions and facilities, including instruments and vehicles for environmental inspection and monitoring, water and air monitoring stations, water and air pollution prevention and control facilities, pollution source monitoring systems, urban waste depots, etc. Losses in environmental protection facilities were estimated at CNY2,618 million.

9. **Social Welfare Facilities.** The social welfare system in the earthquake-affected area consists of elderly care centers and welfare houses. It is estimated that the losses of welfare facilities (including facilities of elderly care centers and welfare houses) account for CNY596 million.

10. **Others.** The earthquake damaged a wide range of facilities, primarily in Sichuan Province, with losses of CNY488 million to meteorological facilities, CNY87 million to seismic facilities, CNY1,620 million to religious facilities, CNY5,357 million to government facilities, and CNY2,658 million to sports facilities.

B. **Infrastructure Sector**

11. **Transportation.** Transportation infrastructure consists mainly of road and railway systems. The total losses in the transportation sector were CNY87.39 billion, with road system losses of CNY66.69 billion and railway systems losses of CNY20.70 billion. An estimated 7,073 roads (40,011.69 km), 4,989 road bridges (307,982.3 meters [m]) and 158 road tunnels (89,418.63 m) were damaged. Most of this damage was in Sichuan Province. The Chengdu–Mianyang highway line, Mianyang–Guangyuan highway line, Ya’an–Shimian highway line and most of the national/provincial roads within Aba Prefecture were completely blocked by the effects of the earthquake. The damaged railway system included 4,026.13 km of railway lines, 377 railway tunnels (109,201.68 m), 1,280.9 km of power lines, 83 items of electrical equipment, and 52 locomotives. Some major railway stations such as Mianyang, Guangyuan, Jiangyou, and Deyang were seriously damaged.

12. Total transportation losses in Sichuan Province were CNY74.79 billion (including CNY58.33 billion in road and CNY16.46 billion in railway system losses); CNY7.23 billion in Gansu Province (CNY7.07 billion in road and CNY162 million in railway system losses), and CNY5.37 billion in Shaanxi Province (CNY1.29 billion in road and CNY 4.08 billion in railway system losses).
13. **Water and Electricity Facilities.** Compared to some other infrastructure sectors, the electrical power distribution system was not badly damaged in the Wenchuan earthquake, with a total loss of CNY46.98 billion. Electric power losses were focused on the substations, power plants, and distribution and transmission lines. Water storage losses focused on water storage facilities, reservoirs, and embankments. In the affected areas, 6,430 electrical substations, 994 power plants, 65,485.73 km of distribution and transmission lines, 140,763 water system facilities, 2,159 reservoirs, 33,367 km of embankments, 265,884 other water system facilities, and 16,159 other electricity facilities were damaged.

14. **Broadcast and Communication.** The total loss of broadcasting and communication facilities amounted to CNY9.82 billion, of which broadcasting losses were CNY2.84 billion and communication losses were CNY6.98 billion. The main damage suffered in this sector was in Sichuan and Gansu provinces. The initial earthquake combined with strong aftershocks destroyed a number of broadcasting facilities, including 552 television stations, six monitoring stations, 72,129 km of the wired network, 344 wireless radio transmission stations, 279 microwave stations, 210 launch towers, 115,968 village-village connection facilities, 113,720 wired network components, 113,453 satellite receiving facilities, 2,575 data communication facilities, equipment in 2,098 exchanges, 3,216 items of transmission equipment, 144,010 fallen poles, 30,824.06 km of communication lines, 15,168 base stations, 6,798 power generators, 5,756 diesel engines, 8,056 storage batteries, 3,373 base towers and 161 damaged cars.

15. **Municipal Public Facilities.** Total damages to municipal public facilities equaled CNY43.95 billion, and included urban roads (3,384.18 km) and bridges (1,294 km), water plants and supply pipelines (9,175.12 km), sewage (1,680.17 km) and gas (3,215.85 km) pipelines, 2,592 treatment plants, and 670.58 hectares (ha) of green belts.

C. **Productive Sector**

16. **Agriculture.** The Wenchuan earthquake caused significant damage to rural infrastructure and assets as well as agricultural production. The preliminary losses are estimated to be CNY38.4 billion. Losses in the agriculture sector were estimated in terms of crop yields, economic forests, livestock, and fisheries. Crop and forestry losses were assessed according to the disaster-affected areas of crops and forests. Likewise the economic losses of livestock and fisheries were assessed according to the numbers of dead livestock and fish. The assessment noted that there was a decline of rural household income and an increase in unemployment as a result of these losses.

17. The total damaged crop area was 361,966 ha, including 332,200 ha in Sichuan, 23,210 ha in Gansu, and 6,557 ha in Shaanxi provinces. The disaster caused the deaths of 4,389,239 livestock animals and 29,913,177 poultry. Agricultural machinery damage included 894.9 million farm implements, 15,494 irrigation and drainage stations, 5,053 ha of machinery sheds, and 25,013 km of farm tracks. The earthquake damaged 5,012,840 ha of economic forests, and 33,981 ha of fisheries area. The three affected provinces suffered combined losses of 52% in livestock, 31% in forestry, 15% in crop yields, and 2% in fisheries.

18. **Industry.** The effects on industry were severe. Roads were blocked, electricity supply was stopped, equipment was destroyed, and inventories were buried. In total, 18,035 industrial enterprises were damaged or destroyed in the three main affected provinces, including 16,320 in Shichuan, 833 in Gansu, and 882 in Shaanxi. Total losses to the industrial sector are estimated to be more than CNY64.79 billion (CNY62.7 billion in Sichuan Province, CNY1.29 billion in Gansu Province, and CNY0.8 billion in Shaanxi Province). The earthquake seriously
weakened the disaster-affected areas economically and reduced their competitiveness, and recovery is likely to take a relatively long time. Numerous medium and small enterprises were affected. The total damaged area of factory buildings amounted to 473,852 million square meters (m²), and 367,521 ancillary facilities were also damaged.

19. **Service.** In the aftermath of the disaster, wholesale and retail traders were unable to work, transportation was largely halted, and service establishments were closed for several weeks. Most tourist destinations, including cultural heritage sites in Sichuan Province, were wrecked by the earthquake. Estimated overall losses to the service sector (including commerce, tourism, real estate, and finance) are CNY41.13 billion, comprising CNY40.28 billion in losses in Sichuan Province, CNY0.61 billion in Gansu Province, and CNY0.24 billion in Shaanxi Province. About 138,000 (or 20%) of the commerce and trade network units (including individual business households, markets, retailing, etc.) in the disaster areas were affected; of these, 49,000 were completely ruined, 63,000 were partially damaged, and 26,000 were lightly damaged. Approximately 130,000 of these units were in Sichuan. The total damaged commercial service area was 11,905,798 m². Percentages losses in service subsectors included 13% in commerce, 53% in tourism, 30% in real estate, and 4% in finance.

D. Cross Sectoral

20. **Land Resources.** Land resources damaged by the Wenchuan earthquake included 83,162 ha of farmlands, 4,669,688 ha of forest lands, and 148,611 ha of grasslands. Damaged croplands included 58,330.99 ha in Sichuan Province, 17,737.48 ha in Gansu Province, and 7,094.00 ha in Shaanxi Province; damaged forest land included 4,649,400 ha in Sichuan, 18,532 ha in Gansu, and 1,756 ha in Shaanxi; and damaged grassland included 145,735 ha in Sichuan, 2,521.66 ha in Gansu, and 354 ha in Shaanxi. Land resources losses were CNY27.87 billion.

21. **Mineral Resources.** Mineral resources damaged by the Wenchuan earthquake included coal, phosphate rock, and other mineral resources. It is estimated that about 408 coal resource sites were damaged (314 in Sichuan, 16 in Gansu, and 78 sites in Shaanxi provinces); 1,630 other mineral resource sites were also damaged (1,021 in Sichuan, 486 in Gansu, and 123 in Shaanxi), with a total loss of CNY5.62 billion. Losses in the mineral resources sector were CNY5.62 billion (5.26 billion in Sichuan, CNY250 million in Gansu, and CNY110 million in Shaanxi provinces), while coal resource losses were CNY2.74 billion (CNY2.65 billion in Sichuan, CNY43.4 million in Gansu, and CNY49.18 million in Shaanxi). Phosphate rock resource losses were valued at CNY2.67 billion (CNY2.61 billion in Sichuan, and CNY60 million in Shaanxi). The losses of other mineral resources were CNY0.21 billion.

22. **Natural Reserves.** Damage to nature reserves included 462,101 ha of national nature reserves, 1,056,887 ha of provincial nature reserves, and 894 ha of nature reserves of other grades. The estimated damage to nature reserves is CNY4.88 billion. The Wenchuan earthquake caused heavy damage to nature reserves in Sichuan, Shaanxi, and Gansu provinces. A total of 83,162.47 ha of national nature reserves have been fully or partially damaged in Sichuan, 100.12 ha in Gansu and 2,500 ha in Shaanxi. The total damaged area of provincial nature reserves in each province is 978,331.41 ha in Sichuan, 44,365.05 ha in Gansu and 34,191 ha in Shaanxi. A total of 894 ha of nature reserves of other grades were damaged, all in Sichuan Province. Losses in the damaged nature reserves total CNY4.73 billion in Sichuan Province, CNY128 million in Gansu Province, and CNY20 million in Shaanxi Province.
23. **Cultural Heritage.** Cultural heritage damaged by the Wenchuan earthquake includes both tangible and intangible cultural heritage. Units that were completely damaged include 145 state key historical sites, 242 sites under provincial protection, 994 sites under city (county) protection, two world cultural heritage sites, 428 precious cultural relics, 2,681 general relics, two historic towns, two historic villages, and 36 national-level, 101 provincial-level, and 466 other-level sites with intangible cultural heritage. The total cultural heritage losses were CNY8.97 billion (CNY8.42 billion in Sichuan, CNY400 million in Gansu, and CNY151 million in Shaanxi).

E. **Ecological Sector**

24. The earthquake disaster area is a very important ecological safety barrier for Sichuan Province and for the middle and lower reaches of the Yangtze River. The earthquake caused serious damage to the ecosystem and its service functions, which greatly threatens ecological stability in this region.
TRANSPORT SECTOR ASSESSMENT AND PROPOSED ASSISTANCE

A. Background

1. In 2005, the Sichuan Province road network was 114,694 kilometers (km) in length. Road density in Sichuan was 23.4 km per 100 square km (km$^2$), slightly higher than the national average. The network included 76,401 km of classified roads (66.6%): 1,758 km of expressways (1.5%); 1,496 km of class I roads (1.3%); 9,633 km of class II roads, (8.4%); and 63,514 km of class III and IV roads (55.4%). The length of unclassified roads was 38,642 km.

