SECTOR ASSESSMENT (SUMMARY): TRANSPORT

1. Thailand’s transport sector (comprising air, land, and water transport) is relatively well developed compared with other Association of Southeast Asian Nations (ASEAN) member countries. But while Thailand has made solid progress in developing basic infrastructure, more (quality) investment is needed to meet rising needs for infrastructure and logistics services to improve access to social services and economic opportunities, boost productivity and competitiveness in an integrating region, and respond to climate change challenges for a more livable environment in an increasingly urbanized society.

A. Sector Issues and Opportunities

2. Roads. Land transport is dominated by the road network with an estimated total length of 212,060 kilometers (km), of which about 61,747 km are classified as highways, 150,000 km as rural roads, and about 313 km as controlled-access expressways or motorways. The road network carries approximately 98% of passenger traffic and 95% of freight traffic. More than 98% of the road network is paved to an all-weather standard, and has been extended nationwide to reach more than 98.5% of the country’s population. Since 2003, the government has focused on widening national highways to a four-lane, divided highway standard. It has given little emphasis to intercity motorways or additional expressways in the vicinity of Bangkok, despite several initiatives that stalled, partly due to financing constraints. The government has turned to public–private partnerships (PPPs) as a key source of financing for future development of priority sections of the country’s expressway network. Road safety is an issue that the government has set out to address.

3. Rail. Rail plays a relatively small role in terms of passenger and freight services. The current network covers about 4,034 km, and serves only 47 of the country’s 77 provinces. The freight market share is low (2%). Third-class intercity passengers dominate passenger service; they comprise 92% of the passenger load of the State Railway of Thailand (SRT). About 47% of SRT revenue comes from passenger services, and 23.5% from freight transport. Low investment and poor SRT management have resulted in rail operations with limited capacity, poor service, and aging and outdated facilities and infrastructure. The country’s internal rail transport cost is approximately 1.5–2.0 times that of its regional neighbors. Currently, one railway line connects Thailand and the Lao People’s Democratic Republic within the Greater Mekong Subregion (GMS). Without strong and sustained support and reform, the railway system is likely to become immaterial within 10 years. To respond to the rail challenges, in 2010 Cabinet approved an investment plan of B176 billion ($6 billion) to modernize the country’s railways, increase the share of rail freight transport, and reduce associated logistics cost.

4. Urban transport. The inadequate public transport system in Bangkok continues to be an issue of national importance given the concentration of people and economic activities in the metropolitan area. Only 40% of all daily person-trips in Bangkok use public transport, and only 4% of trips utilize the mass rapid transit (MRT) rail systems. Most trips involve four- and two-
wheel vehicles, about 46%, and bus 36%; 14% are by foot. Currently, the rail MRT in Bangkok comprises four lines totaling 84.9 km. Two private companies operate the system under separate concession contracts. Opened in 1999, Bangkok Mass Transit System or Skytrain is the elevated metro system operated by Bangkok Mass Transit System Public Company. The system comprises two lines—dark and light green lines—with a combined distance of 36.3 km and 30 stations. Since 2004, Bangkok Metro Public Company has run the underground blue line with a distance of 20 km and 18 stations. SRT operates the airport rail link, totaling 28.5 km and 8 stations; it opened in 2010.

5. Up until the mid-1990s, the government strongly supported investment in the Bangkok urban expressway network (currently about 210 km of expressways), but the priority now is for continued expansion of the MRT network. The MRT Master Plan in Bangkok Metropolitan Region (M-MAP), 2010–2029 includes new or extended MRT rail lines with a total length of 508 km and an estimated total investment of about $27 billion over the next 20 years. As the government has prioritized expansion of the urban MRT network, the Bangkok bus system has stagnated. The average age of the bus fleet is estimated to be more than 20 years. As of September 2011, the accumulated deficit of the Bangkok Mass Transit Authority is estimated to be about B76 billion. Attention is needed to improve the bus system’s operations and effectiveness, as the bus system carry 10 times the demand of the MRT and acts as a feeder to the MRT system. Although walking is a critical component of most trips and a major means of travel in its own right, pedestrians are given low priority in Bangkok’s transport system. Improved walkability is essential in helping expand the catchment of bus and MRT services.

