



Report and Recommendation of the President to the Board of Directors

Project Number: 48023-003
September 2016

Proposed Loan People's Republic of China: Ningxia Liupanshan Poverty Reduction Rural Road Development Project

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Asian Development Bank

CURRENCY EQUIVALENTS

(as of 17 August 2016)

Currency unit – yuan (CNY)

CNY1.00 = \$0.15097
\$1.00 = CNY6.624

ABBREVIATIONS

ADB	–	Asian Development Bank
CTB	–	county transport bureau
EIRR	–	economic internal rate of return
EMDP	–	ethnic minority development plan
EMP	–	environmental management plan
km	–	kilometer
LAR	–	land acquisition and resettlement
LIBOR	–	London interbank offered rate
NDOT	–	Ningxia Department of Transport
NHAR	–	Ningxia Hui Autonomous Region
PAM	–	project administration manual
PAO	–	poverty alleviation office
PMO	–	project management office
PRC	–	People's Republic of China

NOTE

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

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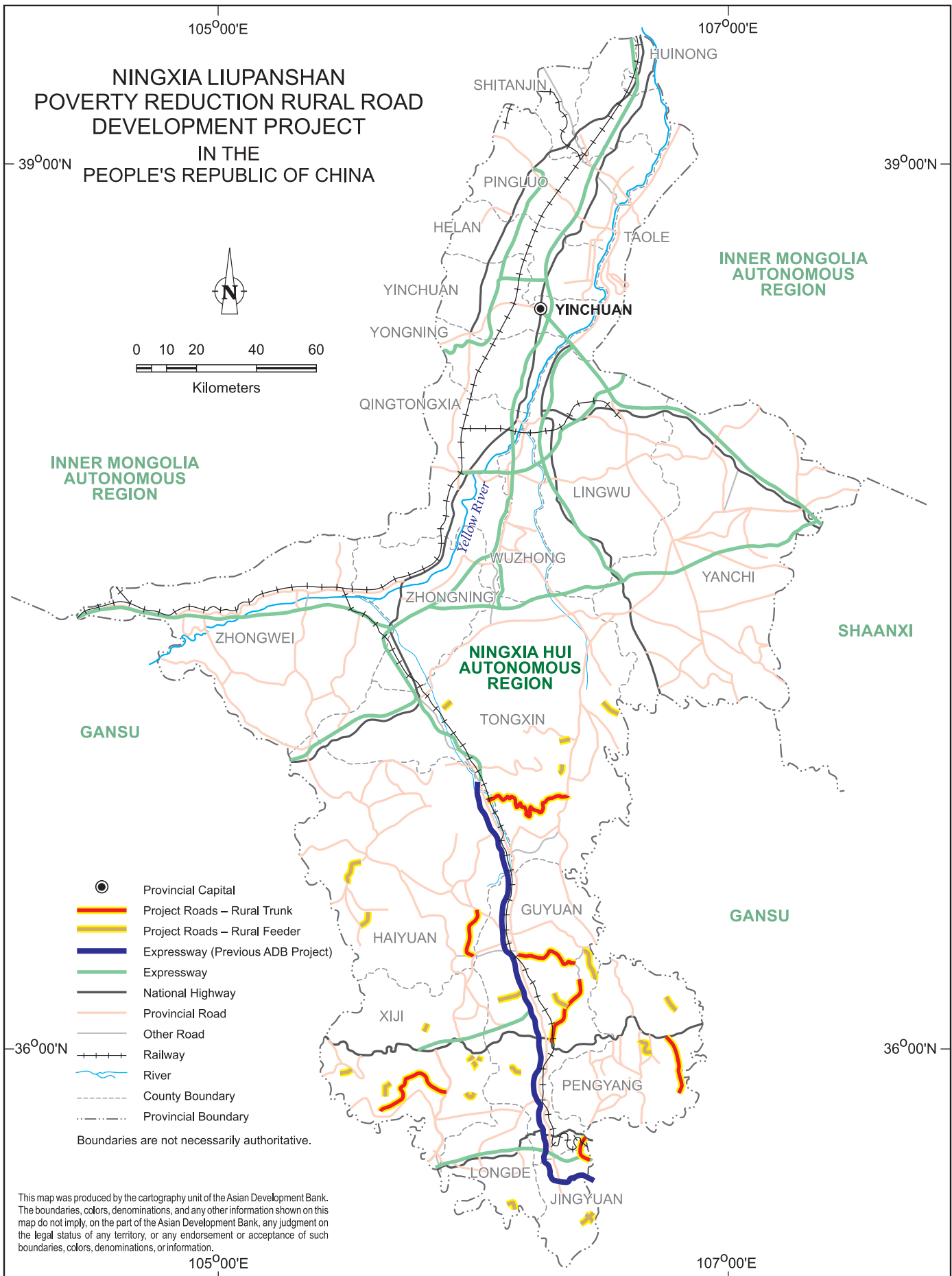
CONTENTS

	Page
PROJECT AT A GLANCE	
MAP	
I. THE PROPOSAL	1
II. THE PROJECT	1
A. Rationale	1
B. Impact and Outcome	3
C. Outputs	3
D. Investment and Financing Plans	4
E. Implementation Arrangements	5
III. DUE DILIGENCE	6
A. Technical	6
B. Economic and Financial	6
C. Governance	7
D. Poverty and Social	7
E. Safeguards	8
F. Risks and Mitigating Measures	10
IV. ASSURANCES	10
V. RECOMMENDATION	10
APPENDIXES	
1. Design and Monitoring Framework	11
2. List of Linked Documents	14

