SECTOR ASSESSMENT (SUMMARY): REGIONAL ROAD TRANSPORT

1. Sector Performance, Problems, and Opportunities

a. Road Network and Traffic in India

1. India's road network, totaling about 4.7 million kilometers (km), consists of four categories of roads: (i) national highways (about 78,000 km), (ii) state highways (about 165,000 km), (iii) district roads and other roads (about 1.75 million km), and (iv) rural roads (about 2.70 million km). Roads are the dominant transport mode in India, carrying 85% of the passenger traffic and 63% of the freight traffic. National highways provide the high-density links between states; they comprise less than 2% of the network but carry about 40% of traffic. Despite rapid expansion in the past few years, the network of roads is still insufficient to support the demand for transport services. The road capacity is not sufficient, with road densities of 0.66 km of roads per square km and 2.83 km per 1,000 people. The road network is also of poor quality in terms of lane widths and service levels; for example, half the network is not paved. At the same time, traffic has been growing rapidly and, in 2008-2013, it has grown by 11% per annum. Road improvement is therefore an imperative need in the country, which is well recognized by the government and is the basis for several national highway development projects, rural roads improvement schemes, and various state government plans to improve core road networks.

b. Operations and Management

2. The administrative structure for road asset creation and management is highly fragmented because legislative jurisdiction—central, state, and local government—differs depending on the type of road. For national highways, the Ministry of Road Transport and Highways (MoRTH) is responsible for overall policy and program development. The National Highways Authority of India (NHAI) manages specified national highways under the National Highways Development Project.[1] State road agencies are responsible for policy and development in regard to state roads; some states have established separate road implementing agencies, such as road development corporations, to implement state road projects. The Ministry of Rural Development is responsible for policy and program development for rural roads under the Prime Minister's Rural Roads Program, which gives priority to connectivity for habitations with populations greater than 1,000. Under the Ministry of Rural Development, the National Rural Roads Development Agency manages rural road projects with state governments. State governments and local administrations manage the remaining rural and urban roads. The Border Road Organization takes on implementation of strategic roads in border areas. This mix of functional jurisdictions appears logical but results in a situation where the networks in any particular area are not part of a single agency's remit but span multiple agencies.

c. Roads Budget

3. For MoRTH roads (about 40,000 km), the budget allocation for fiscal year (FY) 2013 was about $2.1 billion. Of this, the maintenance and repair component was about 11%; the balance was for asset creation or major improvements. However, certain components of road maintenance, such as riding quality improvements, are funded out of some capital expenditure heads, which is a Government of India commitment to maintenance through allocation of development funds in addition to the traditional budget for maintenance. The actual amount allocated to maintenance may therefore be around 20%. The available funds for maintenance are very low and are estimated by the Planning Commission to be only about 50% of the norm for national highways. For other roads, the available

[1] Under the National Highways Development Project, responsibility for implementing nearly 47,000 km of the primary network was progressively vested with the NHAI. As of April 2013, out of a total of 47,000 km envisaged to be upgraded under the project, 19,945 km are already four-laned and work on another 12,618 km is in progress.

funds may be even lower, while the Finance Commission provides incentives for state governments to fund maintenance by providing matching grants to the state for the amount to be spent on maintenance.

d. Road Sector Issues

4. **Sector reform.** For road development, while several policy and organizational changes have been undertaken at the central and state level, there are some outstanding issues: (i) preconstruction issues pertaining to land acquisition, environmental clearances, and utility shifting; (ii) inadequate capacity of road agencies and the private sector; and (iii) long-term financial sustainability. The substantial delegation of national highways to the NHAI is a major step toward efficient implementation, which mainly utilizes public–private partnerships (PPPs) for road development and maintenance. The continued process of restructuring the NHAI and setting up the National Expressway Authority form part of the institutional and organizational changes. State governments have also introduced policy measures and set up road development corporations to modernize their road development agencies. This involves streamlining business processes in road development and management. The MoRTH has recently started various initiatives, including (i) computerized inventory of non-National Highways Development Project road condition data, (ii) use of third-party quality checks, (iii) e-procurement, and (iv) introduction of enterprise resource planning systems. As part of contracting reform, the MoRTH made a policy to adopt engineering, procurement, and construction (EPC) contracts, moving away from the traditional item rate contracts which are prone to significant time and cost overruns. There are also plans to establish an independent regulatory body for the road sector, whose role will include tariff determination, service quality regulation, concessionaires' claims assessment, and compliance monitoring of concession agreements. This will improve PPP project management and encourage more participation in road construction opportunities.