2. In 2005, the road network of Shaanxi Province was 54,491 km. Road density in Shaanxi was 15.2 km per 100 km$^2$, lower than national average. The network included 1,300 km of expressways (2.4%); 359 km of class I roads (0.7%); 5,782 km of class II roads (10.6%); 14,657 km of class III roads (26.9%), and 32,392 km of class IV and unclassified roads.

3. Rural road development is a priority for the People’s Republic of China (PRC) to achieve the goal of a harmonious society. Rural roads are fundamental infrastructure that provide people with basic access, help improve quality of life, assist in reducing poverty, and are essential for economic development of rural communities. At present, the condition of many rural roads is inadequate, most sections are unpaved and they are not designed using national design standards. Rural roads should be designed using a minimum of class IV road or special rural road design standards. The State Council approved the Rural Road Development Plan in February 2005. The overall objective of the plan is to make all townships and villages in the PRC accessible by paved roads by 2020, thereby forming a rural road network of a high service level, and making travel more rapid, safe, and comfortable for farmers. The goal is that by 2010, (i) all townships in the PRC will be connected by paved roads; (ii) all villages in eastern, central, and western regions will be connected to paved roads; and (iii) there will be 3.1 million km of rural roads.

4. In the 11th Five-Year Plan, Sichuan plans to open a total of 11,250 km of new roads, providing paved road connection for 90% of its townships. In addition, Shaanxi is planning 10,000 km of rural road renovation and 28,000 km of new rural road construction to provide paved road connections for 450 townships and 5,600 villages in the province.

5. The damage and needs assessment undertaken by the Government and validated by the technical assistance (TA) consultants noted that the Wenchuan earthquake caused serious damage to rural infrastructure, and that the damage to rural roads was particularly serious, with 39,948 km of rural roads damaged, including 29,345 km in Sichuan, 3,189 km in Shaanxi, and 7,414 km in Gansu (Table A3).

<table>
<thead>
<tr>
<th>Item</th>
<th>Total</th>
<th>Sichuan</th>
<th>Shaanxi</th>
<th>Gansu</th>
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<td>Rural Roads</td>
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<td>2</td>
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<td>342</td>
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<td>18</td>
</tr>
</tbody>
</table>

Table A3: Summary Damage to Rural Transport Infrastructure (km)

km = kilometer.
Source: The State Overall Planning for Post-Wenchuan Earthquake Restoration and Reconstruction.

B. Project Objective

6. The rural road reconstruction will support Sichuan and Shaanxi provinces in restoring the livelihood and economic activities of the affected population, and accelerate poverty alleviation in the earthquake-affected areas that are vulnerable to a high poverty incidence.

7. Most damaged roads were constructed by villagers without proper design standards, and will be improved by the Project. The current pavement did not allow vehicles to operate properly because of poor surface maintenance. The width of some sections was insufficient to allow two-way traffic, and drainage systems were not properly designed and of insufficient capacity for the anticipated (design) rainfall intensity. Many slopes were not protected. The national highway design standards and seismic codes will be employed during road reconstruction, and the higher design standards will provide faster, safer, and easier access to markets and public services for villagers, and entail lower maintenance costs for local governments.

C. Reconstruction Planning and Design

8. All roads are part of the overall reconstruction plan approved by the State Council and the provincial rural road network planned for reconstruction. The new alignment is planned on the original right-of-way. These roads will adopt higher design standards, and the design standards of most roads is class III or IV, with a few class II standard roads. The minimum pavement width is 4.5 meters (m) for sections with one-way traffic. The minimum shoulder width is 0.25 m (to be installed on both sides). Drainage will be designed using rainfall intensity of 5-year recurrence. Slope protection such as retaining walls will be installed where needed. Traffic safety equipment such as road marking and signs will be installed.

D. Construction Quality

9. To ensure the construction quality, the civil works contractors will be provided clear instructions in the bidding documents and their activities will be supervised. The civil works bidding document, including technical specifications, will be prepared by the design consultant, and will describe the construction method, construction material quality, site management requirements, and environmental protection measures. The civil works will be supervised under the 2004 Rural Road Construction Quality Control Ordinance and the 2007 Supervision Specifications for Construction of Highway Engineering, as prepared by the Government. Accordingly, implementing agencies will designate qualified construction supervisors, who will reside on site and will monitor all civil works activities to ensure adequate construction methods, quality of material, construction safety, and environmental protection. The supervisors’ activities will be documented and will be reported periodically to the implementing agencies.

E. Maintenance

10. A rural road maintenance system was being established before the Wenchuan earthquake. The Government provided guidelines on rural road maintenance reform in 2005, under which provincial governments would establish their own rural road maintenance systems. The county governments are primarily responsible for rural road maintenance. The county governments prepare maintenance plans, bear maintenance costs, supervise maintenance activities, and organize township and village governments’ road maintenance activities. Annual maintenance cost are budgeted at CNY15,000 per km for county roads, CNY6,000 per km for township roads, and CNY1,000 per km for village roads. These are funded by a road
maintenance fee. Municipal governments provide subsidies for a periodic maintenance budget when needed. According to the national guidelines, rural road maintenance is being outsourced. Many counties have already hired private companies for rural road maintenance through competitive bidding, which is carried out every 3 years. After the project road reconstruction, rural roads will be maintained adequately using the prevailing maintenance system in the two provinces.
SOCIAL SECTOR ASSESSMENT AND PROPOSED ASSISTANCE

A. Background

1. Prior to the earthquake (at the end of 2007), Shaanxi Province had 18,953 primary and secondary education facilities, which were adequate to serve the population of around 37 million, and provided coverage to the province’s urban and rural population.

2. The damage and needs assessment undertaken by the Government and validated by the technical assistance (TA) consultants\(^1\) noted that the extent of damage to the education sector was high and the buildings were not designed to an appropriate seismic code. Sichuan and Shaanxi are among the worst-affected provinces. In the earthquake-affected areas, 17,951 educational institutions were fully or partially damaged, including 12,253 in Sichuan Province, 5,455 in Shaanxi Province and 243 in Gansu Province. Many of these schools are at risk of collapsing as they have sustained significant damage. These losses have resulted in a significant disruption of both primary and secondary education services. The affected schools occupy 3.65 million square meters (m\(^2\)) and the economic losses in Shaanxi’s education sector constitute CNY2.2 billion.

3. Educational institutions of all levels, from primary schools to degree colleges, have suffered substantial damage. The earthquake affected 40 counties of Shaanxi Province, and three counties—Chencang, Lueyang, and Mian Xian—were particularly hard hit. In Shaanxi, 5,455 schools (about 25% of all schools) were damaged during the earthquake. It is reported that 11 students died, and 221 students and 10 teachers were injured. A summary of damage to educational institutions is in Table A4.1.

\[
\begin{array}{|c|c|c|}
\hline
\text{Institution} & \text{Total Number of Institutions} & \text{Number of Damaged Institutions} \\
\hline
\text{Primary School} & 16,316 & 4,181 \\
\text{Junior Secondary School} & 2,001 & 882 \\
\text{Senior Secondary School} & 636 & 184 \\
\hline
\text{Total} & 18,953 & 5,247 \\
\hline
\end{array}
\]

\(^a\) Data is not available for technical secondary schools, vocational schools, special schools, and higher educational institutions.

Source: Asian Development Bank estimates.

4. The Government responded quickly to the earthquake emergency. In Shaanxi, the Government has provided temporary teaching facilities in heavily affected areas in the form of metal tents, where teaching and learning has continued. In addition, the Government organized training targeted for head teachers in affected schools on how to run schools, and how to teach students in emergency situations. The Government has plans to reconstruct 731 schools in 38 counties of Shaanxi, which will cost CNY5.7 billion and will occupy 4.51 million m\(^2\). Reconstruction will be carried out in batches over 2009–2010. Reconstruction of the first batch of education facilities has already begun. The Government is financing the reconstruction of 117 schools, including 63 primary and 51 junior secondary schools, occupying 0.84 million m\(^2\) at a total cost of CNY1.65 billion. However, the education reconstruction needs are enormous and will take a substantial amount of time and resources to complete.

5. The Government of the People’s Republic of China has requested the Asian Development Bank (ADB) to finance reconstruction of 12 partly and completely destroyed high-priority government school buildings in Shaanxi’s three worst-affected counties of Chencang,

Lueyang, and Mian Xian. Immediate restoration of education facilities in the worst-affected counties will benefit students, parents, teachers, and communities.

6. Lueyang county has 120 educational institutions (consisting of eight kindergartens, 94 primary schools, 11 junior secondary schools, one senior secondary school, one secondary technical school, one complex school\(^2\) and one teacher training college), which serve 24,511 students. The earthquake has caused different degrees of damage to primary and secondary schools in the county.\(^3\) There are 138 educational institutions in Mian Xian county (including six kindergartens, 113 primary schools, one compulsory complex school,\(^4\) 11 junior secondary schools, one senior secondary school, one complex secondary school,\(^5\) one secondary technical school and one teacher training college); enrolment is 25,511 students, and there are 1,995 teachers. The earthquake damaged 132 of Mian Xian county’s schools. There are 273 schools in Chencang county, including 213 primary schools, 43 junior secondary and eight senior schools, one special school and one teacher training college; 91,486 students are enrolled, and 6,218 teachers work in the county. The earthquake damaged 176 schools with a total area of 12.6 million m\(^2\), and 67,521 students were affected to differing degrees by the earthquake.

B. Objective

7. The objective of this component is to contribute to reversing the devastating impact of the Wenchuan earthquake and to enable people to resume and improve their livelihoods and return to normal life. The education component will focus on reconstructing and rehabilitating 12 high-priority schools. Reconstructing the schools early would ensure that disruption to provision of education services is minimized.

8. The Project will rehabilitate and reconstruct 12 high-priority earthquake-damaged education facilities in the three worst-affected counties in Shaanxi Province. Reconstruction will adopt improved earthquake-resistant design. Some essential furniture and equipment will also be procured for selected reconstructed and repaired schools. A general principle of “build back better” will be followed and rebuilt schools will be better of better quality and design, and include ancillary facilities—such as dormitories, dining rooms, reading rooms, and toilet facilities—as part of new construction.

9. This approach is advocated in the short-term recovery strategy recommended in the damage and needs assessment and agreed with the Government. By financing the most urgently needed components and works, the ADB loan will support a portion of the Government’s overall reconstruction and rehabilitation program, provide assistance to vulnerable groups, help restore the economic activity essential to the survival of residents in the heavily affected areas, and restore and improve the provision of education services. Reconstructed schools with improved seismic designs and improved teaching and learning facilities will serve as model schools for the reconstruction of the remaining damaged and affected schools that require rebuilding and repair.