PROJECT AT A GLANCE

1. Basic Data		Project Number: 48023-003	
Project Name	Ningxia Liupanshan Poverty Reduction Rural Road Development Project	Department /Division	EARD/EATC
Country Borrower	China, People's Republic of China, People's Republic of	Executing Agency	Ningxia Department of Transport
2. Sector	Subsector(s)	ADB Financing (\$ million)	
✓ Transport	Road transport (non-urban)		100.00
		Total	100.00
3. Strategic Agenda	Subcomponents	Climate Change Information	
Inclusive economic growth (IEG)	Pillar 2: Access to economic opportunities, including jobs, made more inclusive	Adaptation (\$ million)	0.20
Environmentally sustainable growth (ESG)	Global and regional transboundary environmental concerns	Climate Change impact on the Project	Medium
4. Drivers of Change	Components	Gender Equity and Mainstreaming	
Governance and capacity development (GCD)	Institutional development	Effective gender mainstreaming (EGM)	✓
5. Poverty Targeting		Location Impact	
Project directly targets poverty	Yes	Rural	High
Geographic targeting (TI-G)	Yes		
6. Risk Categorization:	Low		
7. Safeguard Categorization	Environment: B Involuntary Resettlement: B Indigenous Peoples: B		
8. Financing			
Modality and Sources		Amount (\$ million)	
ADB		100.00	
Sovereign Project loan: Ordinary capital resources		100.00	
Cofinancing		0.00	
None		0.00	
Counterpart		165.54	
Government		165.54	
Total		265.54	
9. Effective Development Cooperation			
Use of country procurement systems		Yes	
Use of country public financial management systems		Yes	

NINGXIA LIUPANSHAN
POVERTY REDUCTION RURAL ROAD
DEVELOPMENT PROJECT
IN THE
PEOPLE'S REPUBLIC OF CHINA



INNER MONGOLIA
AUTONOMOUS
REGION

INNER MONGOLIA
AUTONOMOUS
REGION

SHAANXI

GANSU

GANSU

- Provincial Capital
 - Project Roads – Rural Trunk
 - Project Roads – Rural Feeder
 - Expressway (Previous ADB Project)
 - Expressway
 - National Highway
 - Provincial Road
 - Other Road
 - Railway
 - River
 - County Boundary
 - Provincial Boundary
- Boundaries are not necessarily authoritative.

This map was produced by the cartography unit of the Asian Development Bank. The boundaries, colors, denominations, and any other information shown on this map do not imply, on the part of the Asian Development Bank, any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries, colors, denominations, or information.

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 Ningxia Liupanshan Poverty Reduction Rural Road Development Project.¹

2. The proposed project will support poverty-focused rural road development and rural road safety and sustainability in the lagging Liupanshan area of Ningxia Hui Autonomous Region (NHAR) under the nationwide initiative.² The project is expected to increase rural incomes and reduce poverty in the Liupanshan area, and includes an impact evaluation of poverty reduction. The project will align government and development partner support with the national poverty alleviation initiative and the NHAR 13th Five-Year Plan³—resulting in poverty-focused improvement of the rural transport network, improved road safety and maintenance practice, and strengthened institutional capacity.⁴

II. THE PROJECT

A. Rationale

3. **Poverty in the Liupanshan area.** The Liupanshan project area in the NHAR is one of 14 contiguous high-poverty lagging areas targeted by the national government. It comprises seven of the NHAR's 21 counties,⁵ and its population of 2.39 million is just over one-third of the NHAR's total population. It is one of the poorest areas of the PRC, with 38% of the farmers (over 600,000 people) under the national poverty line of CNY2,300 of annual income per capita. Hui minorities make up 59% of the population. According to the Poverty Alleviation Office (PAO) of the NHAR, 76% of the administrative villages in the project area are classified as poor. The NHAR targets eradication of poverty in the Liupanshan area by the end of 2018, with some counties, including Pengyang, Longde, and Jingyuan, to be free of poverty by 2017.⁶

4. **Rural roads and poverty.** Inadequate access is an important cause of the high levels of poverty, related to the mountainous topography of the Liupanshan area. Poor connectivity between urban and rural areas constrains economic growth and limits the extent to which the benefits of growth can be spread among the population. About 77% of people in the Liupanshan area rely on agriculture for their livelihood. Local farmers often travel along unpaved rural roads to towns to sell their produce, but during rainy periods unpaved roads become impassable and perishable crops cannot reach the market. Poor accessibility also inflicts high costs to access social services, reduces non-farming employment opportunities, and further isolates minority communities. Improved roads would provide poor farmers with more reliable access to economic opportunities, information, education, health, and other services. It is therefore essential to accelerate the development of better roads to connect rural areas to urban growth centers and markets. The project includes an impact analysis of road development on poverty reduction, which will provide key information for understanding the trickle-down effects on poverty reduction from rural road improvements in lagging areas.

¹ The design and monitoring framework is in Appendix 1.

² Government of the PRC, Ministry of the State Council Leading Group, Office of Poverty Alleviation and Development. 2011. *Outline of Poverty Alleviation and Development Strategy in Rural Areas of China (2011–2020)*. Beijing.

³ Government of the Ningxia Hui Autonomous Region. 2016. *13th Five-Year Plan*. Yinchuan, NHAR.

⁴ The Asian Development Bank (ADB) provided project preparatory technical assistance for the Ningxia Liupanshan Poverty Reduction Rural Road Development Program (TA 8771-PRC).

⁵ The seven counties are Haiyuan, Jingyuan, Longde, Pengyang, Tongxin, Xiji, and Yuanzhou.