5. **Management of road assets.** Maintenance of the high-density corridors of national highways under construction and post-implementation is provided by the NHAI. However, non-National Highways Development Project national highways, which are maintained by state public works departments, are poorly managed, primarily because funds made available to them for maintenance are less than what is required. According to Planning Commission estimates, even for national highways, the funds available for maintenance are only about 50% of the norms. For the National Highways Development Project, where projects are implemented through PPPs, long-term operation and management of roads is included in the concession agreement. For non-PPP roads, the enhanced EPC mode is being adopted, including maintenance during the 5-year defect liability period. The MoRTH and NHAI have also commenced the new policy of undertaking maintenance of national highways on an operation–maintenance–transfer basis, where the concessionaire is responsible for annual and periodic maintenance during the concession period, together with smooth traffic operation. The operation–maintenance–transfer concessionaire is authorized to levy, collect, and retain user fees from road users. The Government of India is also committed to allocating development funds for improving ride quality and strengthening and maintaining non-toll roads, in addition to the traditional budget for maintenance. The proposed World Bank National Highways Interconnectivity Improvement Project will support development of information-technology-based road information systems for better road asset management. Some state governments have also started to adopt the same approaches for maintenance of state roads. Rural roads under the Pradhan Mantri Gram Sadak Yajoma have a mandatory budget provision by states for 5 years of maintenance. While lack of maintenance funding has been a cause of poor asset management, lack of efficient enforcement of overloading control has also played a role. The government amended the Motor Vehicle Act in May 2012, with special emphasis on overloading. It enhances penalties on violators and, apart from the driver and vehicle owner, the consignor will also be held responsible for overloading goods and be charged for violation of the rules. Further, additional powers have been given to state governments, including creation of authorized testing stations.

6. **Safety.** As per recent statistics (12th Five-Year Plan documents) more than 130,000 people are known to die annually in road accidents alone, and the number is rising. On current trends, the number of deaths is expected to reach 150,000 by 2015. The loss to the Indian economy due to fatalities and accident injuries (estimated at 3% of gross domestic product in 1999–2000) is particularly severe, as 53.1% of road accident victims were in the 25–65 age group. In 2007, the Government of India established the high-level Committee on Road Safety and Traffic Management, which developed the National Road Safety Policy in 2010. Under this policy, the government decided to establish a dedicated agency—the National Road Safety Board—to oversee issues related to road safety and evolve effective strategies for implementation of the National Road Safety Policy. The government also decided to establish the National Road Safety Fund to finance road activities through the allocation of a certain percentage of the cess on gasoline and diesel. The recommendation to establish the National Road Safety Board is under consideration by the government. In the interim, the MoRTH has instituted a road safety cell to play an effective role in national road safety matters, which will be supported by the World Bank.

e. Subregional Road Connectivity

7. The South Asian Association for Regional Cooperation (SAARC) Regional Multimodal Transport Study[2] has determined priority corridors in India that include 7 out of 10 identified road corridors for SAARC trade. The improvement to road connectivity in the Siliguri Corridor (informally referred to as the "chicken's neck") in the state of West Bengal, connecting South Asia Subregional Economic Cooperation (SASEC) countries, is critical to expanding intracountry trade in South Asia. This corridor also provides connectivity links to India's North Bengal and Northeastern Region, Bhutan, and Nepal with the ports in Bangladesh and India. India is also central in connecting SASEC countries to Southeast and East Asia. The Bay of Bengal Initiative for Multi-Sector Technical and Economic Cooperation (BIMSTEC) Transport Infrastructure and Logistics Study[3] highlights the missing "last-mile" connectivity between the in-country trunk road network and neighboring countries. This last-mile connectivity is often left out of development efforts because of the tedious nature of coordination between multiple agencies and countries. While the Government of India provides substantial investment in the National Highways Development Project for in-country connectivity, additional investment in the last-mile connectivity extending from the in-country trunk road network will strengthen both intra-SASEC and SASEC–Myanmar connectivity.