10. The selection of the various education facilities under the Project is based on the needs assessment exercise undertaken and the priorities determined by the Shaanxi provincial government. The selection is based on the following criteria:

---

\(^2\) One school that covers grades 1–12.
\(^3\) Three hundred and sixty-five classrooms collapsed.
\(^4\) One school that covers grades 1–9.
\(^5\) One school that covers grades 7–12.
Appendix 4

(i) education facilities are located in the earthquake affected zone in Shaanxi;
(ii) the work address the basic emergency needs in the affected areas;
(iii) subprojects are considered a priority for ADB assistance by the Shaanxi provincial government; and
(iv) subprojects are technically feasible, cost efficient, and financially sustainable.

11. TA grant support will be provided for capacity building to support the operation of the new schools through establishment of model schools, training of master teachers, and assistance to the Shaanxi Bureau of Education to reestablish the education system in the worst-affected counties. Grant support will involve (i) establishment of two model schools, focusing on information and communication technology and on natural sciences; (ii) needs assessment and development of training materials; and (iii) provision of in-service training to teachers, including in areas such as student-centered and active learning.

C. Cost Estimates and Financing Plan

12. The cost of the education subcomponent is estimated at $24.4 million. Summary of cost estimates are provided in Table A4.2.

<table>
<thead>
<tr>
<th>Source</th>
<th>Total Cost ($ million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civil Works</td>
<td>15.7</td>
</tr>
<tr>
<td>Equipment</td>
<td>4.0</td>
</tr>
<tr>
<td><strong>Base Cost</strong></td>
<td><strong>19.7</strong></td>
</tr>
<tr>
<td>Contingencies</td>
<td>2.7</td>
</tr>
<tr>
<td>Interest and Other Charges</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>24.4</strong></td>
</tr>
</tbody>
</table>

Source: Asian Development Bank estimates.

13. ADB will finance 100% of the cost of the education component, including a loan of $24.4 million from the ordinary capital resources. The financing plan is provided in Table A4.3.

<table>
<thead>
<tr>
<th>Source</th>
<th>Total Cost ($ million)</th>
<th>Financing (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asian Development Bank</td>
<td>24.4</td>
<td>100</td>
</tr>
<tr>
<td>Government</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>24.4</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Asian Development Bank estimates.

D. Implementation Arrangements

14. The Hanzhong and Baoji city governments will be the executing agencies (EAs) for the education component. County education bureaus in Chencang, Lueyang, and Mian Xian counties will be the implementing agencies (IAs). Leading groups have been set up at the three counties to oversee implementation. The county-level IAs will undertake overall management of the education component, including (i) procurement of civil works and equipment, (ii) supervision of construction for quality assurance, (iii) coordination with other departments and line agencies, (iv) monitoring, and (v) audit of accounts and preparation of progress reports. The IAs will undertake procurement under the oversight of the county leading groups, which will include finance bureau representation. The IAs will be responsible for (i) preparation of the layout for primary and secondary schools, including detailed engineering with seismic
provisions, bid preparation, assistance in procurement, supervision/contract administration of civil works, quality assurance of civil works, and procurement of equipment; and (ii) project management and reporting.

E. Accounting, Auditing, and Reporting

15. The EAs will provide ADB with quarterly progress reports detailing the progress of contract awards, disbursement, and project implementation, based on the reports prepared by the IAs. In addition, regular field reviews will be carried out by ADB together with the EAs and IAs to monitor physical progress of civil works for quality assurance and compliance with other ADB requirements such as procurement, accounting and consultation/participation of nongovernment organizations and communities, as applicable.

16. The Government will maintain separate records and accounts for the loan and imprest accounts. The EAs, operating through their respective project monitoring offices (PMOs), will establish and maintain separate records for subprojects, works, goods and services financed out of the loan proceeds. Detailed consolidated annual project accounts as maintained by PMO will be audited by independent auditors whose qualifications, experience and terms of reference are acceptable to ADB and will be submitted to ADB within 6 months of the end of the fiscal year.

17. A set of performance monitoring indicators, including qualitative indicators, will be identified and collected during implementation, and the PMOs will implement the necessary arrangements for a systematic project performance monitoring system.

F. Project Benefits and Beneficiaries

18. The Project will contribute to the Government’s efforts to rebuild the economy, rehabilitate public infrastructure and utilities, and generate employment. The rehabilitation and reconstruction of damaged schools will restore disrupted education services. Reconstruction of education facilities will offer long-term benefits for affected persons by supporting opportunities for employment and participation in economic activities. Local communities and beneficiaries will actively participate in the selection, design, implementation, and operation and maintenance of all works carried out under the Project. The Project addresses the needs of vulnerable groups, including children in remote and poor areas.

19. The merging of selected schools in the three affected counties of Shaanxi under the education component will improve economies of scale and increase the efficiency of educational expenditures in affected areas through savings in administrative, instructional and other related educational costs. Construction of dormitory and ancillary facilities adjacent to the reconstructed school buildings will enhance enrolment rates among students in remote and mountainous areas of Shaanxi Province.

20. By establishing two model schools, focusing on information and communication technology and on natural sciences, the Project will develop a model that can be replicated in other schools in the affected counties. Teachers will benefit from the training in student-centered methodologies that will be provided under the grant. Reconstruction of schools, provision of essential school equipment, and training of teachers in interactive learning and other modern teaching methodologies will help the provincial government build a better education system in Shaanxi Province.
Table A5.1: Detailed Cost Estimates of Sichuan Rural Road
($ million)\textsuperscript{a}

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
<th>ADB</th>
<th>% of Cost Category\textsuperscript{b}</th>
<th>Government</th>
<th>% of Cost Category</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$</td>
<td>$</td>
<td>%</td>
<td>$</td>
<td>%</td>
</tr>
<tr>
<td><strong>A. Base Cost</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Civil Works</td>
<td>282.7</td>
<td>277.0</td>
<td>92</td>
<td>5.7</td>
<td>14</td>
</tr>
<tr>
<td>2. Design Procurement and Construction Supervision</td>
<td>0.2</td>
<td>0.0</td>
<td>0</td>
<td>0.2</td>
<td>0</td>
</tr>
<tr>
<td>3. Project Management</td>
<td>12.6</td>
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<td>0</td>
<td>12.6</td>
<td>31</td>
</tr>
<tr>
<td><strong>Total Base Cost (A)</strong></td>
<td>295.5</td>
<td>277.0</td>
<td>92</td>
<td>18.5</td>
<td>45</td>
</tr>
<tr>
<td><strong>B. Contingencies</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Physical Contingency\textsuperscript{c}</td>
<td>13.9</td>
<td>0.0</td>
<td>0</td>
<td>13.9</td>
<td>34</td>
</tr>
<tr>
<td>2. Price Contingency\textsuperscript{d}</td>
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<td>0.0</td>
<td>0</td>
<td>8.6</td>
<td>21</td>
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<tr>
<td><strong>Subtotal (B)</strong></td>
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<td>0.0</td>
<td>0</td>
<td>22.4</td>
<td>55</td>
</tr>
<tr>
<td><strong>C. Financing Charges During Implementation\textsuperscript{e}</strong></td>
<td>23.0</td>
<td>23.0</td>
<td>8</td>
<td>0.0</td>
<td>0</td>
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<tr>
<td><strong>Total Project Costs</strong></td>
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<td>100</td>
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<tr>
<td><strong>% Total Project Cost</strong></td>
<td>88</td>
<td></td>
<td>100</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

\textsuperscript{a} Exchange rate: $1 = CNY6.8.
\textsuperscript{b} The amounts disbursed by the Asian Development Bank for eligible expenditures under a cost category will be subject to the ceiling set by the allocation of loan proceeds for such cost category.
\textsuperscript{c} At 5% of base cost.
\textsuperscript{d} At 5% per annum for 2009–2011.
\textsuperscript{e} Bank charges including interest, commitment charge, and taxes and duties will be financed from the loan resources or from Government counterpart funds.
Source: Asian Development Bank estimates.
### Table A5.2: Detailed Cost Estimates of Shaanxi Rural Road
($ million)\(^a\)

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
<th>ADB</th>
<th>% of Cost Category</th>
<th>Government</th>
<th>% of Cost Category</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$</td>
<td>$</td>
<td></td>
<td>$</td>
<td></td>
</tr>
<tr>
<td><strong>A. Base Cost</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Civil Works</td>
<td>61.2</td>
<td>60.6</td>
<td>81</td>
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<td>86</td>
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<td>2. Design Procurement and Construction Supervision</td>
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<td>3. Project Management</td>
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<td>0.1</td>
<td>14</td>
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<tr>
<td><strong>Total Base Cost (A)</strong></td>
<td>63.2</td>
<td>62.5</td>
<td>83</td>
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<td>100</td>
</tr>
<tr>
<td><strong>B. Contingencies</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Physical Contingency(^c)</td>
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<td>2.4</td>
<td>3</td>
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<tr>
<td>2. Price Contingency(^d)</td>
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<td>3.2</td>
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<tr>
<td><strong>Subtotal (B)</strong></td>
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<td>5.6</td>
<td>7</td>
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<tr>
<td><strong>C. Financing Charges During Implementation(^e)</strong></td>
<td>7.5</td>
<td>7.5</td>
<td>10</td>
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<tr>
<td><strong>Total Project Costs</strong></td>
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<td>100</td>
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<tr>
<td><strong>% Total Project Cost</strong></td>
<td>99</td>
<td></td>
<td></td>
<td>1</td>
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</tr>
</tbody>
</table>

\(^a\) Exchange rate: $1 = CNY6.8.
\(^b\) The amounts disbursed by the Asian Development Bank for eligible expenditures under a cost category will be subject to the ceiling set by the allocation of loan proceeds for such cost category.
\(^c\) At 5% of base cost.
\(^d\) At 5% per annum for 2009–2011.
\(^e\) Bank charges including interest, commitment charge, and taxes and duties will be financed from the loan resources or from Government counterpart funds.

Source: Asian Development Bank estimates.
Table A5.3: Detailed Cost Estimates of Shaanxi Education
($ million)\(^a\)

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
<th>ADB</th>
<th>% of Cost Category</th>
<th>Government</th>
<th>% of Cost Category</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$</td>
<td>$</td>
<td>%</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>A. Base Cost</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Civil Works</td>
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<td>17.5</td>
<td>72</td>
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<td>0</td>
</tr>
<tr>
<td>2. Design, Procurement, and Construction Supervision</td>
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<td>4</td>
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<td>0</td>
</tr>
<tr>
<td>3. Project Management</td>
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<td>1.2</td>
<td>5</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total Base Cost (A)</strong></td>
<td>19.7</td>
<td>19.7</td>
<td>81</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td><strong>B. Contingencies</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Physical Contingency(^c)</td>
<td>1.5</td>
<td>1.5</td>
<td>6</td>
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<td>0</td>
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<tr>
<td>2. Price Contingency(^d)</td>
<td>1.2</td>
<td>1.2</td>
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<tr>
<td><strong>Subtotal (B)</strong></td>
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<td>2.7</td>
<td>11</td>
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<td>0</td>
</tr>
<tr>
<td><strong>C. Interest and Other Charges During Implementation(^e)</strong></td>
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<td>8</td>
<td>0.0</td>
<td>0</td>
</tr>
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<td><strong>Total Project Costs</strong></td>
<td>24.4</td>
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</tr>
<tr>
<td><strong>% Total Project Cost</strong></td>
<td>100</td>
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<td></td>
</tr>
</tbody>
</table>

\(^{a}\) Exchange rate: $1 = CNY6.8.

