SECTOR ASSESSMENT (SUMMARY): TRANSPORT, AND INFORMATION AND COMMUNICATION TECHNOLOGY

Sector Road Map

1. Sector Performance, Problems, and Opportunities

1. Fuzhou is a prefectural level city in eastern Jiangxi Province, located 90 kilometers (km) from the provincial capital, Nanchang. By the end of 2009, the population of Fuzhou city had reached 3,905,673, of which 1,076,624 (27.6%) was urban. In 2010, the Fuzhou urban district, the location of the project, had a current population of about 500,000 and is expected to grow to 750,000 by 2020. Fuzhou’s gross domestic product growth rate has averaged 12.7% per year since 2000 and 14.1% during the 11th Five-Year Plan, 2006–2010.

2. The new Xiangpu high-speed railway is expected to open for revenue service in 2014, providing a strategic connection linking Fuzhou, Nanchang, and Fujian Province. With the completion of the railway, the travel time between Fuzhou and Nanchang will be shortened from over 2 hours to just 30 minutes, allowing Fuzhou to reap the benefits of regional economic growth. To allow Fuzhou to take advantage of the major improvement in regional accessibility, its urban transport system requires urgent expansion and investment.

3. Rapid urbanization, unprecedented growth in motorization, an insufficient public transport system, and a large increase in asset management requirements are the primary challenges facing the transport sector in Fuzhou. Transport also needs to become more sustainable, using less energy and emitting less carbon dioxide. With the expanding scale of urbanization and transport needs in Fuzhou, the transport sector needs to find new sources of financing, strengthen institutional arrangements, and develop multimodal transport connections that will facilitate continued economic development and inclusive growth.

4. In small and medium-sized cities in the People’s Republic of China (PRC) such as Fuzhou, most short trips are made on foot. Motorcycles or electric bicycles are preferred for medium-distance trips. According to the Fuzhou Transport Bureau, motorcycles and electric bicycles account for 62% of total daily trips. While bus trips represent a relatively small portion of total daily trips, as the city area widens and commuting distances lengthen, bus travel is growing quickly. Areas for new residential and industrial development are expected to increase demand for public transport with connections to the central business district and to the new high-speed railway station now under construction. A high-quality public transport system is urgently needed to ensure that the growth in travel demand is absorbed by sustainable public transport modes rather than private vehicles.

5. **Need for improved public transport.** The public transport system is experiencing difficulty coping with recent increases in demand. Urban public transport systems in Fuzhou require substantial capacity expansion and quality improvement to meet demand from the existing population, let alone meet the future demand created by planned development. Existing bus services have relatively low route density, service most routes infrequently, and operate an aging bus fleet with poor schedule reliability and short operating hours. The bus company lacks modern management tools, and its depots and maintenance facilities are outdated and poorly equipped.

6. The state-owned Fuzhou Bus Company is the only bus company providing urban services in Fuzhou. Currently, it operates 19 fixed routes totaling 249 km in length. The company is solely responsible for all route and network planning. It reports to the municipal
transport bureau on a regular basis and draws an annual subsidy from the municipal government to make up for operating losses. As of October 2011, the company had approximately 250 buses but only 200 of them in daily service due to a maintenance backlog. The existing vehicle fleet is in poor condition and urgently needs to be renewed.

7. Table 1 shows recent trends and projected bus ridership and service parameters for the Fuzhou Bus Company. In 2010 bus passenger ridership in Fuzhou reached 46.7 million, with average daily ridership of 128,000. Annual revenue was CNY36.62 million from 16.0 million vehicle-km of bus services operated annually. Annual bus passenger ridership has been increasing steadily, with growth averaging 5.4% annually since 2006.