⁶ Ningxia Poverty Alleviation Office. 2016. *13th Five-Year Poverty Reduction Plan*. Yinchuan, NHAR.

5. **Rural road improvement.** The seven project counties together have a rural road network of 11,600 kilometers (km), of which 19% are class III and 78% are class IV or underclass. Within the rural road network, 3,000 km are unpaved (almost exclusively village roads), and an additional 4,500 km of paved roads are in poor or very poor condition that requires rehabilitation. The Ministry of Transport aims to improve the transport situation in the poverty areas as a basic requirement for poverty reduction,⁷ and has been allocating significant subsidies to improving rural access in these designated poverty areas.⁸ This has resulted in the rural road network in Ningxia tripling in size and becoming largely paved. NHAR's 13th Five-Year Plan aims to provide paved road access to all the administrative villages (200 remaining). The project targets the Liupanshan area as a whole and fills the priority gaps needed to enhance (i) direct connection to poor villages through rural feeder roads improvement, and (ii) urban–rural connection through enhancement of the rural trunk road network. It will improve 435 km of rural roads, benefiting 116,000 poor people.

6. **Road maintenance and climate risks.** The volume of medium maintenance⁹ carried out each year is insufficient to slow down deterioration of the poor-condition rural roads and keep the rural road network in a maintainable state. In addition, climate change will result in an increase in the intensity and frequency of extreme rainfall events and rainfall-induced floods, mudslides, and landslides in the mountainous topography and erosion-prone soil condition. Medium maintenance works are largely carried out by the maintenance stations, which lack skills and equipment, resulting in poor quality work that rapidly becomes damaged again. At the same time, the maintenance stations spend much of their time on cleaning and clearing works that are better outsourced to local residents, allowing the maintenance stations to focus on small pavement repairs. The project will enhance more sustainable maintenance practices through the use of skilled private contractors for medium maintenance and local women's groups for routine maintenance.

7. **Road safety.** Road safety remains a significant issue. The project area contains many high-risk rural roads with significant traffic volume and a mix of heavy vehicles, automobiles, motorcycles, nonmotorized vehicles, and pedestrians. Many accidents are attributed to driver error aggravated by the steep, mountainous terrain. In many cases, dangerous road conditions can be addressed by modest design interventions at relatively low cost. The development and institutionalization of modern road safety design and management approaches will lead to a sustainable reduction in road deaths and injuries. The project will improve rural road safety by developing and implementing a system of road safety assessments and audits, which could be replicated throughout the NHAR after successful implementation.

8. **Strategic relevance and value addition.** Maintaining sustainable rural connectivity is a strategic priority of the Asian Development Bank (ADB) country partnership strategy for the PRC.¹⁰ The project is aligned with ADB's Sustainable Transport Initiative¹¹ in the areas of poverty reduction, road safety, and social sustainability and with the NHAR's 13th Five-Year Plan on poverty reduction and transport. The project has drawn on lessons from the Ningxia

⁷ Government of the PRC, Ministry of Transport. 2013. *Transport Construction Plan for Poverty Alleviation in Contiguous Poverty Areas*. Beijing.

⁸ Three-quarters of all rural road investments in 2011–2015 were allocated to providing paved road access to administrative villages.

⁹ Maintenance activities are grouped into minor (routine) maintenance, medium maintenance, and major maintenance. Medium maintenance aims to restore the original technical condition of the road and includes repairing general damage and periodic improvement of road conditions.

¹⁰ ADB. 2016. *Country Partnership Strategy: Transforming Partnership: People's Republic of China and Asian Development Bank, 2016–2020*. Manila.

¹¹ ADB. 2010. *Sustainable Transport Initiative Operational Plan*. Manila.

Roads Development Project, which successfully constructed 182 km of expressway and 404 km of rural roads with technical treatments for the unstable soil in this region and implemented a road asset management system.¹² The project is also built on the experience of an ADB project in Yunnan Province that pilot tested an effective approach to establish women's maintenance groups.¹³ ADB's value addition through this project is integrating innovative maintenance practices, private sector and gender mainstreaming, and road safety for all members of the beneficiary communities.

B. Impact and Outcome

9. The impact will be increased rural incomes and reduced incidence of poverty in the Liupanshan area. The outcome will be an improved rural transport network in Liupanshan, particularly in poor areas.

C. Outputs

10. **Output 1: Priority rural roads rehabilitated and upgraded.** This component includes (i) rehabilitation and upgrading of high-volume rural trunk roads connecting high-poverty areas with national or provincial highways, and (ii) rehabilitation and paving of rural feeder roads reaching further into poor villages. Specific outputs include improvement of (i) seven rural trunk roads (266.7 km) connecting 63 administrative villages (42 of which are poor) and 126 natural villages;¹⁴ and (ii) 21 rural feeder roads (168.3 km) linking 47 administrative villages (41 of which are designated poor) and 111 natural villages (84 of which lack paved road access). Output 1 also incorporates road safety and climate adaptation measures for the project roads.

11. **Output 2: Rural road safety and sustainability enhanced.** Project assistance to the county transport bureaus (CTBs) will enhance the coverage and efficiency of maintenance implementation by engaging women's maintenance groups for routine off-pavement maintenance on all project feeder roads and by outsourcing medium maintenance works to private contractors. Women's maintenance groups will carry out routine maintenance, with initial support to be provided through technical assistance funded by the Gender and Development Cooperation Fund.¹⁵ This assistance will develop a strategy for the replication and mainstreaming of the approach in the area. The project will also carry out road safety audits for the rural trunk roads, incorporating the recommendations into the project designs, and provide capacity building and support to the CTBs to carry out road safety assessments on the existing rural roads.