\(^{b}\) The amounts disbursed by the Asian Development Bank for eligible expenditures under a cost category will be subject to the ceiling set by the allocation of loan proceeds for such cost category.

\(^{c}\) At 5\% of base cost.

\(^{d}\) At 5\% per annum for 2009–2011.

\(^{e}\) Bank charges including interest, commitment charge, and taxes and duties will be financed from the loan resources or from Government counterpart funds.

Source: Asian Development Bank estimates.
FUNDS FLOW AND PROJECT IMPLEMENTATION ARRANGEMENT

Figure A6.1: ADB Funds Flow for Sichuan Province

ADB = Asian Development Bank, CIFD = city finance department, CFD = county finance department, MOF = Ministry of Finance, PFD = provincial finance department, PMO = project management office.

Source: Ministry of Finance, People's Republic of China.

Figure A6.2: ADB Funds Flow for Shaanxi Province


Source: Ministry of Finance, People's Republic of China.
Figure A6.3: Project Implementation Arrangement in Sichuan Province

ADB = Asian Development Bank, EA = executing agency, IA = implementing agency, MOF = Ministry of Finance, PMO = project management office, SHAB = Sichuan Highway Administration Bureau, SPCD = Sichuan Provincial Communication Department.

Source: Ministry of Finance, People's Republic of China.

Figure A6.4: Project Implementation Arrangement in Shaanxi Province


Source: Ministry of Finance, People's Republic of China.
PROCEDURES FOR SELECTION, APPROVAL, AND IMPLEMENTATION OF SUBPROJECTS

A. Transport Component

1. Sichuan and Shaanxi provincial communications departments have prepared feasibility study reports and these subprojects will be implemented as planned at loan fact-finding. However, if a new road section or bridge is proposed to be included, the following selection criteria will be applied.

   (i) The subproject should be located in one of the 19 earthquake-affected counties of Sichuan Province or any of the four affected counties of Shaanxi Province, and should be part of the State Overall Plan for Post-Wenchuan Earthquake Restoration and Reconstruction.

   (ii) The selection of sections should be based on timeliness criteria (matching the readiness of the subprojects with the availability of loan and other funds, as applicable) and consider the magnitude of socioeconomic impacts.

   (iii) Sections that address the isolation of communities will be given higher priority.

   (iv) It is preferable to avoid areas requiring resettlement. However, for any section involving land acquisition or resettlement, Involuntary Resettlement Policy (1995) of the Asian Development Bank (ADB), as set out in the resettlement framework, will be applied.

   (v) It is preferable to avoid any serious environmental adverse impacts. The design and implementation of selected sections should comply with the environmental protection laws and regulations of the People’s Republic of China (PRC) and ADB’s Environment Policy (2002), and the agreed environmental assessment and review framework.

   (vi) Subprojects should be technically feasible, cost-efficient, and financially sustainable.

B. Education Component

2. The selection of the various education facilities under the Project is based on the needs assessment exercise undertaken and the priorities determined by the Shaanxi provincial government. Based on feasibility study reports, these subprojects will be implemented as planned at loan fact-finding. However, if a new school is proposed to be included, the selection will be based on the following criteria.

   (i) Subprojects should be located in one of the four earthquake-affected counties of Shaanxi Province, and should be part of the program for rehabilitation of educational facilities under the State Overall Plan for Post-Wenchuan Earthquake Restoration and Reconstruction.

   (ii) Selection of the educational institute should be based on timeliness criteria (matching the readiness of the subprojects with the availability of loan and other funds, as applicable) and consider the magnitude of socioeconomic impacts.

   (iii) Schools located in the remote isolated area will be given preference.

   (iv) It is preferable to avoid any area that requires major resettlement. However, for any school involving land acquisition or resettlement, ADB’s Involuntary Resettlement Policy, as set out in the resettlement framework, will be applied.

   (v) It is preferable to avoid any serious environmental adverse impacts. The design and implementation of selected schools should comply with the environmental
protection laws and regulations of the PRC, as well as ADB’s *Environment Policy*, and the agreed environmental assessment and review framework.

(vi) Subprojects should be technically feasible, cost-efficient, and financially sustainable.
## IMPLEMENTATION SCHEDULE

<table>
<thead>
<tr>
<th>Content</th>
<th>2008</th>
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<th>2010</th>
<th>2011</th>
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<td><strong>A. Design</strong></td>
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<tr>
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<td></td>
<td></td>
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<tr>
<td>Shaanxi Rural Road and Bridges</td>
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</tr>
<tr>
<td>Shaanxi School</td>
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<tr>
<td><strong>B. Procurement</strong></td>
<td></td>
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<td>Sichuan Rural Road</td>
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<td>Shaanxi Rural Road and Bridges</td>
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<td><strong>C. Civil Works</strong></td>
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<td></td>
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<tr>
<td>Shaanxi School</td>
<td></td>
<td></td>
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<td><strong>D. Physical Completion Works</strong></td>
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<td></td>
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<td>Shaanxi Rural Road and Bridges</td>
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<tr>
<td>Shaanxi School</td>
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</table>

Source: Asian Development Bank estimates.
PROCUREMENT PLAN

Table A9.1: Project Information

<table>
<thead>
<tr>
<th>Item</th>
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<tr>
<td>Country</td>
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</tr>
<tr>
<td>Name of Borrower</td>
<td>People’s Republic of China</td>
</tr>
<tr>
<td>Project Name</td>
<td>Emergency Assistance for Wenchuan Earthquake Reconstruction Project</td>
</tr>
<tr>
<td>Loan Reference</td>
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</tr>
<tr>
<td>Date of Effectiveness</td>
<td>Expected by March 2009</td>
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<td>ADB’s Financing Amount</td>
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<td>Executing Agency</td>
<td>Sichuan Provincial Communications Department</td>
</tr>
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<td></td>
<td>Hanzhong and Baoji city governments</td>
</tr>
<tr>
<td>Approval Date of Initial Procurement Plan</td>
<td>27 November 2008</td>
</tr>
<tr>
<td>Approval Date of Most Recent Procurement Plan</td>
<td>6 February 2009</td>
</tr>
<tr>
<td>Media of Publication of Local Advertisements*</td>
<td>To be determined (newspaper or website)</td>
</tr>
<tr>
<td>Period Covered by this Plan</td>
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ADB = Asian Development Bank.
* General procurement notice, invitations to prequalify and bid, and calls for expressions of interest.
Source: ADB estimates.

Table A9.2: Threshold for Procurement

<table>
<thead>
<tr>
<th>Procurement Method</th>
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<td>ICB Works</td>
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</tr>
<tr>
<td>NCB Works</td>
<td>Equal to or more than $1 million and equal to or less than $10 million</td>
</tr>
<tr>
<td>Shopping Works</td>
<td>Equal to or more than $100,000 and less than $1 million</td>
</tr>
<tr>
<td>Direct Contracting</td>
<td>Less than $100,000</td>
</tr>
<tr>
<td>ICB Goods</td>
<td>More than $1 million</td>
</tr>
<tr>
<td>Shopping Goods</td>
<td>Equal to or more than $0.1 million and equal to or less than $1 million</td>
</tr>
<tr>
<td>Direct Contracting</td>
<td>Less than $100,000</td>
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</table>

ICB = international competitive bidding, NCB = national competitive bidding.
Source: Asian Development Bank estimates.

Table A9.3: Contract Packages for Rural Road Civil Works

<table>
<thead>
<tr>
<th>Packaging</th>
<th>Description</th>
<th>Length (km)</th>
<th>CNY (Million)</th>
<th>$ Million</th>
<th>Procurement Mode</th>
<th>Procurement Notice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shaanxi</td>
<td>Lueyang</td>
<td>3 Packages</td>
<td>81.6</td>
<td>111.6</td>
<td>16.4</td>
<td>NCB</td>
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<td></td>
<td>Mian Xian</td>
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<td>79.1</td>
<td>11.6</td>
<td>NCB</td>
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<tr>
<td></td>
<td>Ningqiqing</td>
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<td>138.7</td>
<td>20.4</td>
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<td></td>
<td>Chencang</td>
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<td>82.6</td>
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<td></td>
<td>Dayi</td>
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<td>68.0</td>
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Source: ADB estimates.
<table>
<thead>
<tr>
<th>Packaging</th>
<th>Description</th>
<th>Length (km)</th>
<th>CNY (Million)</th>
<th>$ Million</th>
<th>Procurement Mode</th>
<th>Procurement Notice</th>
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<td>Wangcang</td>
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<td>January 2010</td>
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<td>Zitong</td>
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<td>64.9</td>
<td>9.5</td>
<td>NCB</td>
<td>February 2009</td>
</tr>
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<td>Langzhong</td>
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<td>February 2009</td>
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<td>66.0</td>
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<td>NCB</td>
<td>February 2009</td>
</tr>
</tbody>
</table>

ICB = international competitive bidding, km = kilometer, NCB = national competitive bidding.

Note: Exchange rate applied is $1.00 = CNY6.8. The Asian Development Bank will conduct prior review of bidding documents, technical and price evaluation reports and award recommendations for all packages estimated to cost over $10 million. For contracts estimated to cost $10 million or less, the Asian Development Bank will review and approve the first contracts for each implementing agency; post-facto approval procedures will follow if procurement procedures are satisfactory. Small works contracts with an estimated cost of $20,000 or less in each case may be awarded to community organizations in accordance with practices and procedures acceptable to ADB.

Sources: Sichuan Provincial Communications Department and Hanzhong and Baoji city governments.

Table A9.4: Education Component Procurement in Shaanxi

<table>
<thead>
<tr>
<th>Packaging</th>
<th>Description</th>
<th>$ Million</th>
<th>Procurement Mode</th>
<th>Procurement Notice</th>
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<tr>
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<td>NCB</td>
<td>February 2009</td>
</tr>
<tr>
<td>Mian Xian</td>
<td>2 packages</td>
<td>6</td>
<td>NCB</td>
<td>February 2009</td>
</tr>
<tr>
<td>Chencang</td>
<td>5 packages</td>
<td>10</td>
<td>NCB</td>
<td>February 2009</td>
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</tbody>
</table>

NCB = national competitive bidding.