8. Customs procedures are not considered the primary cause of delays at many of the ports and borders, but compound the delays because of (i) lack of border infrastructure and traffic planning, (ii) insufficient handling capacity of land ports at borders, (iii) trade practices where land port storage is used as stock storage instead of transit storage, and (iv) lack of cross-border transport agreements. The Asian Development Bank (ADB) has provided technical assistance[4] and a loan to help governments enhance cross-border trucking operations and customs procedures.

2. Government's Sector Strategy

9. Roads are a priority infrastructure area that needs to be strengthened to achieve the ambitious development targets in India's 12th Five-Year Plan. The public sector is expected to continue to play an important role in building road infrastructure. However, because of resource

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[2] SAARC Secretariat. 2007. *Regional Multimodal Transport Study*. Kathmandu, prepared under Asian Development Bank (ADB). 2004. *Technical Assistance for Promoting South Asian Regional Economic Cooperation*. Manila (TA 6187-REG).

[3] ADB. 2008. *Final Report of the BIMSTEC Transport Infrastructure and Logistics Study*. Manila (RETA-6335).

[4] ADB. 2007. *Technical Assistance for Preparing the South Asia Subregional Economic Cooperation Transport Logistics and Trade Facilitation Project.* Manila.

constraints, public investment will have to be supplemented by greater private sector participation and PPPs.

10. The working group for the 12th plan has estimated investment needs of Rs12 trillion in the road subsector. A significant part of the existing national highway network (20,000 km) consists of single-lane highways which need to be upgraded to two-lane standard. Since most of these roads have low traffic density, they may not be viable on a PPP basis. The government is adopting EPC (turnkey) mode of construction in the 12th plan, which would be financed through toll revenues, market borrowings, and budgetary support. The government also highlights transport cooperation in South Asia, and it is noted that the Look East Policy should lead logically to efforts to develop road connectivity, especially the landlocked northeastern states of India. The need to develop policies which strengthen mutual dependence with neighboring economies has also been stressed. The high-level National Transport Development Policy Committee is developing a transport policy to 2030 which will facilitate the expansion of the transport network while minimizing energy use through optimal modal mix.