12. **Output 3: Impact evaluation conducted and project implementation capacity improved.** An impact evaluation will measure the impact of the project on poverty reduction in the Liupanshan target area. The project will conduct an end-line survey together with the analysis, following the predesigned evaluation methods and using a baseline survey to be conducted in 2016 employing e-survey tools.¹⁶ The PAOs of the NHAR and the project counties

¹² ADB. 2013. *Completion Report: Ningxia Roads Development Project in the People's Republic of China*. Manila.

¹³ ADB. 2013. *Completion Report: Technical Assistance for Community-Based Rural Road Maintenance by Women Ethnic Minority Groups in Western Yunnan in the People's Republic of China*. Manila (TA 7673-PRC).

¹⁴ Natural villages refer to villages with no administrative function, as opposed to administrative villages.

¹⁵ ADB established the multi-donor fund in May 2003 as a facility to promote gender equality and women's empowerment in Asia and the Pacific. The fund will provide initial training, and the loan will support routine maintenance during the project period.

¹⁶ The baseline survey will be conducted during the early phase of implementation through cluster research and development technical assistance: *Developing Impact Evaluation Methodologies, Approaches, and Capacities in Selected Developing Member Countries* (TA 8993-REG).

will provide guidance and cooperation. This output will also strengthen the capacity of the CTBs for project implementation and monitoring through training and consulting services.

D. Investment and Financing Plans

13. The project is estimated to cost \$265.54 million (Table 1).

Table 1: Project Investment Plan
(\$ million)

Item	Amount ^a
A. Base Cost^b	
1. Priority rural roads rehabilitation and upgrading	
a. Rural trunk roads improvement	191.61
b. Rural feeder roads improvement	32.15
2. Rural road safety and sustainability enhancement	0.85
3. Impact evaluation and project implementation capacity development	1.55
Subtotal (A)	226.16
B. Contingencies^c	34.36
C. Financing Charges During Implementation^d	5.02
Total (A+B+C)	265.54

^a Includes taxes and duties of \$25.79 million to be financed from government resources and Asian Development Bank (ADB) loan resources. Inclusion of taxes and duties in ADB-financed project expenditures is consistent with the country partnership strategy. Financing of taxes and duties does not represent an excessive share of the project cost, and is material and relevant to the success of the project. Taxes and duties on the government-financed expenditures will be provided in cash.

^b In first quarter 2016 prices.

^c Physical contingencies computed at 9% for civil works of rural trunk roads and 5% for rural feeder roads. Price contingencies computed at 1.5% for 2016, 1.4% for 2017, and 1.5% for 2018 and thereafter on foreign exchange costs; and 2.2% for 2016, 2.3% for 2017, 2.4% for 2018 and thereafter on local currency. Contingencies include provision for potential exchange rate fluctuation under the assumption of the purchasing power parity exchange rate.

^d Includes interest and commitment charges. Interest during construction for the ADB loan has been computed at the US dollar 5-year fixed swap rate plus a spread of 0.5% and the maturity premium of 0.1%. Commitment charges for the ADB loan are 0.15% per year to be charged on the undisbursed loan amount.

Source: Asian Development Bank estimates.

14. The government has requested a loan of \$100 million (CNY662.4 million) from ADB's ordinary capital resources to help finance the project. The loan will have a 26-year term, including a grace period of 5 years, an annual interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility,¹⁷ a commitment charge of 0.15% per year (the interest and other charges during construction to be capitalized in the loan), and such other terms and conditions set forth in the draft loan and project agreements. The government has requested that repayment follow the straight-line repayment option.

15. The Government of the PRC is the borrower and will make the loan available, through the NHAR government, to the responsible county governments on the same terms and conditions as those of the ADB loan. The government will finance the remaining amount of \$165.54 million of the project cost, including contingencies. The NHAR and county governments will assume the foreign exchange and interest variation risks of the ADB loan, including contingencies. The NHAR and county governments have assured ADB that counterpart funding will be provided in a timely manner, including counterpart funding required for any shortfall of funds or cost overruns. The financing plan is in Table 2.

¹⁷ The interest includes a maturity premium of 10 basis points based on the loan terms and the government's choice of repayment option and dates.

Table 2: Financing Plan

Source	Amount (\$ million)	Share of Total (%)
Asian Development Bank		
Ordinary capital resources (loan)	100.00	37.66
Government	165.54	62.34
Total	265.54	100.00

Source: Asian Development Bank estimates.

E. Implementation Arrangements

16. The Ningxia Government Foreign Debt Leading Group will oversee the coordination of the whole project. The leading group members include the Ningxia Department of Finance, the Ningxia Development and Reform Commission, the Ningxia Department of Transport (NDOT), and the Ningxia PAO. The Ningxia Foreign Debt Management Office will be in charge of overall management of the project.

17. The NHAR government is the executing agency. Under the oversight of the Ningxia Government Foreign Debt Leading Group, the NDOT will coordinate and supervise project development and implementation. A project management office (PMO) has been established under the NDOT and will have eight staff qualified in road engineering, road safety, finance, procurement, social issues, and environment. The PMO will coordinate project activities during the preparation and implementation phases and will be the focal point among relevant NHAR agencies, the CTBs, and ADB. Civil works for rural trunk roads will be procured by the CTBs, with support and guidance from the PMO through national competitive bidding procedures. Civil works for rural feeder roads will be procured by the CTBs following the PRC's country systems. ADB-financed consultants (individual and firm) will be engaged under the PMO in accordance with ADB's Guidelines on the Use of Consultants (2013, as amended from time to time).