Note: The Asian Development Bank will conduct prior review of bidding documents, technical and price evaluation reports and award recommendations for all packages estimated to cost over $10 million. For contracts estimated to cost $10 million or less, the Asian Development Bank will review and approve the first contracts for each implementing agency; post-facto approval procedures will follow if procurement procedures are satisfactory. Small works contracts with an estimated cost of $20,000 or less in each case may be awarded to community organizations in accordance with practices and procedures acceptable to ADB.

Sources: Hanzhong and Baoji city governments.
Table A9.5: Construction Supervision

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>$ Million</th>
<th>Selection Method</th>
<th>Type of Proposals</th>
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<th>Advertisement</th>
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<td>SSS</td>
<td>Biodata</td>
<td>Prior</td>
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<td>Baoji</td>
<td>0.7</td>
<td>SSS</td>
<td>Biodata</td>
<td>Prior</td>
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<td>Total</td>
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</tbody>
</table>

ADB = Asian Development Bank, SSS = single source selection.
Sources: Sichuan Provincial Communications Department and Hanzhong and Baoji city governments.

A. National Competitive Bidding

1. The Borrower’s Law of Tendering and Bidding of the People’s Republic of China promulgated by Order No. 21 of the President of the People’s Republic of China on August 30, 1999, is subject to the following clarifications required for compliance with the guidelines:

   (i) All invitations to prequalify or to bid shall be advertised in the national press, or official gazette, or a free and open-access website in the Borrower’s country. Such advertisement shall be made in sufficient time for prospective bidders to obtain prequalification or bidding documents and prepare and submit their responses. In any event, a minimum preparation period of 14 days shall be given. The preparation period shall count (a) from the date of advertisement, or (b) when the documents are available for issue, whichever date is later. The advertisement and the prequalification and bidding documents shall specify the deadline for such submission.

   (ii) Qualification requirements of bidders and the method of evaluating the qualification of each bidder shall be specified in detail in the bidding documents, and in the prequalification documents if the bidding is preceded by a prequalification process.

   (iii) If bidding is preceded by a prequalification process, all bidders that meet the qualification criteria set out in the prequalification document shall be allowed to bid and there shall be no limit on the number of pre-qualified bidders.

   (iv) All bidders shall be required to provide a performance security in an amount sufficient to protect the Borrower and Project Executing Agency in case of breach of contract by the contractor, and the bidding documents shall specify the required form and amount of such performance security.

   (v) Bidders shall be allowed to submit bids by mail or by hand.

   (vi) All bids shall be opened in public; all bidders shall be afforded an opportunity to be present (either in person or through their representatives) at the time of bid opening, but bidders shall not be required to be present at the bid opening.

   (vii) All bid evaluation criteria shall be disclosed in the bidding documents and quantified in monetary terms or expressed in the form of pass/fail requirements.

   (viii) No bid may be rejected solely on the basis that the bid price falls outside any standard contract estimate, or margin or bracket of average bids established by the Borrower and Project Executing Agency.
(ix) Each contract shall be awarded to the lowest evaluated responsive bidder, that is, the bidder who meets the appropriate standards of capability and resources and whose bid has been determined (a) to be substantially responsive to the bidding documents, and (b) to offer the lowest evaluated cost. The winning bidder shall not be required, as a condition of award, to undertake responsibilities for work not stipulated in the bidding documents or otherwise to modify the bid as originally submitted.

(x) Each contract financed with the proceeds of the Loan shall provide that the suppliers and contractors shall permit ADB, at its request, to inspect their accounts and records relating to the performance of the contract and to have said accounts and records audited by auditors appointed by ADB.

(xi) Government-owned enterprises in the Borrower’s country may be permitted to bid if they can establish that they (a) are legally and financially autonomous, (b) operate under commercial law and (c) are not a dependent agency of the Borrower and Project Executing Agency.

(xii) Re-bidding shall not be allowed solely because the number of bids is less than three.
OUTLINE TERMS OF REFERENCE FOR CONSTRUCTION SUPERVISION, RESETTLEMENT MONITORING, AND PROJECT PERFORMANCE MONITORING SYSTEM DATA COLLECTION

A. Objectives

1. National consultants will assist the implementing agency (IA) in ensuring that (i) designs are carried out to the appropriate engineering standards and building codes, (ii) all work associated with the project is carried out in full compliance with the designs and specifications, (iii) construction works are carried out without significant environmental adverse impacts, (iv) independent resettlement due diligence monitoring is carried out, and (v) project performance monitoring system (PPMS) data are collected. National consultants services are required for Sichuan (1,404 person–months)\(^1\) and Shaanxi (294 person-months)\(^2\) provinces.

B. Scope of Services and Staffing Requirements

2. National consultants will be recruited to supervise construction activities. The consultant supervision team will be composed of qualified engineers, with at least 5 years of practical experience in supervision and administration of road and building construction. Construction supervision activities will include the following:

   (i) assist the IA with contractors’ applications for subcontracting parts of the civil works, by reviewing ambiguities and discrepancies in contract documents, and settling disputes with contractors;
   (ii) ensure that all required data for setting out the civil works are provided;
   (iii) help the IA with drawing quality, and advise the IA on further drawing or instructions to the contractors;
   (iv) assist the IA in reviewing the contractors’ organizational arrangements, key personnel and construction programs, materials, and sources of materials;
   (v) monitor the progress of the works against programmed targets, advise the IA on measures to be taken to improve progress and quality, review and advocate proposed variation orders, determine rates for works, and decide on alternatives;
   (vi) inspect the quality of the works in terms of workmanship and compliance with specifications, including the seismic code; order, supervise, or perform tests on materials and civil works; advise on approval or disapproval of the contractors’ plan and equipment; propose, if required, the uncovering of completed civil works and the removal and replacement of improper material and works;
   (vii) check the progress of civil works, examine and review sampling measurements of any work that is about to be covered or put out of view before permanent work is placed thereon, examine the measurements of the completed civil works, and (as directed by the IA) order the initiation of additional civil works that are part of the contract;
   (viii) supervise the contractors in all matters concerning safety and environmental protection; and
   (ix) examine the contractors’ accounts, invoices, claims, and other statements for errors in complying with the contract, and suggest and make corrections.

---

\(^1\) Construction supervision, including environmental monitoring needs, 1,368 person-months; resettlement monitoring and PPMS data collection needs, 36 person-months.

\(^2\) Construction supervision, including environmental monitoring needs, 288 person-months; resettlement monitoring and PPMS data collection needs, 6 person-months.
3. Resettlement due diligence monitoring will be carried out by a national consultant and involves two tasks: (i) annual investigations and reporting on subprojects that have resettlement impacts in accordance with the terms of reference appended to the resettlement framework, and (ii) conducting due diligence for other subprojects to ensure there are no resettlement impacts. Before construction commencement, the consultant will confirm with the relevant county land and resources bureau whether the subprojects involve any land acquisition and resettlement. During construction, the consultant will periodically visit project sites to ensure that there are no involuntary resettlement impacts. The consultant will include the findings of due diligence in the annual resettlement monitoring and evaluation reports to be submitted to the Asian Development Bank (ADB) and the executing agencies (EAs). If the consultants find any unanticipated land acquisition and resettlement impacts, they will inform the IA, the EA, and ADB immediately. The IA will be required to either (i) avoid resettlement impacts, or (ii) prepare a short resettlement plan for submission to ADB. Before the civil works commencement at the resettlement site impact area, the resettlement plan should be forwarded to ADB for approval after endorsement by the IA.

4. National consultants recruited to develop and implement the PPMS will collect and analyze a set of indicators for evaluating project performance against project objectives, purposes, and outputs. A baseline survey will be conducted at the beginning of project implementation, and follow-up surveys at project completion, and 1 year and 3 years after completion. Data collected during and after implementation will be compared with the baseline data and the target values to be established by the EA and agreed upon with ADB before the works start. The main indicators to be monitored include (i) economic development and poverty indicators at the municipality level and for each county in the project area, (ii) transport costs and time for specific types of vehicles and trips, (iii) transport services and charges, (iv) accident rates, (v) township incomes per capita, (vi) number of student in each school, (vii) number of teachers trained, and (viii) jobs created during construction and maintenance. Where relevant, indicators will be differentiated by gender and main minority groups. The data collection method will consist of (i) reviewing secondary data from local government statistics, (ii) conducting household socioeconomic sample surveys, and (iii) developing participatory rural appraisal methods among communities affected by the local roads.
## PROJECT PERFORMANCE MANAGEMENT SYSTEM

<table>
<thead>
<tr>
<th>Monitoring Tool</th>
<th>Major Indicators to be Monitored (Baseline and target figures to be incorporated into PAM)</th>
<th>Monitoring Agency</th>
<th>Accountable Agency</th>
<th>Reporting Frequency</th>
</tr>
</thead>
</table>
| Viability      | • Length of roads (total and class size) reconstructed in Sichuan and Shaanxi provinces  
                  • Number of bridges reconstructed/rehabilitated in Shaanxi province  
                  • Number of schools reconstructed in Shaanxi province  
                  • Number of teachers trained | SPCD, HCG, and BCG | SPCD, HCG, and BCG | Annually            |
|                | **Audited Project Accounts**  
                  • Audited project accounts  
                  • External auditor's checklist | CNAO              | SPCD, HCG, and BCG | Annually            |
| Notice         | • Notice to proceed/Notice of resettlement completion/Notice of provisional and final acceptance of the facilities | SPCD, HCG, and BCG | SPCD, HCG, and BCG | Within a reasonable time |
| Safeguards     | **Environment Monitoring Report**  
                  • Environmental Impact  
                  • Air quality | External Monitor | SPCD, HCG, and BCG | Annually            |
| Resettlement Monitoring Report | • Land acquisition  
                  • Compensation payments  
                  • Rehabilitation  
                  • Grievances | External Monitor | SPCD, HCG, and BCG | Annually            |
| Technical Feasibility | **Quarterly Progress Report**  
                  • Implementation schedule  
                  • Contract award  
                  • Disbursements  
                  • Physical progress by contract  
                  • Update of project cost estimate | SPCD, HCG, and BCG | SPCD, HCG, and BCG | Quarterly until the quarter in which physical completion takes place or the loan account with ADB is closed, whichever is later. Within 3 months from the end of each quarter. |
| All            | **Midterm Review**  
                  • Evaluation of various aspects of project implementation including technical, institutional, economic, and social | SPCD, HCG, and BCG | SPCD, HCG, and BCG | In second year from the signing of the Loan Agreement |
| All            | **PCR**  
                  • Evaluation of various aspects of project implementation including technical, institutional, economic, and sector performance | SPCD, HCG, and BCG | SPCD, HCG, and BCG | Within 3 months after physical completion |

**Source:** ADB estimates.
OUTLINE OF THE TECHNICAL ASSISTANCE

A. Introduction

1. The Government of the People’s Republic of China (PRC) has requested the Asian Development Bank (ADB) to provide a $400 million loan to fund reconstruction in Sichuan and Shaanxi, two of the worst earthquake-affected provinces in the PRC. The Emergency Assistance for Wenchuan Earthquake Reconstruction Project will provide $300 million for rural road reconstruction in Sichuan Province and $100 million for reconstruction of rural roads and bridges and primary and middle schools in Shaanxi Province. The Project seeks to (i) build on the immediate relief provided by the Government in the earthquake-affected provinces; (ii) contribute to coordinated rehabilitation and reconstruction by different development partners and the Government; and (iii) specifically address sustainable recovery priorities by providing indirect livelihood support through public infrastructure rehabilitation and reconstruction, which generates public employment and underpins the restoration of livelihood activities by rehabilitating roads, bridges, and schools. The Government also requested grant support for capacity building for project implementation, and the Project’s education and transport components. The technical assistance (TA) will assist in ensuring smooth and speedy project implementation, and provide support to the transport and education investment components.

