

SECTOR ASSESSMENT (SUMMARY): TRANSPORT

Sector Road Map

1. Sector Performance, Problems, and Opportunities

1. **Transport sector.** The mountainous terrain of Pu'er prefecture¹ in Yunnan Province of the People's Republic of China (PRC) reduces the potential for railway and inland waterway transport systems thereby increasing reliance on the road network.² Total freight traffic in the prefecture in 2011 was 3.8 billion ton-kilometers, or 4% of the Yunnan total. Passenger traffic totaled 2.8 billion passenger-kilometers, 5% of the provincial total. The prefecture had 615,900 vehicles³ in 2011, 7% of the Yunnan total, and 73 transport service enterprises that generated a CNY1 billion profit and employed more than 11,000 people.

2. **Road network.** The road network in Pu'er is 19,424 kilometers (km) long. It comprises 2,504 km of national and provincial roads (13%); and 16,291 km of county, township, village, and special roads (87%). The proportion of unclassified roads in Pu'er, 34%, is higher than the Yunnan province average (23%). Although the proportion of unpaved roads is about the same as in other parts of the province, a larger percentage of these are earthen roads—about 34% compared to 20% for Yunnan overall.

3. **Rural roads and access to services.** Some clinics, processing stations, primary schools and other services and facilities are located in or around the administrative villages in Pu'er, but most services are located in the townships. These include markets, hospitals, primary and middle schools, banks, police stations, coffee collection stations, and tea processing plants. Other services and facilities are available only in county towns, such as major markets, large hospitals, secondary schools, and offices for obtaining marriage certificates and border permits. Much rural transport traffic therefore is between the villages and the nearest township. A rural household will make these trips on average four times a month and will travel farther to the county town once or twice a month. They visit the prefecture capital a few times a year. During the rainy season, however, many rural roads become impassable due to landslides and poor road surfaces. This results in the loss of perishable crops that cannot be brought to market and reduces the access of rural people to socioeconomic services and facilities.

4. **Maintenance.** County transport bureaus (CTBs) have maintenance stations to carry out minor maintenance. In six of the prefecture's nine counties, these maintenance stations hire private sector or state-owned companies to do the maintenance. The three remaining county maintenance stations do a large part of the work utilizing their own staff and equipment. An estimated 8,000-10,000 temporary part-time workers are also hired from local villages for routine maintenance works.

5. **Maintenance funding.** Provincial government maintenance allocations from its fuel tax to Pu'er prefecture in 2013 amounted to CNY71.5 million. County government contributions raised the total rural road maintenance allocation to CNY97.5 million in 2013. In 2012, the Pu'er municipal transport bureau (PMTB) allocated CNY6 million for maintenance, and a similar

¹ Pu'er prefecture contains 9 counties, and the district of Simao, that contains Pu'er City which serves as the prefecture capital.

² Water transport in Pu'er for 2011 involved only 600,000 passengers (6% of the Yunnan total) and 160,000 tons (3% of total in Yunnan). Yunnan Statistical Yearbook 2012. In 2009, water transport accounted for less than 1% of total passenger-kms and freight ton-kms. Annals of Statistics of Pu'er City 2000–2009. Pu'er has no railways.

³ This includes 64,000 passenger vehicles, 41,900 trucks and other freight vehicles, 458,900 motorcycles, and 37,900 tractors. Yunnan Statistical Yearbook 2012.

allocation was expected in 2013. These allocations were below the Pu'er prefecture⁴ policy target of CNY14.7 million,⁵ which is based on the length of municipal road (excluding provincial roads). The counties' counterpart funding is dependent on poverty status. To receive the provincial allocation, economically advanced counties are required to provide an additional 60% contribution themselves. These terms currently apply only to Simao District. Middle-income counties provide 40% (Ning'er, Mojiang, Jingdong, Jinggu, and Lancang). Poorer counties provide 20% (Zhenyuan, Jiangcheng, Menglian, and Ximeng).

6. Funding for maintenance works comes mainly from the provincial and county allocations. The municipal budget is used for setting up and running maintenance stations at county level, including purchasing equipment, and paying CTB performance bonuses. The allocations differ depending on road types and vary according to the county. They range from CNY1,200 per km per year for village roads to CNY11,200 per km per year for county roads. However, about half of this funding is used to finance the operations of the maintenance stations, including salaries, construction and maintenance of buildings, and equipment purchases. This leaves only about half of the allocations for actual road maintenance work.