18. Additional financing may be considered, if the project performs well, to enhance its impacts. In such a case, the original loan may be used to achieve readiness for the additional financing. The implementation arrangements are summarized in Table 3 and described in detail in the project administration manual (PAM).¹⁸

Table 3: Implementation Arrangements

Aspects	Arrangements		
Implementation period	November 2016–December 2021		
Estimated completion date	31 December 2021 (loan closing date: 30 June 2022)		
Management			
(i) Oversight body	Ningxia Foreign Debt Leading Group Department of Finance, Development and Reform Commission, Department of Transport, Poverty Alleviation Office, Audit Office, and other agencies of the autonomous region level (members)		
(ii) Executing agency	Ningxia Hui Autonomous Region government		
(iii) Key implementing agencies	Transport bureaus of Haiyuan, Jingyuan, Longde, Pengyang, Tongxin, Xiji, and Yuanzhou counties		
(iv) Implementation unit	Project management office in Ningxia Department of Transport, eight staff, including the director		
Procurement (Asian Development Bank [ADB]-financed contract packages)	National competitive bidding	9 contracts	\$166.1 million (\$5.6 million– \$26.9 million)
Consulting services	Quality- and cost-based selection (80:20)	60 person-months	\$800,000
	Individual consultant	24 person-months	\$400,000

¹⁸ Project Administration Manual (accessible from the list of linked documents in Appendix 2).

Aspects	Arrangements		
	selection	(5 contracts, 3 packages)	
Retroactive financing and/or advance contracting	Advance contracting and retroactive financing is proposed for consulting services and civil works of rural trunk roads 12 months before the date of the loan agreement, subject to a maximum amount equivalent to 20% of the loan amount.		
Disbursement	The loan proceeds will be disbursed in accordance with ADB's <i>Loan Disbursement Handbook</i> (2015, as amended from time to time) and detailed arrangements agreed between the government and ADB.		

Source: Asian Development Bank estimates.

III. DUE DILIGENCE

A. Technical

19. **Planning.** The sector assessment reveals deficiencies in the previous planning practices focused on developing a high-class network of north–south and east–west roads, without taking sufficient account of traffic forecasts and upgrading needs, causing over-dimensioning in several cases. Consequently, rehabilitation received insufficient attention, despite two-fifths of the rural road network being in poor or very poor condition. Road improvements for connecting poor villages were not prioritized systematically and often drew on the personal knowledge and judgment of CTB staff. The project roads were selected to enhance poverty impact, among other things, by prioritizing connection to poverty villages identified by the Ningxia PAO. The project's road works were designed for (i) rehabilitation and paving of roads in poor and very poor conditions, aimed at providing and reinstating paved road access to rural poor communities without any change to the technical class of the roads; and (ii) upgrading of rural trunk roads with justifiable traffic volumes to a higher technical class, in line with national standards.

20. **Sustainability.** The massive scale of rural road construction in 2000–2009 was not complemented by a similar increase in maintenance funding and implementation capacity. Routine maintenance is often lacking, especially in lower level rural roads, leading to widespread damage. The sustainability of rural roads was put at further risk by a lack of medium maintenance and the poor quality of major maintenance works, causing accelerated deterioration of the rural road network. The project includes a specific component aimed at improving rural road maintenance coverage and implementation, and enhancing CTB capacity for outsourcing off-pavement routine maintenance to local women's groups and medium maintenance works to qualified private contractors.

21. **Rural road safety.** Increasing traffic volumes and speeds on rural roads is leading to more traffic accidents and fatalities. The NHAR has been funding road safety engineering measures since 2015, with road safety assessments carried out in most county roads. However, the CTBs tend to lack skilled experts and guidelines for road safety. The project will pay specific attention to enhancing skills for conducting road safety assessments and applying road safety audits to rural trunk roads.

B. Economic and Financial

22. **Economic analysis.** A cost–benefit analysis has been conducted for the rural trunk roads package as well as the rural feeder roads. Overall, the project is economically viable with an economic internal rate of return (EIRR) of 13.5%. The evaluations of individual trunk roads show EIRRs of 10.2%–18.1% and a combined EIRR of 13.8%. At the county level, when the rural

feeder roads are added, the EIRRs are 7.8%–18.3%. The improvement from unpaved to paved rural feeder roads is further justified through the unquantified socioeconomic impacts of improved year-round accessibility to markets and services directly targeting the poor population, including ethnic minorities. These socioeconomic benefits are expected to include (i) increased agricultural production and marketing; (ii) local market development; (iii) increased wages, consumption, and employment; (iv) reduced poverty; (v) positive impacts on transport speeds, costs, and travel patterns; (vi) improved access to health services and education; and (vii) benefits for women.

23. **Financial analysis.** The financial sustainability analysis for the project indicates that counterpart funding availability and debt service from the project counties are acceptable in comparison with overall local government revenues and expenditures. Average annual counterpart funding is estimated to account for 10.2% of the projected local government revenues and 0.6% of the expenditures during the implementation period. Annual debt service is estimated to be 2.3% of projected government revenues in the first year of repayment and will decline thereafter. There is a risk that operation and maintenance will be underfunded. Although the annual minimum operation and maintenance requirement is 0.01%–0.07% of projected revenues during 2019–2025, it has historically been given low priority. Local governments are under some funding pressure because of their poor fiscal history, but the central and provincial governments will provide the necessary support given the important role this project will play in achieving the poverty reduction goal in the Liupanshan area.

