

SECTOR ASSESSMENT (SUMMARY): TRANSPORT (ROAD TRANSPORT [NONURBAN])**I. Sector Performance, Problems, and Opportunities**

1. **Province context.** Sindh, Pakistan's second-largest province plays a pivotal role in the national economic and development agenda. Sindh has the country's largest port city, Karachi, which handles about 75% of national trade and is the financial capital of the country. The province has 23% of Pakistan's population and 18% of its land area, and generates 33% of gross domestic product. Sindh collects 70% of Pakistan's income tax and 62% of sales tax. Roads are the predominant mode of transport in Pakistan, accounting for 96% of freight traffic and 91% of passenger movement. Sindh has a classified paved road network of 25,737 kilometers (km)—1,365 km of national highways, 2,830 km of provincial highways, 11,630 km of secondary roads, and 9,912 km of access roads. There are in addition between 22,000–54,000 km of other unclassified roads, streets, and tracks.¹ That translates to a road network density of 0.18 km/km², lower than the national road density of 0.33 km/km².

2. **Road institution.** The Works & Services Department (WSD) of Sindh is responsible for all 14,460 km of provincial and secondary roads in Sindh. The National Highway Authority manages the 1,365 km of national highways in Sindh; district governments are responsible for all local and access roads. The WSD has more than 14,000 staff, including 167 engineers, 709 officers, and 13,173 supporting staff. It has regional offices in Hyderabad and Sukkur, as well as 14 district offices. Primarily because of budget limitations, the WSD has been unable to adequately train its staff. As a result, many need their skills updated.

3. **Road condition.** The provincial highway is below standard condition and its pavement surface and riding quality are both deteriorating. Most provincial highways are 5 meters (m) to 7 m wide, rather than standard 7.3 m. Surfacing of the existing roads is generally asphalt surface-treatment but is generally worn out. The condition of more than half of the road network is rated *poor* or *bad*. Inadequate spending on maintenance and inability to properly prioritize expenditure has increased traffic accidents, vehicle operating costs, and travel times.

4. **Maintenance budget and allocation.** The provincial government approves and allocates two types of road investment budgets to the WSD. Type 1 is the budget for routine and periodic maintenance of pavement, including crack sealing and pothole repairs. This budget is based on road length and surface areas. The periodic maintenance is defined for asphalt carpet or overlay on top of the deteriorated asphalt pavements. Type 2 is the annual development program (ADP) budget, which is allocated for road improvements and upgrades, new road construction, widening of existing roads, and bridge repair and construction. The table shows the annual expenditure for road in 2011–2015.

Works & Services Department Annual Expenditures for Road, 2011–2015 (PRs million)

Type	Item	2011	2012	2013	2014	2015
1	Routine Maintenance	364.8	585.2	417.2	309.6	1,592.0
	Periodic Maintenance	2,829.6	4,946.7	2,750.7	4,584.5	5,745.0
2	Annual Development Plan	8,396.5	11,729.0	9,032.6	10,751.4	9,969.2
	Total	11,590.9	17,260.9	12,200.5	15,645.5	17,306.2

Source: Works & Services Department of Sindh.

¹ In addition to the classified paved road system, these may include canal roads, urban roads and streets and unimproved rural roads and tracks.

5. The annual budget allocation is generally less than the amount needed to maintain the road network above a minimum service level. Actual expenditure on maintenance, which is lower than the allocated amount, usually accounts for about 1% of the Sindh annual budget. Further, maintenance expenditure is allocated using a “worst first” approach: the WSD regional and district offices select road sections for maintenance and then determine treatment strategy based on the experience of the responsible engineers. This results in an inefficient allocation of scarce resources.

6. **Road asset management system.** In 2007, the WSD established a road asset management system (RAMS) funded by the Asian Development Bank (ADB)² with some sample data. However, because of a lack of funding and inadequate staffing, the data and system have not been updated and the system has not functioned as intended. An upgraded RAMS will generate annual prioritized road maintenance plans based on the treatment strategy and program analysis, focusing on preventive maintenance linked to road condition performance. To achieve this, data will be collected and an annual maintenance plan will be generated. This systematic prioritization of road maintenance expenditure will help the WSD allocate its scarce resources more efficiently. The WSD has committed to allocate at least \$100,000 annually for RAMS operation after 2019 and prepare at least 70% of its annual budget based on the results generated by RAMS by 2019.