7. **Public transport services.** Bus services in Pu'er are provided by two⁶ private companies that serve different routes. The rural bus routes generally operate from administrative villages to the township town and on to the county town. Transport services in Pu'er are managed and regulated by the PMTB transport management division, which has transport divisions in the CTBs that focus on regulation. Routes and rates are generally proposed by the bus companies, based on expected operating costs and occupancy levels, and are subsequently modified or approved by the county based price commissions.⁷ Bus services are concentrated on the most profitable routes to and from the two bus companies' county hubs, and most rural roads have no public transport services. This is especially true of those that are in poor condition. The PMTB invites bids for the approved bus routes periodically, but the two bus companies are guaranteed monopolies on their routes as they do not compete with one another in such bidding. Fuel subsidies are provided to the bus companies, who also manage bus terminals and charge a levy on the tickets for this service. Resulting fares between towns in the municipality of about CNY0.3 per km are higher than in most of the neighbouring countries in South East Asia, and fares between administrative villages may be double or triple this.

8. Most rural people in Pu'er do not own cars or minivans. Many use and own motorcycles. Although only licensed transport providers are legally permitted to provide public transport services, it is common for private vehicle owners to do this, especially in towns. Informal transport operators also provide important services in rural areas to those without their own means of transport, particularly on roads with infrequent or no bus service. Since these services are unregulated, many different types of vehicles are used, including motorcycles, motorized tricycles, tractor trailers, and small trucks. The condition of these vehicles is often poor. Where licensed services are available, people prefer to use them because they are safer and more comfortable and offer reduced costs and shorter travel times.

9. **Road safety.** Pu'er's fatality rate per 10,000 vehicles or per billion vehicle-kms is between 3-5 times higher than in developed countries. Fatality rates have decreased in recent

⁴ The municipality of Pu'er includes Ning'er, Mojiang, Jingdong, Jinggu, Zhengyuan, Jiangcheng, Menglian, Lancang and Ximeng counties and Simao District. The major urban area of Pu'er city is located in Simao.

⁵ The policy target has been calculated based on 4,548 km of county roads (CNY1,500 per km per year (km/year); 9,858 km township roads (CNY750 per km/year); and 2,244 km of village road (CNY750 per km/year).

⁶ Jin Kongque bus company services all nine counties and Simao District. Hong Feng bus company services only Simao district, including the urban center of Pu'er city.

⁷ A county-based committee that monitors and approves price movements for public utilities and services.

years as a result of greater government attention to road safety. Rapid motorization and the improvement of roads allowing higher driving speeds could however reverse this trend. Two-thirds of all road accident fatalities in Yunnan occur on the highway network,⁸ particularly on its class I and II roads and expressways. They mainly involve collisions between vehicles (65%) and between vehicles and other objects (17%). Fatality rates are much lower on unclassified and class IV single-lane roads due to light traffic levels and low driving speeds. Collisions are not common on these roads, and many fatalities occur when vehicles roll over sharp declines (47%). The heavy reliance on unregulated informal public transport is a safety concern, because vehicle overloading and the use of inappropriate vehicles are more likely to produce multiple casualties in accidents. The transport of school children to and from school on motorcycles or tractor-trailers is a significant road safety issue.

10. **Cross-border trade.** Pu'er is the only prefecture in Yunnan that borders all three of the PRC's neighboring countries—the Lao People's Democratic Republic (Lao PDR), Myanmar, and Viet Nam. Nonetheless, it accounted for only \$100 million in international trade in 2011, or 1% of the Yunnan total. This was in part due to poor transport connections. The main transit routes between Yunnan and Viet Nam and Myanmar do not pass through Pu'er. Although the main corridor of the Greater Mekong Subregion (GMS)⁹ between the PRC and Lao PDR and Thailand beyond does transit Pu'er, the main border crossing is to the south in Xishuangbanna Prefecture. About 20 border crossings linking Pu'er¹⁰ with the adjoining countries cater to both formal and low-value informal trade. Three class I crossings exist with the Lao PDR and Myanmar, and it is proposed to develop a fourth with Viet Nam at Longfu, where the Ning'er–Longfu project road ends. Improvements in access and additional facilities at Longfu are required to encourage growth and stimulate trade. Upgrading of the Longfu border crossing, together with the Mengkang crossing to Lao, would place Jiangcheng at the center of trade between the three countries as it is equidistant from the nearest trading centers in Yunnan (Pu'er), Viet Nam (Dien Bien) and the Lao PDR (Phongsali).