C. Governance

24. All procurement to be financed under the ADB loan will be carried out in accordance with ADB's Procurement Guidelines (2015, as amended from time to time). Financial management risk is considered *moderate*, as is procurement risk, despite the involvement of multiple implementing agencies (CTBs) and lack of experience of the PMO and the CTBs in ADB projects, because of the existence and correct application of generally accepted accounting principles. To mitigate these risks, action plans have been prepared for both procurement and financial matters. PMO and CTB staff will be trained in ADB procurement and disbursement procedures and guidelines. ADB's Anticorruption Policy (1998, as amended to date) was explained to and discussed with the governments of PRC and the NHAR. The relevant sections of ADB's Anticorruption Policy will be included in all procurement documents and contracts. The specific policy requirements and supplementary measures are described in the PAM (footnote 18).

D. Poverty and Social

25. **Poverty.** A total of 702,600 poor people accounts for 17.4% of the total rural population, and 1,100 villages designated as poor account for 48.1% of the total number of villages. The average gross domestic product per capita in the project counties was CNY12,778 in 2013, which was only 32.4% of the NHAR average and 30.5% of the national average. The economic development level measured by gross domestic product per capita varies considerably within the project counties. Yuanzhou county had the highest level, 120% higher than that of Haiyuan. The most important causes of poverty in the Liupanshan area are insufficient access to credit, illness and medical expense, lack of employment opportunities and labor skills, and bad road conditions that limit transportation of products and access to schools, services, and markets.

26. The project is a geographically targeted poverty intervention. The number of poor beneficiaries comprises 52% of the total beneficiaries. The improvement of rural feeder roads will provide direct access to rural farmsteads and fields, generating new opportunities for

farmers to shift to higher-value crops, increase production, and market directly to traders. A positive impact on farmgate prices, and consequently incomes, is expected. Year-round access will be delivered as the project will connect poor villages to the surfaced road network. The project will conduct an impact evaluation study to assess the impact of the road improvements on poverty reduction.

27. **Social and gender.** Better road connectivity and reduced transport costs and travel time will also improve access to employment opportunities and social services. The project is estimated to create about 1,800 jobs during the construction period, of which 760 will be unskilled jobs and 1,040 will be skilled jobs. The road safety output of the project will result in safer roads. The project is categorized as *effective gender mainstreaming*, as improved road conditions will benefit women with easier, faster, and safer travel; increase their mobility; and facilitate more productive use of their time. Measures to address gender issues in project design and implementation have been incorporated in the gender action plan and other project documents. Specific measures include (i) traffic safety improvements incorporated in the project design, (ii) public participation meetings at all stages of the project involving at least 50% women, (iii) 30% of total unskilled construction jobs for local women, and (iv) training and employment of local women in at least 22 road maintenance groups. Project information dissemination, training, and other activities will be conducted in times and places convenient to women with respect to their schedule and in a manner that women can easily understand. Women will be equally entitled to compensation for land acquisition and house demolition.

E. Safeguards

28. **Environment.** The project is category B for environment. A consolidated initial environmental examination and an environmental management plan (EMP), which cover all project components, have been prepared. These documents comply with the PRC's regulatory requirements and ADB's Safeguard Policy Statement (2009), and was disclosed on the ADB website in August 2016. Public consultations were carried out to inform the project design and environmental assessment process, and will continue during project implementation. Capacity development and institutional strengthening will be provided to minimize environmental risks. Environmental complaints will be handled through a project safeguards grievance redress mechanism. Carbon dioxide emissions are estimated at about 84,000 tons in 2033 from the seven rural trunk roads and less than 100,000 tons in 2030 for the 21 rural feeder roads. Total carbon dioxide emissions from the project roads will be less than the ADB threshold of 100,000 tons/year in the long term.

29. All proposed rural trunk roads and rural feeder roads are existing roads proposed for improvement. Anticipated construction environmental impacts are fugitive dust, noise, water quality impacts, and disposal of solid waste. One of the rural trunk roads is about 500 meters from the Yunwushan National Nature Reserve, which is designated to protect grassland resources. The EMP and project assurances include specific protection measures for the reserve. The major operational impacts are noise and greenhouse gas emissions associated with increases in traffic volume. The EMP outlines potential impacts, mitigation and monitoring measures, institutional arrangements, training requirements, and an environment implementation budget that is 0.8% of the total project budget.

30. **Climate change risk.** The project is classified at *medium* risk from climate change. A climate risk and vulnerability analysis indicated an increased risk of extreme rainfall events, flooding, and landslides as a result of climate change. During the detailed design, a 15% increase in design flood discharge will be used to examine the adequacy of bridge and culvert design under future climate conditions. An assurance requiring the consideration of climate risk

and adaptation measures has been included in the project agreement. A range of hard and soft adaptation measures will be considered, and measures adopted and the incremental cost of adaptation will be confirmed following detailed design.