3. ADB Sector Experience and Assistance Program

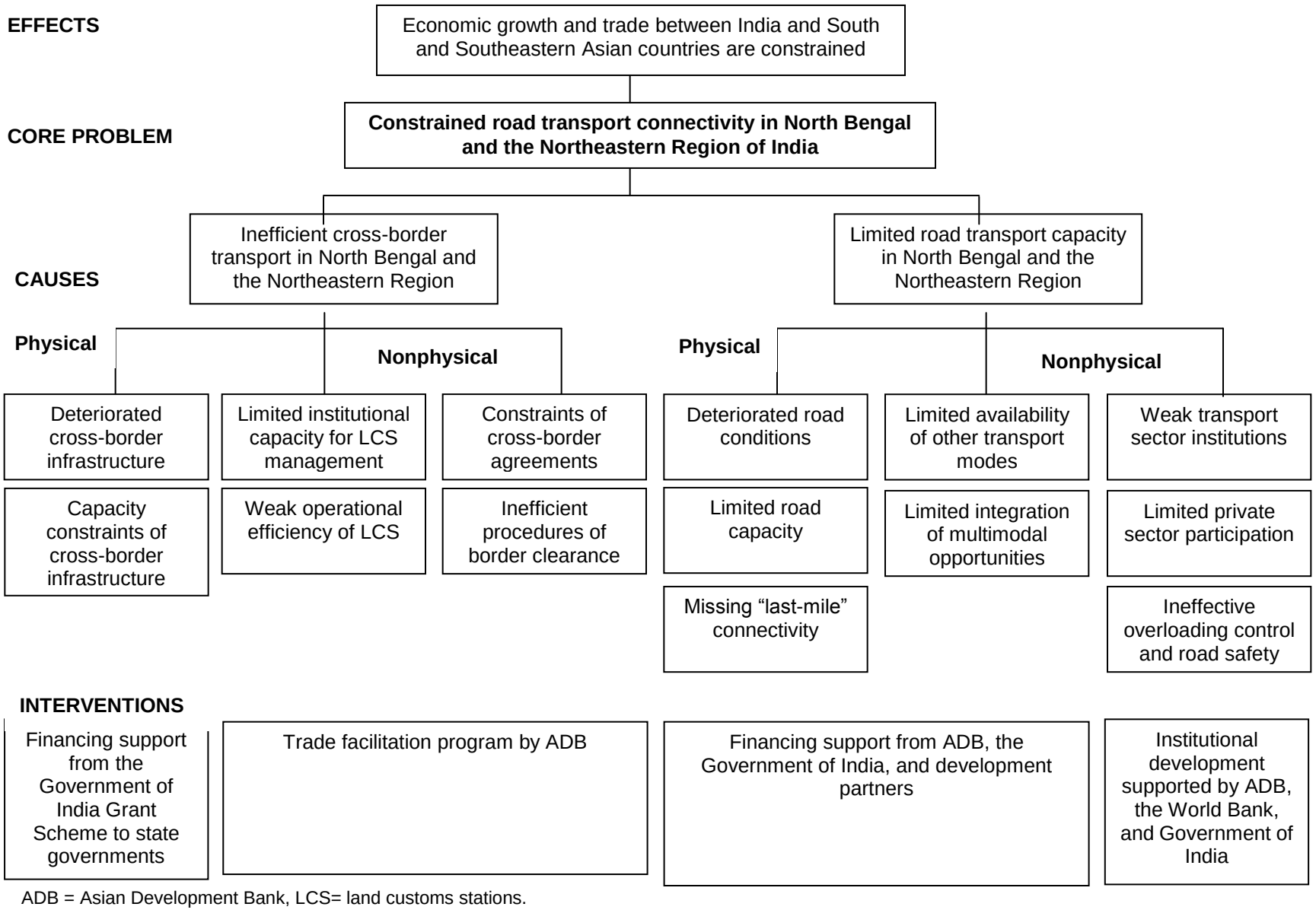
11. The sector assistance program evaluation of ADB's transport operations found that (i) ADB's strategic selection and priority areas of its involvement in the sector were significant and appropriate to the country's needs; (ii) ADB assistance helped to improve the quality and capability of the roads and railway infrastructure; and (iii) ADB added significant value in the areas of policy development, institutional strengthening, encouragement of private sector participation, increasing compliance with and public awareness of social safeguards, road safety, and related issues. The main weaknesses were poor project design, limited enforcement of safeguards, and lack of progress in addressing some of the key policy issues, particularly in the railway subsector. Project design is being simplified to focus on improving the performance of executing agencies in their core functions, and assistance is being provided during the preparatory stage to address the issues of safeguard compliance. Transport infrastructure development is a high priority for the government, making ADB's strategy of reducing poverty through infrastructure-led growth especially relevant.

12. The goal of ADB transport sector support under the country partnership strategy 2013–2017[5] is to increase the movement of people and goods in a more efficient, safe, and sustainable manner. To achieve this, ADB will support (i) development of a multimodal transport network, including a focus on modes with low-carbon emissions; (ii) institutional and organizational changes to road sector institutions; (iii) connectivity, both subregionally for regional cooperation and integration as well as along economic corridors that link major domestic centers of economic activity with emerging centers of production and employment; (iv) an innovative financing mechanism in transport infrastructure development and maintenance; and (v) social inclusiveness, including safety improvement and gender inclusiveness.

13. ADB has extensive experience in the road subsector in India, with a large number of loans and technical assistance projects targeting national highways, state highways, and rural road projects at the central and state government levels.

[5] ADB. 2013. *India: Country Partnership Strategy 2013-2017*. Manila.

Problem Tree for Regional Road Transport



ADB = Asian Development Bank, LCS= land customs stations.