7. **Road safety.** Pakistan has a poor road safety record because of badly maintained roads and vehicles, poor enforcement, and inappropriate road user behavior. About 9,000 road collisions have been reported to the police every year since 2011, killing on average more than 4,500 people, according to the Pakistan Bureau of Statistics. However, the World Health Organization reported that about 30,131 persons were killed in road collisions in 2012.³ The difference in the number of fatalities is the result of underreporting and under recording of traffic collisions. Sindh does not have any dedicated traffic police, except in Karachi. District police forces focus law-and-order issues and crime; they do not have the resources needed for enforcement of safety-related traffic laws or for post-collision emergency response. The traffic police in Karachi are able to respond to road collisions, but lack some basic rapid response equipment and associated training. ADB is considering providing technical assistance to address multiple factors related to road safety.

8. **Road master plan.** The government of Sindh approved its road master plan in 1995 and has not updated since. Although the government has invested more than PRs100 billion in road maintenance and development from 2005 to 2015, much of this spending was not done in the most cost-effective manner. Regional economic developments also need better road connectivity. The road network needs to be assessed, taking into account the status of transport systems, new traffic demand, regional and subregional trade, economic development trends, and the integration of multiple transport modes.

9. **Public-private partnerships.** In Pakistan, Sindh is at the forefront in the use of public-private partnerships (PPP) for government-sponsored projects. A PPP unit has been established within the Finance Department with staff who has considerable private sector experience and a progressive attitude. The government has established a PPP framework of policy, laws, and regulations, and has improved the legal and regulatory framework for PPP. The first successful PPP project in Sindh was a highway project. For the road projects slated for

² ADB. 2001. *Report and Recommendation of the President on Proposed Loans to the Islamic Republic of Pakistan for the Road Sector Development Program*. Manila

³ World Health Organization. 2013. *Global Status Report on Road Safety 2013*. Geneva.

PPP, the government expects that a private sector concessionaire would build, manage, and maintain the road for the concession period. Funding for both construction and maintenance will come from tolls collected by the concessionaire. The concessionaire has an incentive to manage the asset wisely in order to maximize profit. Since the projects considered to date will rely on toll funding to cover the capital cost of the project, PPP have only been considered appropriate for higher volume roads. However, a PPP can be structured in other ways. For the provincial highways, the government may pay for the initial rehabilitation and then have a private concessionaire handle the ongoing maintenance.

II. Government's Sector Strategies

10. The WSD's policies are consistent with its long-term vision⁴ to (i) enhance connectivity through the construction of roads and bridges; (ii) open arid areas and the coastal belt through the expansion and improvement of the road network; (iii) improve the environment through roadside plantations; (iv) encourage private sector participation; (v) effectively enforce axle load regulations to discourage overloading; and (vi) reconstruct and rehabilitate roads, bridges, and culverts that have deteriorated and need urgent repair. The government's transport sector strategies indicated that the government should focus on (i) optimal utilization of existing capacity with an emphasis on rehabilitation and upgrading of poor-quality roads; (ii) selective and cost-efficient investment in economically viable new roads, including expansion of the rural network; (iii) development of a road network to facilitate transport and trade within Sindh province and with neighboring provinces; (iv) development of innovative financing mechanisms to enhance private sector participation; (v) prioritization of road maintenance and safety; (vi) effective control of overloading; and (vii) development of the capacity of road transport agencies.

11. **Budgetary resources.** Sindh budget allocations for road sector since 2008 have been PRs15 billion–PRs17 billion annually, but this amount is inadequate to maintain the minimum level of service, especially for routine and periodic maintenance. Sindh does not have a mechanism to ensure that the road maintenance and development budgets are linked with the annual budget. The government will explore more funding sources for road transport, such as bilateral or private investment, in addition to ADB.

12. **Private participation.** Sindh has successfully engaged the private sector in road development through the PPP Act, policy, guidelines, and legal framework. The government is also considering how to engage the private sector in road maintenance. One option is the use of long-term concessions with private entities that would operate and maintain the road for a specified period and recover costs through tolls after rectifying any road deficiencies. The WSD has identified eight candidate projects with total length of 700 km for private investors. Sindh is probably the most advanced province in Pakistan in terms of using PPP to support the road transport.