6. Logistics costs and sustainability of transport services. The cost and quality of logistics services is an important issue, particularly given the increasing opportunities from regional cooperation. With logistics costs estimated at about 15% of gross domestic product in 2012, Thailand ranked 38th on the World Bank’s 2012 logistics performance index. High logistics costs are mainly due to the cost of transport, which in turn is affected by logistics inefficiencies in the sector and the dependence of freight on road transport in the absence of an effective rail system. Within the road freight subsector, inefficiencies are exacerbated by highly fragmented transport services, high percentage of empty backhaul, and the use of outdated vehicle technologies. This has implications for resource use and greenhouse gas emissions as the transport sector accounts for more than a third of Thailand’s energy-related greenhouse gas emissions.

7. Institutional issues. The transport sector is managed by eight government administrations and 14 state enterprises. The Ministry of Transport is the line ministry responsible for all transport-related agencies, strategic planning, and investment decisions. The Office of Transport and Traffic Policy and Planning is mandated to coordinate transport policies and plans, as well as to coordinate the management of public transport operations. Although the Office of Transport and Traffic Policy and Planning prepares the overall country’s transport plans, planning and budget programs are typically prepared and submitted by each individual agency. Hence planning in each subsector is decentralized and fragmented, and often reflects each agency’s own priorities and tends to lack a cohesive and strategic framework. No single agency for land transport is responsible for regulating all transport services and modes; this creates difficulty in integrating or establishing well-coordinated, long-term transport policies. The Department of Highways is the primary agency responsible for formulating plans, programs, and projects for highway and intercity motorway development. The Department of Rural Roads is responsible for rural road development, and the Expressway Authority of Thailand acts for expressway development. The Bangkok Metropolitan Administration is responsible for local road development in Bangkok and is involved in the planning and construction of flyovers of
major road junctions and traffic management in the Bangkok metropolitan region. SRT is fully responsible for railway development and operations, and the Mass Rapid Transit Authority is in charge of urban rail mass transit development.

B. Government Strategy

8. Thailand’s Eleventh National Economic and Social Development Plan\(^4\) emphasizes the need for higher-quality infrastructure and transport systems to improve logistics and connectivity between Bangkok and the country's provinces, and with neighboring countries. The plan also emphasizes the need to strengthen transport efficiency through investments in hardware and software. A greater role for the private sector through PPPs is recognized as essential for developing and financing improvements in the country’s infrastructure and logistics systems.

9. In 2013, the government launched an ambitious 7-year national transport development strategy to rehabilitate, modernize, and expand the country’s transport infrastructure to enhance competitiveness (via reduced logistics costs), increase resilience to climate change and natural disasters, and promote more inclusive development (via connectivity). Modernizing the railway subsector is a core component of the strategy to expand Thailand’s role as a logistics hub for trade and commerce in the GMS and ASEAN, as well as open up more remote regions of the country to support inclusive growth. The government anticipates that the investment program will result in a modal shift in the transport sector from roads to rail, and increase the country’s competitiveness by reducing logistic costs. The strategy includes investment of B4.2 trillion, which is to be financed through an infrastructure funding bill (for B2 trillion, for approval by Parliament in 2013)\(^5\), annual government budget, state enterprise investment, infrastructure-related mutual funds, and PPPs.

C. ADB’s Sector Experience and Assistance Program

1. ADB Sector Experience

10. **Roads.** In 2009 ADB approved the GMS Highway Expansion Project for $77.1 million to expand 178 km of national roads (from two lanes to four lanes) along the GMS East–West Corridor and the Southern Economic Corridor to increase competitiveness of the local economy in the provinces by reducing travel time and cost, and improving road safety.\(^6\) ADB has also been providing technical assistance (TA) to assist the government in promoting greater private sector participation in motorway development using PPP.\(^7\)

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\(^5\) The funding bill places top priority on the transport sector, which is to receive more than 98.2% of total funding, of which 82.9% is to be allocated for the rail system, including track rehabilitation, double-track design, four high-speed train routes, and five new mass rapid transit routes in Bangkok. The areas included are road development (13.8%), water transport (1.5%), custom facilities (1.3%), and administration cost (0.5%).

\(^6\) ADB. 2009. *Report and Recommendation of the President to the Board of Director: Proposed Loan and Technical Assistance Grant to the Kingdom of Thailand for the Greater Mekong Subregion Highway Expansion Project.* Manila.