2. Government's Sector Strategy

11. **Construction and upgrading.** The PRC's 12th five-year plan (12th plan) advances the agenda of sustainable development initiated by the previous plan. The Yunnan provincial government aims to have 100% of townships and 70% of administrative villages connected by paved roads by 2015. The rural road network is to be expanded by 12,000 km to 186,000 km during this period. According to Pu'er's own 12th five-year plan, the municipal government aims to construct four class II roads and four class III roads, with a total length of 920 km; reconstruct 600 km of county roads at a cost of CNY420 million; open 1,200 km of township roads (CNY320 million); pave 6,530 km of township roads (CNY3,260 million); and reconstruct 1,800 km of village roads (CNY1,260 million). All township roads are to be of class IV standard with asphalt or concrete pavements.

12. **Maintenance.** A 2005 policy and subsequent policy documents issued by the PRC's Ministry of Transport, its National Development and Reform Commission, and its Ministry of Finance made CTBs responsible for the maintenance of the country's rural road network, with

⁸ The highway network includes (i) public roads outside urban areas, including the sections traversing minor towns and villages, and (ii) public roads constructed according to the Ministry of Transport Technical Standard of Highway Engineering JTG B01-2003 (MOT), excluding urban roads designed to standards developed by the Ministry of Housing and Urban-Rural Development.

⁹ The Greater Mekong Subregion program comprises Cambodia, the Lao PDR, Myanmar, Thailand, Viet Nam, and Yunnan Province and Guangxi Zhuang Autonomous Region of the PRC. It aims to promote economic cooperation and social development.

¹⁰ These comprise 17 crossings with Myanmar, 2 with the Lao PDR, and 1 with Viet Nam.

support from townships and villages, and introduced provincial maintenance subsidies. The PRC government initially financed these from vehicle registration fees before shifting to use of a fuel tax allocation. Annual PRC government subsidies remain at the 2005 level of CNY7,000 per km for county roads, CNY3,500 per km for township roads, and CNY1,000 per km for village roads. The policy called for maintenance to be transferred from the in-house maintenance units of local governments to private companies with their own employees. It also set limits on the number of government staff involved in maintenance management. In 2008, the Yunnan Department of Transport issued guidelines requiring that prefecture and county governments provide counterpart road maintenance funding. It allowed only a maximum of 20% of the provincial subsidy to be used for routine maintenance, although this was raised to 50% in 2009.¹¹ Medium and major maintenance was to be tendered out to professional maintenance organizations, while maintenance not related to road surfaces was to be carried out through competitive contracting of villagers. Municipal funding may only be used for medium or major maintenance and the purchase of equipment, while county funding is to be used for routine, minor, and emergency maintenance.