Table 1: Trends in Bus Ridership and Service Parameters

<table>
<thead>
<tr>
<th>Year</th>
<th>Bus Passenger Ridership per Year (million)</th>
<th>Buses (number)</th>
<th>Bus Routes (number)</th>
<th>Bus Route Operation (million km)</th>
<th>Bus Services (million vehicle-km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>39.41</td>
<td>176</td>
<td>15</td>
<td>2.02</td>
<td>13.32</td>
</tr>
<tr>
<td>2007</td>
<td>41.70</td>
<td>189</td>
<td>17</td>
<td>2.30</td>
<td>14.05</td>
</tr>
<tr>
<td>2008</td>
<td>43.90</td>
<td>201</td>
<td>18</td>
<td>2.42</td>
<td>14.58</td>
</tr>
<tr>
<td>2009</td>
<td>45.50</td>
<td>211</td>
<td>19</td>
<td>2.54</td>
<td>15.27</td>
</tr>
<tr>
<td>2010</td>
<td>46.70</td>
<td>237</td>
<td>19</td>
<td>2.75</td>
<td>16.00</td>
</tr>
<tr>
<td>2011a</td>
<td>51.20</td>
<td>249</td>
<td>19</td>
<td>2.83</td>
<td>16.42</td>
</tr>
<tr>
<td>2012a</td>
<td>57.83</td>
<td>282</td>
<td>21</td>
<td>3.14</td>
<td>18.24</td>
</tr>
<tr>
<td>2013a</td>
<td>72.35</td>
<td>310</td>
<td>27</td>
<td>3.93</td>
<td>20.26</td>
</tr>
<tr>
<td>2014a</td>
<td>80.43</td>
<td>350</td>
<td>27</td>
<td>4.91</td>
<td>22.80</td>
</tr>
<tr>
<td>2015a</td>
<td>113.03</td>
<td>400</td>
<td>28</td>
<td>5.45</td>
<td>25.33</td>
</tr>
</tbody>
</table>

*a Estimated by the Bus Company based on growth trends and planned new services.
Source: Fuzhou Bus Company.

8. Need for better road asset management. Building roads has been the mainstay of the Fuzhou transport development program. With a large asset base now in place, Fuzhou now needs to address the challenge of maintaining its roads. Many parts of the road network in the old urban area, especially the secondary and branch roads and sidewalks, are in poor condition. The city invests insufficiently in road maintenance, and the maintenance department is understaffed. While the road maintenance budget has increased annually since 2008, it is still insufficient to meet the most highly prioritized maintenance requirements or reduce the maintenance backlog.

9. Official data indicate low incidence of fatalities and injuries. No computerized database or software exists to allow detailed analysis of accidents and their causes. However, it is clear from a general inspection of the road environment that the behavior of drivers is poor, as is signage. With increased traffic and more automobiles, road safety is likely to become a much bigger problem.

2. Government’s Sector Strategy

10. Transport sector policy is guided by the 12th Five-Year Plan, 2011–2015, which continues the agenda of sustainable development initiated under the 11th Five-Year Plan. The government now places more emphasis on green and low-carbon growth and on coordinated urban and rural development with improving basic public services. Its new objective for the sector is to develop an integrated transport system that provides high-quality, efficient, and affordable transport services in a safe and environmentally sound manner. It is anticipated that the 12th plan will pursue further reform in the sector to make it more sustainable and greener.
11. Despite Fuzhou’s recent progress, its economic development has been constrained by its weak access to major markets such as Nanchang and the more developed coastal areas. The Fuzhou Urban Master Plan, 2008–2020 has established development strategies to transform Fuzhou into a transport hub and logistics base for eastern Jiangxi Province by enhancing links between Fujian and the prosperous eastern coastal area and integrating with Nanchang, the capital of Jiangxi Province.

12. As part of the Fuzhou urban development strategy, the new railway station area has been designated as a preferred location for population expansion and land development. The plan is to consolidate commercial, residential, logistical, and business services, as well as recreational development, in an integrated, high-quality, efficient, and multifunctional new urban area. The construction of the Xiangpu railway will bring an unprecedented opportunity to Fuzhou for economic growth and accelerate the city’s pace of modernization. Fuzhou will be better integrated into the Nanchang municipality city cluster and the West Straits Economic Zone.