B. Scope

2. The TA grant support will have three components. The project implementation component will provide capacity-building support to the executing and implementing agencies for speedy and smooth implementation, particularly regarding procurement, disbursement, monitoring, and quality control. The TA for the education component will involve (i) establishment of two model schools, focusing on information and communication technology and on natural sciences; (ii) development of training materials, and provision of in-service training to teachers, including in areas such as student-centered learning; and (iii) teacher capacity building in the worst-affected counties. In the transport sector, the TA will provide capacity building regarding (i) the provision of guidance regarding road construction quality in remote and mountainous areas, and (ii) sustainable rural road operation and maintenance systems.

C. Methodology and Key Activities

3. Individual consultants will be hired to implement the TA. For the project implementation component, the consultants will assist the executing agencies (EAs) and the implementing agencies (IAs) in project implementation, project monitoring, and reporting. The consultants will provide capacity-building support to the staff of the EAs and IAs and the project monitoring offices regarding ADB procedures on procurement, safeguards, project performance and reporting. They will also help in establishing the initial project implementation system and train staff in its operation. For the education component, the consultants will provide capacity-building support to the teachers in the affected counties, develop the training materials for student-centered learning, and help in establishing the two model schools, including procuring the necessary equipment for information and communication technology and science laboratories. They will work closely with the EAs and IAs to develop the curriculum for teaching disaster preparedness in the schools and carrying out mock drills for safe evacuation in emergencies. For the transport component, the consultants will review current construction techniques and methods in remote and mountainous areas, compare these with the existing seismic and building codes, and recommend practices that can be adopted in the road and bridge
construction. The consultants will also review the operation and maintenance system for the rural roads and recommend possible options that can be adopted by local governments to establish a sustainable and reliable operation and maintenance system for the rural roads. Capacity-building support in the form of training will be provided for all the three components. Workshops and seminars will be organized to disseminate the TA findings. The TA will be undertaken in close consultation with the EAs, IAs, local and provincial governments, and other stakeholders. The study will build on ADB's ongoing policy dialogue and will consider all previous studies by the Government, ADB, the World Bank, and other multilateral and bilateral agencies.

**D. Cost and Financing**

4. The total cost of the TA is estimated at $850,000. The Government has requested that ADB finance $700,000 and will finance the remaining $150,000, which will cover office accommodation and the counterpart staff required to implement the TA. The detailed cost estimate is in Table A12.

<table>
<thead>
<tr>
<th>Table A12: Cost Estimates and Financing Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>($'000)</td>
</tr>
<tr>
<td><strong>Item</strong></td>
</tr>
<tr>
<td><strong>Asian Development Bank (ADB) Financing</strong></td>
</tr>
<tr>
<td>1. Consultants</td>
</tr>
<tr>
<td>a. Remuneration and Per Diem</td>
</tr>
<tr>
<td>i. International Consultants</td>
</tr>
<tr>
<td>ii. National Consultants</td>
</tr>
<tr>
<td>b. International and Local Travel</td>
</tr>
<tr>
<td>c. Translation, Reports, and Communications</td>
</tr>
<tr>
<td>2. Equipment</td>
</tr>
<tr>
<td>3. Training, Seminars, and Conferences</td>
</tr>
<tr>
<td>4. Miscellaneous Administration and Support Costs</td>
</tr>
<tr>
<td>5. Contingencies</td>
</tr>
<tr>
<td><strong>Subtotal (A)</strong></td>
</tr>
<tr>
<td><strong>Government Financing</strong></td>
</tr>
<tr>
<td>1. Office Accommodation and Facilities</td>
</tr>
<tr>
<td>2. Remuneration and Per Diem of Counterpart Staff</td>
</tr>
<tr>
<td>3. Others</td>
</tr>
<tr>
<td><strong>Subtotal (B)</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Asian Development Bank (ADB) Financing</td>
<td></td>
</tr>
<tr>
<td>1. Consultants</td>
<td></td>
</tr>
<tr>
<td>a. Remuneration and Per Diem</td>
<td></td>
</tr>
<tr>
<td>i. International Consultants</td>
<td>60.0</td>
</tr>
<tr>
<td>ii. National Consultants</td>
<td>320.0</td>
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<tr>
<td>b. International and Local Travel</td>
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<tr>
<td>c. Translation, Reports, and Communications</td>
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<tr>
<td>2. Equipment</td>
<td>60.0</td>
</tr>
<tr>
<td>3. Training, Seminars, and Conferences</td>
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</tr>
<tr>
<td>4. Miscellaneous Administration and Support Costs</td>
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<tr>
<td>5. Contingencies</td>
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<td><strong>Subtotal (A)</strong></td>
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<tr>
<td>B. Government Financing</td>
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<tr>
<td>1. Office Accommodation and Facilities</td>
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<tr>
<td>2. Remuneration and Per Diem of Counterpart Staff</td>
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</tr>
<tr>
<td>3. Others</td>
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</tr>
<tr>
<td><strong>Subtotal (B)</strong></td>
<td>150.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>850.0</td>
</tr>
</tbody>
</table>

*a* To be financed from ADB's Technical Assistance Special Fund.

*b* Including equipment for multimedia labs, science labs, teaching aids, computer hardware and software, photocopier, facsimile machine, and other equipment to be procured under the consultant's contract, in accordance with procedures acceptable to ADB, and whose ownership will be transferred to the Government.

Source: ADB estimates.

**E. Implementation Arrangements**

5. For the project implementation and transport components, Sichuan Provincial Communications Department, and Hanzhong and Baoji city governments will be the EAs; for the education component, Hanzhong and Baoji city governments will be the EAs. The consultants will work closely with the EAs. The EAs will provide adequate counterpart staff with relevant work experience during implementation, arrange meetings, and coordinate with concerned government agencies to facilitate the work of the consultants.
6. TA implementation arrangements will provide flexibility to allow adjustment in consultant terms of reference, and the duration and schedule of expert inputs. ADB will recruit a national consultant who will work as the TA coordinator and will supervise and coordinate day-to-day TA activities, including monitoring progress, resolving problems, arranging meetings, and liaising with the government agencies concerned. The TA coordinator will submit monthly reports to ADB on TA implementation progress. The project implementation component will require recruitment of four national consultants with expertise in ADB procedures and project implementation; the education component will require recruitment of three national consultants with expertise in teachers training, information and communication technology education, and science education; and the transport component will require recruitment of two national consultants with expertise in rural road construction and maintenance. Consultants will be engaged by ADB as individuals, in accordance with ADB’s Guidelines on the Use of Consultants (2007, as amended from time to time) and other arrangements satisfactory to ADB for the engagement of consultants. ADB may consider direct selection of qualified national and/or international organizations, local institutions, and/or short-term resource persons, where justified by efficacy, efficiency, and/or urgency in completing activities. To facilitate the work of the consultants, and to ensure that the EAs benefits from their experience, the EAs will provide adequate counterpart staff with relevant work experience during TA implementation.

7. To respond quickly to urgent and evolving needs, procurement of goods under the TA will incorporate greater flexibility. Unless otherwise agreed upon by ADB, the project monitoring offices will procure all goods in accordance with ADB’s Procurement Guidelines (2007, as amended from time to time). To expedite delivery, shopping and national competitive bidding with abbreviated bidding periods will be applied, as considered appropriate, to procure the agreed-upon goods. To ensure timely provision of goods and services, an advance payment facility will be established. All TA funds will be disbursed and the advance payment facility will be established in accordance with ADB’s Technical Assistance Disbursement Handbook (2008).

8. The TA will be implemented from March 2009 to October 2011. In view of the nature of the disaster, TA reviews will carefully assess implementation arrangements and approaches, and appropriate adjustments will be instituted as needed.
SUMMARY POVERTY REDUCTION AND SOCIAL STRATEGY

<table>
<thead>
<tr>
<th>Country and Project Title: People’s Republic of China: Emergency Assistance for Wenchuan Earthquake Reconstruction Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lending/Financing Modality:</td>
</tr>
<tr>
<td>Project – emergency loan</td>
</tr>
</tbody>
</table>

### I. POVERTY ANALYSIS AND STRATEGY

#### A. Link to the National Poverty Reduction Strategy and Country Partnership Strategy

1. The emergency assistance project will support the reconstruction or upgrading of about 3,500 kilometers of rural roads in Sichuan Province and about 317 kilometers of rural roads and 12 schools in Shaanxi Province. The loan will alleviate the transport problems caused by the earthquake and will improve the quality of the schools, which will indirectly facilitate poverty reduction.

#### B. Poverty Analysis

**Targeting Classification:** General invention

**1. Key Issues**

The Wenchuan earthquake brought immense suffering to many rural and poor households that were not prepared to deal with the disaster and the reconstruction efforts. The population of the 23 project counties is 12.1 million, 77% of whom are rural; many are below the government poverty line. Of the 23 project counties, 8 (6 in Sichuan and 2 in Shaanxi) are national poverty counties. Rural poverty results from remote and isolated locations, and a lack of access to transport, good farmland, good schools, and a water supply.

**2. Design Features**

**Reconstruction or Rehabilitation of Road in Affected Counties and Townships.** In Sichuan, the rural road reconstruction and rehabilitation will directly benefit about 5.0 million residents in 19 affected counties; three-quarters of whom are rural, and one-third of whom are poor. The reconstruction and rehabilitation of rural roads in Shaanxi will benefit about 600,000 people, three-quarters of whom are rural and one-third of whom are poor. Improved availability of reliable transport to markets will stimulate cash crop farming in remote or isolated areas, and broaden access to off-farm employment opportunities. Failure to reconstruct or upgrade rural roads will result in rural people in the remote parts of the project area having less mobility; they will consequently face greater difficulties in restoring their livelihoods after the earthquake, and poor households in those regions will not be able to benefit from the broader economic development.