3. ADB Sector Experience and Assistance Program

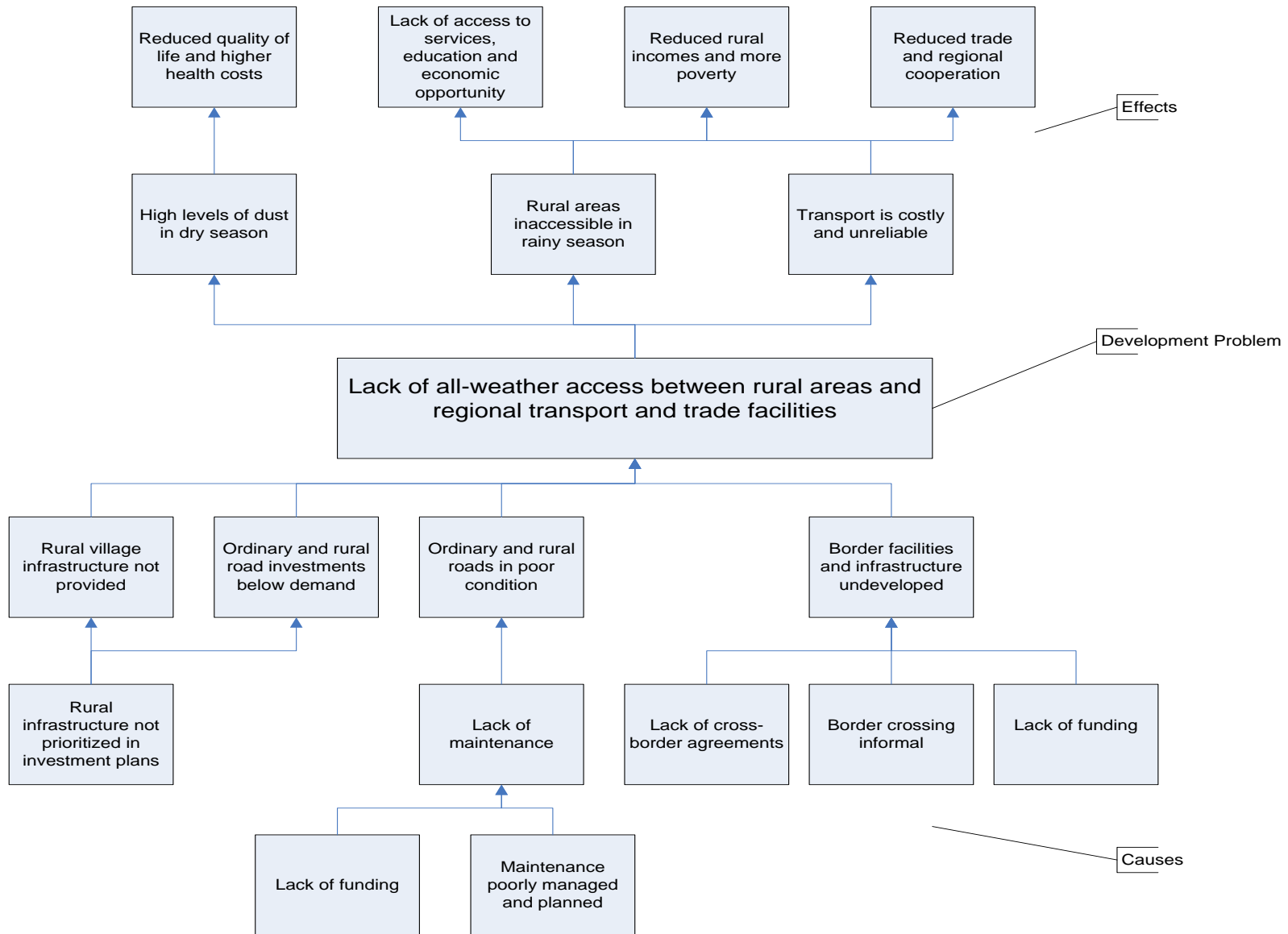
13. The Asian Development Bank (ADB) has partnered with the PRC in its transport sector since 1991. The PRC has received 71 ADB loans totaling more than \$13.8 billion for transport and information technology projects since 1992. ADB has also provided it with \$70.5 million in technical assistance for policy reform, institutional strengthening, environmental management, poverty reduction, vocational training, and project preparation in the sector. ADB's Sustainable Transport Initiative in 2010 established new strategic directions for its transport operations to 2020. The initiative identified four areas in which ADB was to scale up support, including cross-border transport and logistics, and road safety. Accordingly, ADB has been diversifying its operations and will continue to focus more of its road subsector assistance on better road asset management and road safety.

14. ADB's country partnership strategy for the PRC for 2011–2015 promotes inclusive growth and environmental sustainability by helping develop a more efficient, safe, green, and sustainable transport system. In the road sector, ADB will help (i) develop more effective ways of integrating planning, financing, and executing road upgrades, rehabilitation, and maintenance; (ii) prepare long-term as well as annual road network rehabilitation and maintenance plans; (iii) develop sustainable financing arrangements; and (iv) accelerate sector reforms to promote market-based road maintenance mechanisms. ADB will help promote transport efficiency through greater use of buses, containers, and large multi-axle trucks. ADB will continue to enhance rural access by providing year-round road access and encouraging transport services. In urban areas, ADB will make transport accessible and safe for all users and social groups, including poor women and other vulnerable groups.