13. The government expects the Asian Development Bank (ADB)-financed project to provide a boost to sustainable urban transport development in Fuzhou. A comprehensive public transport system will be established in the new area in front of the railway station and provide efficient access to the old city area by a high-quality bus rapid transit system. Complementary investments in maintenance facilities, new vehicles, and training will provide improved public transport services and conditions across the urban area.

3. ADB Sector Experience and Assistance Program

14. ADB has been a key development partner of the PRC in its transport sector since 1991. It has provided 71 loans totaling more than $13.5 billion to the PRC for transport and information technology projects since 1992. ADB has also provided $56 million for more than 82 technical assistance projects for policy reform, institutional strengthening, environmental management, poverty reduction, vocational training, and project preparation.

15. Through ADB’s Sustainable Transport Initiative, approved in 2010, ADB has established new strategic directions for its transport operations to 2020. The initiative identifies four new focus areas to be scaled up in future ADB operations: urban transport, addressing climate change, cross-border transport and logistics, and road safety and social sustainability. In line with the initiative, ADB has recently begun to diversify its assistance to the PRC into urban transport, inland waterways, and logistics. It also initiated steps to provide assistance in the road subsector toward better road asset management and road safety. The goal of ADB transport sector support under the country partnership strategy, 2011–2015 is to promote inclusive growth and environmental sustainability in the PRC by developing a more efficient, safe, green, and sustainable transport system.

16. **Support for low carbon transport systems.** ADB will support low-carbon transport by investing in regional railways, inland waterways, and multimodal logistics infrastructure. In the railway subsector, the focus of support will be on strategic railway programs, including sub-regional railway links, energy efficiency improvement, and investment to enhance the competitiveness of railways for freight and passenger traffic.

17. **Develop sustainable urban public transport systems.** ADB will provide support for efficient, high-capacity, and affordable public transport systems. It will help develop integrated and sustainable urban transport systems by supporting urban strategic planning, traffic management, public transport, and urban development. The main focus will be on improving transport services for people, and not simply on making room for more vehicles. In selected
cities, ADB will support (i) integrated land and transport planning; (ii) road improvement, rapid transit, and local transit facilities; (iii) improved traffic management, enforcement, truck management; and (iv) nonmotorized transport systems, travel safety, emissions control, and travel demand management.

18. **Improve the ordinary road network.** ADB will assist in improving the efficiency and sustainability of the road subsector, focusing mainly on providing support for planning, financing and implementing arrangements for improved maintenance and road asset management. Toward these objectives, ADB will help (i) develop more effective ways of integrating the planning, financing, and execution of ordinary road upgrading, rehabilitation, and maintenance; (ii) prepare long-term and annual road network rehabilitation and maintenance plans; (iii) develop sustainable financing arrangements; (iv) accelerate sector reforms to promote market-based mechanisms in road maintenance; (v) reduce overloading; and (vi) promote transport efficiency through the greater use of buses, containers, and large multi-axle trucks. Moreover, ADB will continue to support rural transport by providing year-round road access and related services to poor rural areas. In urban areas, ADB will make transport accessible and safe for all users and social groups, including poor women and other vulnerable groups.

19. **Improve safety and social sustainability.** In line with the PRC’s commitment as signatory to the United Nations Decade of Action for Road Safety, 2011–2020 and of ADB’s Road Safety Action Plan, ADB will scale up road safety in its 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. Further, ADB will integrate components in transport projects to promote inclusive dimensions such as nonmotorized transport systems, rural transport services, gender equity, and HIV/AIDS prevention.