Sector Results Framework (Transport, 2013–2017)

Country Sector Outcomes		Country Sector Outputs		ADB Sector Operations	
Outcomes with ADB Contribution	**Indicators with Targets and Baselines**	**Outputs with ADB Contribution**	**Indicators with Incremental Targets**	**Planned and Ongoing ADB Interventions**	**Main Outputs Expected from ADB Interventions**
Increased movement of people and goods in a more efficient and sustainable manner	(i) 100% of villages (population >1,000) have access to all-weather roads by 2017 (2000 baseline: 90%) (ii) Road freight traffic equals 1.8 trillion ton-km in 2016 (2011 baseline: 1.2 trillion ton-km) (iii) Road pass-km equals 11.4 trillion in 2016 (2011 baseline: 7.4 trillion pass-km) (iv) Railway freight traffic equals 927 billion ton-km in 2016 (2011 baseline: 640 billion ton-km) (v) Railway pass-km equals 1,760 billion in 2016 (2011 baseline: 1,062 billion pass-km) (vi) Public transport has 50% modal share in 2017 (2008 baseline: 27%) (vii) Border crossing time at targeted integrated check posts and land custom stations in SASEC region reduced by 20% by 2017 (2012 baseline: 3–4 days)	Transport systems with safety and accessibility features for women, the elderly, disabled, and children expanded, improved, and maintained	(i) Additional 126,500 km of state roads built or upgraded by 2017 compared with 2012 (ii) Additional 167,500 km of major district roads built or upgraded by 2017 compared with 2012 (iii) Additional 242,181 km of rural roads built or upgraded by 2017 compared with 2012 (iv) Additional 12,838 km of railways constructed and/or upgraded by 2017 compared with 2012 (v) Additional 7,653 km of double- tracked railways constructed and/or upgraded by 2017 compared with 2012 (vi) Additional 6,500 km of railways electrified by 2017 compared with 2012 (vii) Additional 5,500 km of railways constructed and/or upgraded for gauge conversion by 2017 compared with 2012 (viii) Rail-based transport systems with women-friendly safety, accessibility, and affordability features in urban areas increased at 10 km per million population in cities with >3 million population, including 50 km expansion in cities with 4 million population by 2017 (2012 baseline: 0) (ix) Cross-border infrastructure facilities improved with women-friendly features at 16 locations (i.e., 13 integrated check posts and 3 land custom stations) by 2017 (2012 baseline: 0)	**(i) Planned key activity areas** State roads (58% of funds) Rural roads (18% of funds) Railways (4% of funds) Urban transport (20% of funds) **(ii) Pipeline projects** 12 projects amounting to $2.3 billion for 2013–2015 ((including two projects categorized as EGM) **(iii) Ongoing projects** 15 ongoing loans amounting to $3.3 billion as of 31 December 2012 (including two projects categorized as EGM)	**(i) Planned key activity areas** (a) 4,700 km of state roads improved with pedestrian lanes, crossing points, and other safety features, including 150 km of subregional connectivity (b) 12,300 km of rural roads improved to include pedestrian lanes, crossing points, and other safety features (c) 840 km of railways double-tracked; 640 km of railway track electrified (d) 3 km of metro developed; three land customs stations developed with women-friendly facilities; road asset management systems strengthened with gender indicators and business processes streamlined in states supported by ADB TA; accounting systems in railway modernized; trade facilitation streamlined. **(ii) Pipeline projects** (a) 3,600 km of state roads improved with pedestrian lanes, crossing points, and other safety features, including 600 km of subregional connectivity (b) 6,000 km of rural roads improved to include pedestrian lanes, crossing points, and other safety features (c) 530 km of high-speed railway track constructed (d) 3 km of metro developed; three land customs stations developed with women-friendly facilities **(iii) Ongoing projects** (a) 9,000 km of state roads improved (b) 30,000 km of rural roads improved (c) 1,200 km of railways double-tracked and 640 km electrified (d) Road corporations established in three states (e) Accounting reform in Indian Railways

ADB = Asian Development Bank, EGM = effective gender mainstreaming, km = kilometer, pass-km = passenger km, SASEC = South Asia Subregional Economic Cooperation, TA = technical assistance, ton-km = ton kilometer.

Sources: Government of India, Planning Commission. 2012. *Twelfth Five-Year Plan*. New Delhi; Government of India, Planning Commission. 2011. *Faster, Sustainable and More Inclusive Growth: An Approach to the Twelfth Five-Year Plan (2012–2017)*. New Delhi; Government of India, Planning Commission 2011. *Mid Term Appraisal for Eleventh Five-Year Plan 2007–2012*. New Delhi; and ADB estimates.