III. ADB Sector Experience and Assistance Plan

13. ADB has provided more than \$2.17 billion in assistance for Pakistan's road transport.⁵ Between 2010 and 2015, ADB has financed the upgrading of national highways, as well as the construction of new motorways totaling 480 km.⁶ ADB is also considering investing in improving

⁴ Government of Pakistan. Works & Services Department. <http://www.sindh.gov.pk/dpt/worksandservices/Policies.htm>

⁵ ADB. 2013. Fact Sheet. www.adb.org

⁶ ADB. 2005. *Report and Recommendation of the President to the Board of Directors for the Multitranchise Financing Facility: National Highway Development Sector Improvement Project*. Manila; ADB. 2007. *Report and*

the facilities at several border-crossing points. Despite the efforts of ADB and counterpart agencies, significant implementation challenges remain in completing projects on time and on budget. Efficient project implementation requires further improvements by implementing agencies in procurement, safeguards, and contract management. A review of the effectiveness of ADB interventions in Pakistan found that some progress had been made in making transport corridors function better, but (i) the National Highway Authority's revenue remained insufficient; and (ii) road administrations, especially in provinces, lack asset management systems, sustainable means of revenue generation, contract management skills, needs-based allocations of funds, focus on maintenance, and compliance with international practice on safeguards.⁷

14. **Future priorities.** During 2015–2019, the goal of ADB's transport strategy for Pakistan will be to support economic and social development by ensuring that transport infrastructure is accessible, safe, environment-friendly, and affordable, as proposed in ADB's Sustainable Transport Initiative Operational Plan.⁸ ADB's support will focus on the following:

- (i) **Road transport sector development.** ADB will provide assistance to improve regional connectivity, transport efficiency, and road safety, with an emphasis on upgrading Central Asia Regional Economic Cooperation corridors. ADB will continue to support the construction or rehabilitation of national and provincial highways.
- (ii) **Private sector participation and cofinancing.** ADB will encourage private sector participation in financing of transport infrastructure through policy dialogue, knowledge transfer, advisory services, capacity building, and development of PPP projects. In addition, ADB will explore cofinancing opportunities with other development partners active in Pakistan.
- (iii) **Climate change.** ADB will assess the climate change impact of its transport projects during both construction and operation, and seek to mitigate any negative impacts.

15. ADB will continue to support federal and provincial governments with road transport policy reforms to strengthen institutions and build capacity of transport agencies in areas such as (i) integrated multimodal transport strategy, planning, and policy; (ii) road transport resource management to explore additional ways of financing road development, including PPP; (iii) road transport preservation to support sustainability, such as overloading control; (iv) institutional capacity building; and (v) road safety. However, previous projects have shown that sector reforms require a longer implementation period and should focus on a small number of issues.⁹