**Reconstruct and Improve Schools in Affected Towns and Villages.** The Asian Development Bank (ADB) Project will focus on reconstruction and improvements for 12 model schools, including six junior secondary and six primary schools. These will bring immediate benefits to the schools’ 16,800 students (including more than 8,000 female students), and long-term benefits to future students among the 460,000 residents of the area serviced by the schools, about 40% of whom are from rural areas of these remote counties. Two of the three project areas are poverty counties.

**Create Employment Opportunity under the Project.** It is estimated that 115,000 unskilled workers from the local areas will be required for an average of 6 months of labor during the reconstruction of the rural roads and schools. Each worker is estimated to earn CNY1,000 per month, with a total income benefit of CNY690 million.

### II. SOCIAL ANALYSIS AND STRATEGY

#### A. Findings of Social Analysis

The Wenchuan earthquake brought immense suffering to many rural and urban people in Sichuan, Shaanxi, and Gansu provinces. Therefore, the government program has set three priorities for reconstruction: (i) housing, schools, and hospitals; (ii) rural infrastructure; and (iii) public buildings. There are 669 towns/townships and 7,573 administrative villages that will benefit directly from the proposed reconstruction activities. The ADB emergency loan assistance is part of a much larger reconstruction program that is designed to restore and improve the people’s living conditions and livelihoods. The implementation is coordinated by leading groups to ensure the investments are channeled through local governments, and projects are implemented in an efficient and effective manner to benefit the affected persons (APs).
B. Consultation and Participation

1. Provide a summary of the consultation and participation process during the project preparation.

This is an emergency assistance and the proposed reconstruction of roads and schools is a priority for the APs and the local governments. A damage and needs assessment has been conducted based on investigations with all key stakeholders. ADB fielded a reconnaissance and fact-finding mission and extensive consultations were held with local governments, APs, transport users, and school teachers and children. The ADB loan is part of a larger reconstruction effort; planning has been coordinated with the various stakeholders for the benefit of the APs.

2. What level of consultation and participation (C&P) is envisaged during the project implementation and monitoring?

- Information sharing  ☑ Consultation  ☑ Collaborative decision making  ☑ Empowerment

3. Was a C&P plan prepared?  ☑ Yes  ☐ No

If a C&P plan was prepared, describe key features and resources provided to implement the plan (including budget, consultant input, etc.). If no, explain why.

The Government has taken the lead role in the relief and reconstruction efforts, but the involvement of the local people is essential for successful rehabilitation. Although many APs are still working to restore their living conditions and livelihoods, if willing they can participate in the reconstruction of the rural roads and schools. However, most APs expect the government to restore the roads and schools as quickly as possible.

C. Gender and Development

1. Key Issues

The reconstruction of rural roads and schools will equally benefit women and girls.

2. Key Actions

Measures included in the design to promote gender equality and women’s empowerment—access to and use of relevant services, resources, assets, or opportunities and participation in decision-making process:

- Gender plan  ☐ Other actions/measures  ☑ No action/measure

III. SOCIAL SAFEGUARD ISSUES AND OTHER SOCIAL RISKS

<table>
<thead>
<tr>
<th>Issue</th>
<th>Significant/Limited/ No Impact</th>
<th>Strategy to Address Issue</th>
<th>Plan or Other Measures Included in Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Involuntary Resettlement</td>
<td>The project involves reconstruction or upgrading of existing roads along the existing alignments, so impacts will either be avoided, or will be very limited. Most of the schools will be constructed within the existing sites. However, two schools and two new bridges will have some limited impacts.</td>
<td>Because this is an emergency loan, a resettlement framework has been prepared. Some short resettlement plans will be prepared prior to project implementation. For Sichuan, one of the selection criteria for repair or upgrading of local roads will be avoiding those with land acquisition and resettlement impacts; due diligence will be conducted to confirm this criterion.</td>
<td>☐ Full Plan  ☑ Short Plan  ☑ Resettlement Framework  ☐ No Action</td>
</tr>
<tr>
<td>Indigenous Peoples</td>
<td>The subprojects under the emergency loan are not located in ethnic minority townships or villages.</td>
<td></td>
<td>☐ Plan  ☐ Other Action  ☑ Indigenous Peoples Framework  ☐ No Action</td>
</tr>
<tr>
<td>Issue</td>
<td>Significant/Limited/No Impact</td>
<td>Strategy to Address Issue</td>
<td>Plan or Other Measures Included in Design</td>
</tr>
<tr>
<td>-------</td>
<td>------------------------------</td>
<td>---------------------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>Labor</td>
<td>Limited benefits are possible.</td>
<td>Use of local labor will be encouraged for rural road reconstruction and upgrading.</td>
<td>Plan Other Action No Action</td>
</tr>
<tr>
<td>Affordability</td>
<td>No impact.</td>
<td></td>
<td>Plan Action No Action</td>
</tr>
<tr>
<td>Other Risks and/or Vulnerabilities</td>
<td>No impact.</td>
<td></td>
<td>Plan Other Action No Action</td>
</tr>
</tbody>
</table>

### IV. MONITORING AND EVALUATION

Are social indicators included in the design and monitoring framework to facilitate monitoring of social development activities and/or social impacts during project implementation?  ☑ Yes  ☐ No
SUMMARY RESETTLEMENT FRAMEWORK

1. The proposed Emergency Assistance for Wenchuan Earthquake Reconstruction Project will support the reconstruction and rehabilitation of the areas affected by the Wenchuan earthquake, which caused extensive damages in 39 counties of Sichuan Province, four counties of Shaanxi Province, and eight counties of Gansu Province. The Asian Development Bank (ADB) will assist the reconstruction and upgrading of (i) rural roads in 19 counties of Sichuan Province; and (ii) rural roads, bridges, and schools in four counties of Shaanxi Province. The reconstruction and upgrading works will be implemented over 3 years, from 2009 to 2011.

2. In Sichuan, about 3,500 kilometers of rural roads have been identified by the country transport bureaus and approved by the Sichuan Provincial Highway Administration Bureau, under the Sichuan Provincial Communications Department. All are existing roads which were damaged by the Wenchuan earthquake; they will be reconstructed and some will be upgraded following the original alignment. Some road sections will also require new bridges, and the standards and alignments for these may be modified slightly. Therefore, although the selection criteria includes avoiding those road sections with land acquisition, there could still be some small amounts of land acquisition and possibly some house demolition.

3. In Shaanxi, 317 kilometers of rural roads have been identified by the county transport bureaus and approved by the Shaanxi Provincial Highway Administration Bureau for reconstruction. All are existing roads that were damaged by the Wenchuan earthquake; they will be reconstructed and some will be upgraded following the original alignment. Some new bridges will be constructed to connect the existing roads. The feasibility studies indicate that two road subprojects and two bridge subprojects will require some land acquisition and possibly some house demolition. In addition, 12 schools in Shaanxi have been identified by the county education bureaus for complete or partial reconstruction and improvement. Most of the education subprojects will require no land or very small amounts of land (with the exception of two schools, for which due diligence will be conducted and reported by an independent expert).

4. A resettlement framework has been formulated to address potential land acquisition and resettlement impacts caused by the project activities. The total number of affected persons (APs) is not known at this time, but few if any structures will need to be demolished. At most, small strips of land may be required for road widening or straightening, or for bridge construction. These impacts will be measured, recorded and reported in the subproject resettlement plans. Since land acquisition is very minor, there will be no significant impacts on the livelihoods of APs. Therefore, cash compensation based on replacement value will be adequate to address the small losses.

5. Subprojects are being selected by the implementing agencies (IAs) and approved by the executing agencies (EAs), based on selection criteria agreed upon with ADB. The IAs will do their best to avoid or minimize land acquisition and resettlement impacts. In Sichuan, further screening of subprojects for resettlement due diligence will be conducted by an external resettlement monitor/expert. Based on this due diligence, the total number of subprojects that require short resettlement plans can be determined. In Shaanxi, four transport subprojects (Hanjiang Bridge in Mian Xian County, the two class III roads in Ningqiang County, and Shiyangmiao Qianhe Bridge in Chencang District) will have some land acquisition. Short resettlement plans will be prepared by the IAs and submitted to ADB for review and concurrence prior to commencement of civil works for those subprojects that have land acquisition and resettlement impacts.

6. For school reconstruction, Gou Town No. 1 Middle School involves 40 mu of vacant construction land and Chencang Experimental Primary School has already acquired 40 mu of farmland. Therefore, a due diligence report needs to be prepared by the IA for these two schools and submitted to ADB for review; if there are any remaining issues, a retrofit plan will be
prepared and submitted to ADB for review and concurrence. The due diligence report will be submitted to ADB by 31 March 2009, covering the Chencang Primary School, and the Gouzhen Middle School.

7. For people unavoidably affected, the resettlement objective is to achieve equal or better income and living standards in line with the People’s Republic of China Land Administration Law (1998) and ADB’s *Involuntary Resettlement Policy* (1995). The EAs will ensure that any people losing land, housing, other assets or income sources will be assisted to fully restore their income and living standards. Those people losing land temporarily during construction will receive a payment equivalent to production value foregone for the period of loss, which is expected to be 2 years, and land will also be restored by the contractor to the original condition.

8. If any structures need to be demolished, replacement value will be provided to the affected rural households based on compensation rates adopted in each county. Those losing housing will be able to acquire new housing sites close to a road, electricity and water services within the current village group or administrative village. There will be no reduction in house compensation for depreciation, and people can salvage materials from their old houses.

9. The total cost of land acquisition and resettlement has not yet been finalized, but these costs are included in the subproject costs estimates. The source of funding for land acquisition and resettlement will be entirely financed by local governments. During project construction, if there are significant material changes in project scope or other causes, a new or an updated resettlement plan will prepared, disclosed to APs and submitted to ADB for concurrence prior to implementation of such changes.

10. The county communications bureaus or the county education bureaus will be responsible for planning and implementing project land acquisition and resettlement, and any related resettlement management work. The county land and resources bureaus will be responsible for the land acquisition and resettlement procedures, agreements and payments. They will (i) issue formal notifications to APs; (ii) complete the formal land transfer procedures in a timely manner; (iii) document and resolve grievances relating to land acquisition, compensation and resettlement; and (iv) ensure land used temporarily is returned to original user and restored by the contractors to the original or improved condition.

11. During the process of formulating the resettlement plans and subsequent implementation, the relevant authorities will consult with and encourage the participation of the APs. Also, resettlement plans must be disclosed to affected villages and individual APs prior to submission to ADB. The resettlement plans should be placed in the local government and village offices and made publicly available. The resettlement plans will also be posted on ADB’s website.