15. In line with the PRC's commitment as a signatory to the United Nations Decade of Action for Road Safety, 2011–2020 and with ADB's Road Safety Action Plan, ADB will scale up road safety in operations. This will include piloting improved approaches to road safety that emphasize improved engineering, enforcement, education, information sharing, evaluation, and emergency response in road safety. ADB will expand its road safety operations initially by including more road safety components in project loans, more technical assistance support, and regional cooperation in road safety.

¹¹ This occurred in part because the fuel tax also replaced a motorcycle and farm vehicle maintenance fee in 2009 that had been collected at county level and used for routine maintenance.

Problem Tree for Transport in Pu'er



Sector Results Framework (Transport Sector, 2011–2015)

Country Sector Outcome		Country Sector Outputs		ADB Sector Operations	
Outcomes with ADB Contributions	Indicators with Targets and Baselines	Outputs with ADB Contributions	Indicators with Incremental Targets	Planned and Ongoing ADB Interventions	Main Outputs Expected from ADB Contributions
More efficient, safer, inclusive, and sustainable movement of people and goods in the PRC.	<p>Rail traffic for passenger grows by 4% per annum, from 876 billion passenger-km in 2010.</p> <p>Rail traffic for freight grows by 3% per annum, from 2,733 billion ton-km in 2010.</p> <p>Energy consumption in railway per unit of traffic reduced by 5% from 2010 to 2015, from 4.94 tons of standard coal equivalent million ton-km in 2010.</p> <p>Inland waterway traffic for freight grows by 1% per annum for freight traffic, from 433 billion ton-km in 2009.</p> <p>In areas supported by ADB urban transport projects, public transport ridership increases by 5% from 2010 to 2015.</p> <p>In areas supported by ADB road projects, the road accident fatality rates per vehicle-km and per 100,000 population in 2015 are 10% lower than in 2010.</p>	<p>Integrated, low carbon transport system expanded, improved, managed, and maintained</p>	<p>Rail route network increased from 91,000 km in 2010 to about 120,000 km by 2015, including 45,000 km of high-speed rail lines (speeds capacities of more than 200 km per hour).</p> <p>42 national comprehensive transport hubs developed by 2015.</p> <p>High class (class III and above) inland waterway network increased from 10,000 km in 2010 to more than 13,000 km by 2015.</p> <p>In areas supported by ADB projects, new bus rapid transport system in operation by 2015 (baseline: zero).</p> <p>In provinces supported by ADB road projects and TA projects, financing for road maintenance by project completion increased from the current level.</p>	<p>Planned key activity areas:</p> <p>(i) Lending operations with a total investment of \$2.71 billion in rail transport, especially regional or subregional links (2011–2014)</p> <p>(ii) Inland waterway transport, urban transport</p> <p>(iii) Road asset management, rural transport</p> <p>(iv) Road, rail, and inland waterway safety</p> <p>Pipeline projects (2011–2014), (total \$2.71 billion):</p> <p>(i) Railway (\$1,160 million)</p> <p>(ii) Road (\$980 million)</p> <p>(iii) Urban transport (\$370 million)</p> <p>(iv) Inland waterway (\$200 million)</p> <p>Non-lending programs in fuel tax reforms, low carbon urban transport, intermodal logistics, energy efficiency, and safety knowledge products based on TA findings and policy notes aimed at supporting government policy making.</p> <p>Ongoing projects:</p> <p>24 ongoing projects totaling \$6.2 billion at end of 2010.</p>	<p>Pipeline projects:</p> <p>(i) The first bus rapid transit system operational in Lanzhou.</p> <p>(ii) About 650 km of ordinary roads rehabilitated and operational.</p> <p>(iii) Road asset management system established in one province and operational</p> <p>Ongoing projects:</p> <p>(i) About 1,947 km of new railways built</p> <p>(ii) About 121 km of urban roads upgraded in Xi'an and Lanzhou</p> <p>(iii) About 1,883 km of expressways built</p> <p>(iv) About 3,881 km of local roads rehabilitated</p> <p>(v) About 1,308 km of rural roads built or rehabilitated</p>

ADB = Asian Development Bank, km = kilometer, TA = technical assistance, PRC = People's Republic of China.

Source: ADB estimates.