31. **Involuntary resettlement.** The project is category B for involuntary resettlement. Land acquisition and resettlement (LAR) impacts are mainly to the rural trunk roads and two rural feeder roads. Rural road improvement will result in partial LAR impacts, as they are existing roads. The LAR impacts have been adequately assessed, and eight resettlement plans have been prepared and disclosed on the ADB website. For the rural trunk roads and two rural feeder roads,¹⁹ an estimated 6,446 *mu*²⁰ of land will be acquired permanently and 8,775 square meters of housing structures will be demolished. Land acquisition and house demolition will affect 2,031 households with 8,780 persons. No household will lose more than 10% of farmland, and only nine households with 33 persons will suffer complete house demolition and are regarded as severely affected. For the other 19 rural feeder roads, it is estimated that 825 *mu*–925 *mu* of farmland (99% is dry farmland) will be acquired, 541 households will be affected in 38 villages, and no house will be demolished. The amount of ground attachments, which mainly include young crop and public facilities, will be measured after the preliminary engineering design. Capacity building for implementing agencies on social safeguards implementation is integrated into the project design. Affected people were sufficiently consulted during the preparation of the resettlement plans. Approved resettlement plans will be disclosed to the affected people and on the ADB website. The estimated cost of LAR is CNY98.66 million—including land compensation; house relocation; and livelihood support, taxes, fees, and contingency funds. The NHAR government confirmed that adequate counterpart funding would be made available for LAR. An independent agency will monitor resettlement implementation and produce semiannual reports. Public consultations will continue throughout the project cycle, and a grievance-redress mechanism will be established.

32. **Indigenous peoples.** The project is category B for ethnic minorities. The Hui are the sole ethnic minority in the project area and the overwhelming population along most of the proposed rural trunk and feeder roads. Over 86% of the direct beneficiaries are Hui. Some minor impacts will occur during road construction and operation, but these will not have significant negative impacts on ethnic culture, social life, religion, or economic development. An ethnic minority development plan (EMDP) has been prepared to ensure that the Hui benefit positively from the proposed rural road project and that any negative social impact, direct or indirect, is mitigated or avoided. The actions outlined in the EMDP and integrated into the project, in coordination with other stakeholders, are (i) road safety awareness, (ii) ethnic minority cultural awareness building for the contractors with the county Ethnic and Religious Affairs Committees, and (iii) communicable disease prevention training for villagers by the Chinese Center for Disease Control and Prevention. The executing and implementing agencies agreed to provide funds and implement the specified activities as indicated in the EMDP. Public consultations were conducted through formal and informal focus group discussions from October 2015 and will continue throughout the project period by the PMO safeguards focal persons, including consultants and the external monitor. A grievance redress mechanism will be established to address affected people's concerns. An independent agency will monitor EMDP implementation and produce semiannual reports.

¹⁹ These two rural feeder roads were included in the Jingyuan and Longde resettlement plans while the other 19 rural feeder roads were included in Resettlement Plan: Other Feeder Roads (accessible from the list of linked documents in Appendix 2).

²⁰ A *mu* is a Chinese unit of measurement (1 *mu* = 666.67 m²).

F. Risks and Mitigating Measures

33. The overall risk assessment is deemed to be *medium*. The integrated benefits and impacts are expected to outweigh the costs. Major risks and mitigating measures are summarized in Table 4 and described in detail in the risk assessment and risk management plan.²¹

Table 4: Summary of Risks and Mitigation Measures

Risks	Mitigating Measures
Delays in counterpart funding caused by unexpected financial needs or policy changes	(i) Covenanted assurances from Ningxia Department of Transport and county transport bureaus for timely provision of counterpart funding, and (ii) counties to be required to make formal budget provision for their project financing obligations.
Delays in the procurement process (including delays resulting from the practice of submitting unrealistically low bids)	(i) Training in project management and planning, (ii) use of standard bidding documents and Asian Development Bank advance contracting facility, and (iii) engagement of procurement agents.
Lack of sustainability caused by underfunding of road maintenance and minor repairs	(i) Output 2 of the project (rural road safety and sustainability enhanced) will enhance maintenance efficiency through outsourcing and training of county transport bureaus, and (ii) provision of adequate maintenance budget for the project roads covenanted.

Source: Asian Development Bank.

IV. ASSURANCES

34. The governments of PRC and NHAR have assured ADB that implementation of the project will conform to all applicable ADB policies, including those concerning anticorruption measures, safeguards, gender, procurement, consulting services, and disbursement as described in detail in the PAM and loan documents. The governments of PRC and NHAR have agreed with ADB on certain covenants for the project, which are set forth in the loan agreement and project agreement.

V. RECOMMENDATION

35. 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 \$100,000,000 to the People's Republic of China for the Ningxia Liupanshan Poverty Reduction Rural Road Development 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; for a term of 26 years, including a grace period of 5 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.

Takehiko Nakao
President

29 September 2016

²¹ Risk Assessment and Risk Management Plan (accessible from the list of linked documents in Appendix 2).

DESIGN AND MONITORING FRAMEWORK

Impacts the Project is Aligned With			
Rural incomes in the Liupanshan area increased (13th Five-Year Plan of Ningxia Hui Autonomous Region) ^a			
Incidence of poverty in the Liupanshan area reduced (13th Five-Year Plan of Ningxia Hui Autonomous Region) ^a			
Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
Outcome Rural transport network in Liupanshan improved	By 2021: a. Percentage of rural roads in project counties in poor or very poor condition (MQI<70 for paved roads) reduced to 33% (2014 baseline: 41%) b. Average travel speed on rural trunk roads under the project increased to 40 km/h (2016 baseline: 20 km/h) c. 84 poor natural villages newly connected by paved rural feeder roads (2016 baseline: 0)	a. The government's project completion report based on data of county transport bureaus b. Impact evaluation survey reports prepared by the consultants after baseline and end-line surveys c. The government's project completion report based on data of county transport bureaus and poverty alleviation offices	Underfunding of road maintenance and minor repairs causes lack of sustainability.
Outputs 1. Priority rural roads rehabilitated and upgraded 2. Rural road safety and sustainability enhanced	1a. 266.7 km of rural trunk roads rehabilitated and upgraded by 2021 (2016 baseline: 0) 1b. 168.3 km of rural feeder roads rehabilitated and paved by 2021 (2016 baseline: 0) 1c. At least 30% of women workers engaged for unskilled labor in the road improvement works (2016 baseline: 15%) 2a. Road safety audits conducted on 266.7 km of rural trunk roads by 2021 (2016 baseline: 0)	1a–c. Quarterly progress reports by project management consultants 2a–e. Quarterly progress reports by project management consultants	Unexpected financial needs or policy changes cause delay in provision of counterpart funds.