12. During project implementation, if any APs are dissatisfied with compensation, construction arrangements or other matters, they can make their complaints to the relevant department. The process and results of grievance redress will be recorded, monitored, and evaluated by the relevant IAs. If necessary, further follow-up measures will be taken to ensure that the problems will be resolved in a timely and satisfactory manner.

13. The requirements for internal and external monitoring and evaluation are included in the resettlement framework. The internal monitoring is to (i) maintain supervision of resettlement implementation, (ii) check that the project can be constructed smoothly, and (iii) ensure the APs’ entitlements are provided as per regulations and in a timely manner. The EAs will engage a qualified domestic monitor to carry out independent resettlement monitoring and evaluation. The monitor will conduct investigations during resettlement and prepare annual monitoring reports until the completion of the Project. The first monitoring and evaluation report will be due 31 December 2009.
SUMMARY INITIAL ENVIRONMENTAL EXAMINATION

A. Introduction

1. The initial environmental examination (IEE) report aims to describe the project rural road and bridge and school components, assess their environmental impacts, and provide mitigation measures for the environmental impacts. This report summarizes 23 IEEs prepared by project counties as part of the domestic environmental impact assessment procedure. The IEEs were prepared in accordance with the *Environment Policy* (2002) and *Disaster and Emergency Assistance Policy*¹ of the Asian Development Bank (ADB), and will be approved by provincial environmental protection departments in accordance with the *Environmental Impact Assessment Law* (2002) of the People’s Republic of China (PRC) and its related regulations.

2. The Emergency Assistance for Wenchuan Earthquake Reconstruction Project is categorized as environment category B. Given the nature of the physical works (i.e., reconstruction of damaged roads and bridges and school buildings), the potential negative impacts are localized and short-term, and can be mitigated. Therefore, an environmental impact assessment (EIA) is not required.

3. Because of the Project’s emergency assistance nature, a few IEEs of project rural roads have not yet been finalized. An environmental assessment and review framework (EARF) has been prepared for those rural road components to be selected during project implementation. The relevant county communication bureau will carry out an environmental assessment in accordance with the PRC’s environmental assessment laws and regulations, and will prepare an IEE.² If the EARF determines that a full EIA is required for a new road section, the county communication bureau will prepare an EIA report, and ADB will finance the road section after its EIA report concurrence. The environmental impact of school building reconstruction is insignificant if the school buildings are reconstructed in the original school yard and the adjacent residential area, and therefore the need for a full EIA is unlikely for that component.

B. Description of the Project

4. The Project’s physical component consists of reconstruction of damaged roads and school buildings in 23 counties in Sichuan (19 counties) and Shaanxi (four counties) provinces. The technical standard of the rural roads is classes II–IV. The road reconstruction will be carried out strictly in the existing right-of-way, except for bridge reconstruction. Some roads include damaged bridge reconstruction. The school buildings will be reconstructed in the existing school yards and adjacent lots.

C. Description of the Environment

1. Meteorology

5. The project area is located in the mid-west of the PRC in four separate mountainous areas: in the north of Sichuan Basin (Guangyuan, Bazhong, and Nanchong prefectures), in the west of Sichuan Basin (Chengdu and Yaan prefectures), in the west of Hanzhong Basin (Hanzhong prefecture), and in the west of Guangzhong Plain (Baoji prefecture). The Qinghai–Tibet Plateau has a continental monsoon climate in winter, when it is influenced by cold, dry air from the northwest. In summer, the oceanic monsoon brings warm and humid air from southeast and southwest; it is wet, often with heavy rains and storms. The annual average

² If a new section’s environmental impacts are significant, a full environmental impact assessment will be carried out according to EARF.
rainfall is 1,000–2,000 millimeters, 80%–90% of which falls from May to October. The intense precipitation between May and October was a concern after the earthquake, as heavy storms increase the risk of siltation, erosion, slope slippage, and mudflows.

2. Protected Areas

6. There are 12 nature reserves in Sichuan’s project counties3 and one nature reserve in Shaanxi’s project counties.4 None of the Project’s rural roads are located near the nature reserve boundaries; the distance between the roads and boundaries is at least 8 km.

3. Land Use and Cultural Resources

7. Most land use around the roads is nonagricultural, including secondary forests, steep mountain terrain, and some marginal grazing land. Cultivated land includes land containing vegetables, corn, wheat, buckwheat, orchards, and paddy lands. School reconstruction sites are located in residential area or urban business districts.

8. The project area has a long history dating from the Neolithic period. Therefore, the possibility of encountering unknown cultural relics during civil works exists.

D. Institutional Arrangement

9. The Sichuan Provincial Communications Department and the communication departments of Hanzhong and Baoji cities are responsible for overall environmental protection during rural road reconstruction. The provincial highway bureaus are responsible for supervising the rural road reconstruction-related activities of the county communications bureaus. The county communications bureaus have prepared environmental impact registration tables (EIRTs) or environmental impact assessment reports (EIARs) by hiring accredited consultants, in accordance with the PRC’s Environmental Impact Assessment Law. IEEs have been prepared on the basis of the EIRTs and EIARs, and include an environmental management plan (EMP). Civil works will be carried out by the civil works contractors. The technical specifications of the contracts will (i) include environmental protection measures described in the EMPs, and their cost; and (ii) will ensure that all environmental protection measures will be carried out by the civil works contractors. The project implementation agencies (IAs) will supervise the civil works by hiring construction supervision consultants.

10. The Hanzhong and Baoji city education departments are responsible for overall environmental protection of school building reconstruction. They will supervise the school building reconstruction activities of county education bureaus, which have prepared EIRTs for school reconstruction. The county education bureaus will hire consulting firms for school building design, which will be carried out in accordance with the PRC’s building codes and regulations for environmental protection, such as regulations on sewage treatment. The contract technical specifications for building construction will include environmental protection measures, and the contracts will include the environmental protection cost. County education bureaus will supervise the construction works by hiring construction supervision consultants.

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4 Baofeng Nature Reserve in Lueyang County.
E. Environmental Assessment and Review Framework

11. When new rural road and bridge or new school building reconstruction is planned, an initial environmental screening will determine the need for a full EIA report under the PRC’s Environmental Impact Assessment Law and the EARF. The county communications bureaus will carry out environmental screening for each road and bridge reconstruction under the supervision of the provincial highway bureau; the county education bureau will carry out environmental screening for school reconstruction under the supervision of city education bureau. If the screening identifies any potential significant environmental impacts related to reconstruction, a full EIA report for the component will be prepared and approved before the reconstruction works begin. For road and bridge reconstruction without significant environmental impacts, an EIRT will be prepared according to the PRC’s regulations. Potential environmental impacts can be considered significant and full an EIA is required if one of the following four conditions applies:

(i) any endangered species are found in the environmental impact area (requires a full EIA for the species and its ecosystem);
(ii) any protected area, such as a nature or water reserve, exists in the environmental impact area (requires an EIA for the reserves);
(iii) large-scale earthworks are required near rivers meeting class I or II water quality standards; or
(iv) large-scale earthworks are required near any other sensitive sites, such as hospitals, schools, or residential areas.

F. Potential Environmental Impacts and their Mitigation Measures

12. Rural road and bridge reconstruction activities mainly include debris removal on the damaged sections, damaged pavement removal, embankment restoration, new retaining wall installation, new slope protection installation, subgrade restoration, drainage installation, and pavement. Most works will be carried out by hand. Use of large construction machines such as power shovels and dump tracks will be limited due to the nature of the rural roads. The major potential adverse environmental impacts from road reconstruction are (i) water pollution, (ii) noise to sensitive receptors, and (iii) air pollution from construction machinery.

13. Water pollution will be avoided by (i) adequate installation of temporary drainage during construction, (ii) proper maintenance of construction machines and equipment to prevent oil leaks, and (iii) installation of sediment ponds at water discharge points. Noise to sensitive receptors will be alleviated by (i) the use of low-noise machinery, and (ii) appropriate construction scheduling. The adverse impacts of air pollution from construction machinery will be avoided through adequate maintenance.

14. During the road reconstruction, there is a potential risk of encountering unknown cultural relics. If cultural relics are unearthed, according to the PRC’s laws and regulations, the civil works will be immediately suspended and will be resumed only after authorized specialists from the Cultural Bureau have undertaken an archaeological investigation.

15. Following completion of construction, the roads will be mainly used by the villagers living along them, making adverse environmental impacts associated with road traffic unlikely. Improved slope protection and drainage systems will reduce soil erosion along the roads, which has been a serious environmental issue after the earthquake.

16. School building reconstruction will follow normal building construction techniques. The use of large construction machines will be very limited. Some relatively large buildings (three stories or higher) may require cranes. The major potential adverse environmental impacts of
school building construction are pollution of water as a result of construction activities, and disruption of school activities due to noise.

17. Pollution of water as a result of construction site activities will be avoided by the use of an adequate sewage system during construction. If the existing sewage system is insufficient or inadequate to treat the increased amount of polluted water during construction, a temporary water treatment system will be installed.

18. The nature of school building reconstruction work means that general annoyances such as noise associated with construction works may be inevitable. However, the disturbance to school activities will be minimized through coordination between the construction and school management. The contractors will plan their detailed construction activity by consulting with the school management to allow educational activities to be carried out without serious disruption. The construction contract documents will include provisions relating to consultations and planning of construction activities.

G. Environmental Monitoring

19. During the construction, compliance monitoring will be carried out by county communication bureaus and education bureaus. Sichuan Provincial Communications Department will hire environmental supervision consultants as part of the construction supervision to carry out environmental monitoring during the construction. In Shaanxi, the governments of Baoji City and Hanzhong City will hire environmental supervision consultants. The consultants will visit construction sites and monitor general construction quality in terms of environmental protection. The consultants will submit semiannual environmental reports to the EA, which will be forwarded to ADB.

H. Public Consultations

20. The county communications bureaus and education bureaus have carried out public consultations during the planning of road and school building reconstruction. The EIRTs and EIARs have been made accessible to concerned people in the county government offices.

I. Conclusions

21. The Project’s physical components are reconstruction of damaged roads, bridges and schools. Only minor and short-term potential adverse environmental impacts are anticipated, provided that the PRC’s laws and regulations are observed, IEEs are prepared, and the EMPs contained in the IEEs are carried out. The impacts are considered to be controllable through proper implementation and supervision arrangements. The major environmental protection-related risk is through inadequate civil works management. This will be avoided by including environmental protection measures in contract documents, and by supervising the implementation of civil works through the use of construction supervision consultants.

22. In summary, the IEEs for the Project show that no significant adverse environmental impacts are expected to result from the proposed reconstruction works. Consequently, no EIA is required at this stage. In the unlikely event that a specific component is rated as category A, a full EIA for that particular component will be undertaken.