20. **Value addition.** As ADB’s resources are small in comparison with the PRC’s transport development requirements, ADB will focus its transport support where it can add value to transport development in the PRC, including financing innovative projects, piloting and scaling-up successful projects, promoting technology and knowledge transfer, building capacity, and encouraging public–private partnership. Close integration of support for new knowledge, lending, technical assistance, and knowledge products and services will be forged. Through its projects, ADB will help the government to apply new technologies and designs to make better use of existing transport infrastructure and to reduce emissions. This can involve innovations such as intelligent transport systems and advances in fleet technology. ADB will also help search for solutions to improve air quality and lower greenhouse gas emissions, utilizing resources from the Global Environment Facility and other trust funds.
Problem Tree for Transport, Jiangxi Fuzhou

Lower demand on new railway
Increased transport costs
Higher accident rates
Increased emissions of carbon dioxide and local pollution
Higher cost of goods coming to Fuzhou
Lower prices received for goods leaving Fuzhou

Congestion and delays around station
Fewer public transport users and more private vehicle trips
Freight diverted to less efficient locations

Transport links between the existing city and new main railway station are poor for all modes.

Taxis and cars cannot effectively pick up or drop off passengers.
Buses are delayed picking up and dropping off passengers.
Bus service is slow, unreliable, and unpleasant.
Pedestrians and bicycle riders access station under inefficient and unsafe conditions.

Local road connections to station limited
Lack of dedicated transfer facilities
Lack of dedicated lanes for public transport
Buses and bus stops in poor condition
No dedicated pedestrian and bicycle facilities
Drivers disobey traffic rules
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<th>Outcomes with ADB Contributions</th>
<th>Indicators with Targets and Baselines</th>
<th>Outputs with ADB Contribution</th>
<th>Indicators with Incremental Targets</th>
<th>Planned and Ongoing ADB Interventions</th>
<th>Main Outputs Expected from ADB Interventions</th>
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<td>The movement of people and goods in the People’s Republic of China is made more efficient, inclusive, sustainable, and safe.</td>
<td>Rail passenger traffic grows by 4% per annum, from 876 billion passenger-km in 2010. Rail traffic for freight grows by 3% per annum, from 2,733 billion ton-km in 2010. Railway energy consumption per unit of traffic is reduced by 5% from 2010 to 2015, from 4.94 tons of standard coal equivalent per million ton-km in 2010. Inland waterway traffic for freight grows by 1% per annum, from 433 billion ton-km in 2009. In areas supported by ADB urban transport projects, public transport ridership increases by 5% from 2010 to 2015. In areas supported by ADB road projects, the road accident fatality rate per vehicle-km and per 100,000 population in 2015 is 10% lower than in 2010.</td>
<td>Integrated, low carbon transport system is expanded, improved, managed, and maintained. Rail route network is expanded from 91,000 km in 2010 to about 120,000 km by 2015, including 45,000 km of a high-speed railway network able to carry traffic at over 200 km per hour. 42 national comprehensive transport hubs are developed by 2015. High class (class III and above) inland waterway network is expanded from 10,000 km in 2010 to over 13,000 km by 2015. In areas supported by ADB projects, new bus rapid transit system in operation by 2015 (baseline: zero). In provinces supported by ADB road projects and technical assistance, financing for road maintenance increases from its current amount by project completion.</td>
<td>Planned key activity areas: (i) lending operations with a total investment of $2.71 billion in (2011–2014) in rail transport, especially regional or sub-regional links; (ii) inland waterway transport; urban transport; (iii) road asset management; rural transport; and (iv) road, rail, and inland waterway safety. Pipeline projects (2011–2014), totaling $2.71 billion: (i) railway ($1,160 million), (ii) road ($980 million), (iii) urban transport ($370 million), and (iv) inland waterway ($200 million) Non-lending programs in fuel tax reforms, low-carbon urban transport, intermodal logistics, energy efficiency, and safety Knowledge products based on technical assistance findings and policy notes aimed at supporting government policy making 24 ongoing projects totaling $6.2 billion at the end of 2010</td>
<td>Pipeline projects: The first bus rapid transit system operational in Lanzhou About 650 km of ordinary roads rehabilitated and operational Road asset management system established in one province and operational Ongoing projects: 1,947 km of new railways built 121 km of urban roads upgraded in Xi’an and Lanzhou 1,883 km of expressways built 3,881 km of local roads rehabilitated 1,308 km of rural roads built or rehabilitated</td>
<td></td>
</tr>
</tbody>
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ADB = Asian Development Bank, km = kilometer. Source: ADB estimates.