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
<p>3. Impact evaluation conducted and project implementation capacity improved</p>	<p>2b. 20 staff from Ningxia Department of Transport, project management office, and CTBs trained in road safety assessments by 2021 (2016 baseline: 0)</p> <p>2c. 22 women maintenance groups established, trained, and contracted in the seven project counties for the routine maintenance of rural feeder roads by 2021 (2016 baseline: 0)</p> <p>2d. CTB staff from all seven counties trained in contracting out medium maintenance^b (2016 baseline: 0)</p> <p>2e. At least one medium maintenance contract awarded through competitive tendering (2016 baseline: 0)</p> <p>3a. Sufficient baseline and end-line data collected and poverty impact evaluation conducted by 2022 (2016 baseline: Not applicable)</p> <p>3b. More than 80% of the project management office staff have improved understanding of ADB procurement and disbursement procedures by 2017 (2016 baseline: 0)</p>	<p>3a. Survey reports by consultants</p> <p>3b. Training workshop achievement quiz and evaluation survey reports</p>	

<p>Key Activities with Milestones</p> <ol style="list-style-type: none"> 1. Priority rural roads rehabilitated and upgraded <ol style="list-style-type: none"> 1.1 Conduct detailed designs and prepare bidding documents (Q3 2016–Q1 2019) 1.2 Complete necessary land acquisition and resettlement (Q4 2016–Q4 2017) 1.3 Implement, monitor, and report on environmental management plan (Q4 2016–Q3 2021) 1.4 Conduct civil works (Q1 2017–Q3 2021) 2. Rural road safety and sustainability enhanced <ol style="list-style-type: none"> 2.1 Conduct road safety audits on the preliminary engineering designs of the rural trunk roads and incorporate the recommendations into the detailed engineering design (Q3 2016–Q2 2017) 2.2 Conduct training on road safety assessment and countermeasure identification (Q2–Q3 2017) 2.3 Conduct safety assessment on the rural roads (Q4 2017) 2.4 Train staff from all counties in procurement of medium maintenance (Q2–Q3 2017) 2.5 Prepare bidding and contracting documents and provide procurement support for at least one medium maintenance contract in Jingyuan (Q1–Q4 2018) 2.6 Create and train women road maintenance groups in all rural feeder roads (conducted with support from parallel technical assistance funded by a grant from the Gender and Development Cooperation Fund^c) (Q1–Q4 2017) 2.7 Conduct routine maintenance of all rural feeder roads through the established road maintenance groups upon completion of the civil works (Q1 2018–Q4 2020) 3. Impact evaluation conducted and project implementation capacity improved <ol style="list-style-type: none"> 3.1 Conduct baseline surveys on selected roads and control groups (Q4 2016) 3.2 Conduct training workshop on ADB procurement and disbursement procedures (Q1–Q4 2017) 3.3 Conduct end-line surveys and analyze data (Q4 2021) 3.4 Conduct workshops on ADB procurement and disbursement <p>Project Management Activity Engage project implementation support and monitoring consultants (Q1 2017)</p>
<p>Inputs</p> <p>ADB: \$100.00 million (loan)</p> <p>Government: \$165.54 million</p>
<p>Assumptions for Partner Financing</p> <p>Not applicable</p>

ADB = Asian Development Bank, CTB = county transport bureau, km = kilometer, km/h = kilometer per hour, MQI = maintenance quality index, Q = quarter.

^a Government of the Ningxia Hui Autonomous Region. 2016. *13th Five-Year Plan*. Yinchuan, NHAR.

^b Maintenance activities are grouped into minor (routine) maintenance, medium maintenance, and major maintenance. Medium maintenance aims to restore the original technical condition of the road and includes repairing general damages and periodic improvement of road conditions.

^c The Gender and Development Cooperation Fund was established by ADB as a multi-donor fund in May 2003.

Source: Asian Development Bank.

LIST OF LINKED DOCUMENTS

<http://www.adb.org/Documents/RRPs/?id=48023-003-3>

1. Loan Agreement
2. Project Agreement
3. Sector Assessment (Summary): Transport
4. Project Administration Manual
5. Contribution to the ADB Results Framework
6. Development Coordination
7. Financial Analysis
8. Economic Analysis
9. Country Economic Indicators
10. Summary Poverty Reduction and Social Strategy
11. Gender Action Plan
12. Initial Environmental Examination
13. Resettlement Plan: Yuanzhou County
14. Resettlement Plan: Xiji County
15. Resettlement Plan: Tongxin County
16. Resettlement Plan: Pengyang County
17. Resettlement Plan: Haiyuan County
18. Resettlement Plan: Jingyuan County
19. Resettlement Plan: Longde County
20. Resettlement Plan: Other Feeder Roads
21. Ethnic Minorities Development Plan
22. Risk Assessment and Risk Management Plan

Supplementary Documents

23. Project Climate Risk Assessment and Management
24. Economic Evaluation
25. Poverty and Social Assessment and Impact Evaluation