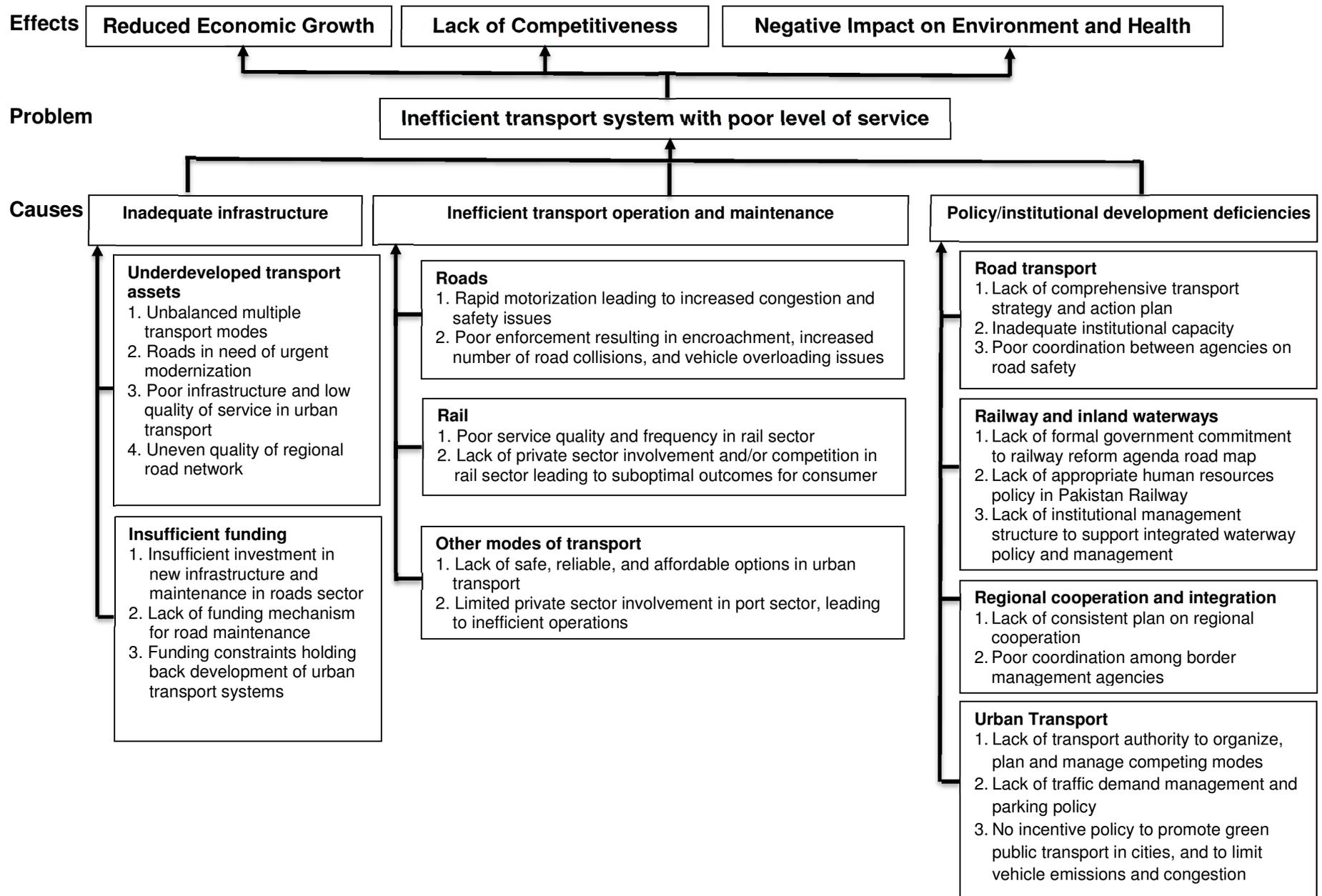
Recommendation of the President to the Board of Directors for the Multitranchise Financing Facility: National Trade Corridor Highway Improvement Program. Manila; ADB. 2011. *Report and Recommendation of the President to the Board of Directors for Flood Emergency Reconstruction Project.* Manila.

⁷ ADB. 2013. *Country Assistance Program Evaluation: Pakistan, 2002–2012—Continuing Development Challenges.* Manila.

⁸ ADB. 2010. *Sustainable Transport Initiative Operational Plan.* Manila.

⁹ ADB. 2014. *Performance Evaluation Report: Road Sector Development Program (Pakistan).* Manila.

Problem Tree for the Transport Sector



Sector Results Framework (Road Transport in Sindh 2015–2019)

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
Reduced travel time on the key road corridors linking sea ports and industrial centers	Average operation speed for freight vehicle on provincial highway increased to 50 km/h (2015 baseline: 35 km/h)	Road corridors expanded, improved, and rehabilitated	328 km of provincial highway improved or rehabilitated by 2019	<p>Planned key activity areas</p> <ul style="list-style-type: none"> (i) Provincial roads (ii) Technical assistance on PPP in Sindh (iii) Road safety technical assistance <p>Pipeline projects with estimated amounts Sindh Provincial Road Improvement (\$197 million)</p> <p>Ongoing project with approved amounts Flood Emergency Reconstruction (\$110 million)</p>	<p>Planned key activity areas</p> <ul style="list-style-type: none"> (i) 328 km of provincial roads improved or rehabilitated. (ii) PPP transaction for road projects in Sindh <p>Pipeline projects 328 km of provincial roads improved or rehabilitated</p> <p>Ongoing projects 923 km provincial and secondary roads rehabilitated</p>

ADB = Asian Development Bank, km/h = kilometer per hour.

Source: Asian Development Bank estimates.