11. **Rail.** In 2011 ADB began providing a series of TA projects to help modernize and improve Thailand’s railway system and assist SRT in improving its operations. Small-scale TA approved in 2012 helped define a strategic approach and necessary steps toward a rail reform program emphasizing sustainable operations, commercialization, and private sector participation in delivering rail services. In 2012, ADB also approved TA for Accounting and Financial Management System Reform of Thailand’s Railway Sector, and TA for Improvement of Railway Passenger Services for implementation through 2014.⁸ To promote regional cooperation, ADB is assisting GMS member countries in setting up the GMS Railway Association, which aims to support and improve GMS railway network connectivity.

12. **Urban transport.** Under the country partnership strategy, 2007–2011, ADB provided a number of TA projects for Bangkok’s MRT system to improve the convenience, affordability, and operating efficiency. The projects provided advice to the government on options for public transport integration, development of an MRT concession model, analysis of options and implications of integrated fares and ticketing, development of an MRT financial model, and promotion of private sector participation through PPP.

2. **ADB Sector Strategy**

13. The goal of ADB’s transport sector strategy for Thailand will be to support economic and social development through improved transport and logistics. ADB will continue to strengthen national and subregional connectivity and logistics networks by extending knowledge support to assist: (i) the Ministry of Transport in addressing multimodal national and subregional linkages; (ii) the modernization and restructuring of SRT; and (iii) the Department of Highways in assessing priority PPP projects. If requested, ADB may also consider opportunities to support urban transport, given its experience with expansion of the urban MRT network in Bangkok, and given the need to improve public transport and nonmotorized transport infrastructure in secondary cities.

14. ADB will also work with Thailand through the GMS regional economic cooperation program in supporting regional transport connectivity and transport and trade facilitation, including support for the completion of the road extension of the east–west economic corridor into Myanmar, development of an ASEAN rail network, transport agreements with neighboring countries, and implementation of single-stop customs inspection at key border checkpoints under the GMS cross-border trade agreement. Support for green (low-carbon) freight and logistics through regional programs will build capacity of transport operators to reduce fuel and logistics costs. Finally, ADB private sector operations will seek opportunities for engagement in the transport sector.

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Problem Tree for the Transport Sector

**Impacts:**
- Declining economic and social development
  - High logistics cost
  - Delays in implementation, and high construction and operating costs
  - Urban congestion, and environment and social degradation issues

**Core problems:**
- Noncompetitiveness and inefficiencies in the transport sector

**Causes:**
- Noncompetitive and inefficient national logistics networks
- Inefficient policy, planning, programming, and implementation of transport projects
- Lack of integration and poor continuity of urban transport networks

- High logistics
- Deteriorated and inefficient national rail
- Export revenue and regional competitiveness reduced by high logistics costs
- Inadequate (i) logistics networks, (ii) transport network, (iii) cross-border facilities connecting to neighboring countries, and (iv) communication and information networks
- Implementation of policies and regulations is fragmented
- Inefficient planning and design standards
- Concept of partnership missing in the use of PPP in the transport sector
- Lack of transparency and competitiveness in procurement
- Excessive outside interference in the procurement process
- Ineffective land-use control
- Unstructured urban road network hierarchy
- High traffic congestion and inefficient traffic management
- Negative environmental impacts and deteriorating quality of life
- Institutional issues with excessive number of agencies with fragmented responsibilities for both mass transit and roads
- Poor integration and coordination between agencies responsible for mass transit and road transport
- Lack of coordination between different modes of mass transit
<table>
<thead>
<tr>
<th>Country Sector Outcome</th>
<th>Indicators with Targets and Baselines</th>
<th>Outputs with ADB Contributions</th>
<th>Indicators with Incremental Targets (baseline zero)</th>
<th>Planned and Ongoing ADB Interventions</th>
<th>Main Outputs Expected from ADB Contributions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Congestion relieved, and more safe and efficient shipment of goods and passengers across borders between Thailand and neighbors along economic corridors</td>
<td>Cross-border traffic increased between Thailand and neighboring countries along the economic corridors by 20% by 2017 (baseline 2010: 198 million VKT along 105 km of East–West Economic Corridor and 7.16 million VKT along 73 km of Southern Economic Corridor)</td>
<td>Improved infrastructure and systems for rail, road and intermodal transport</td>
<td>Double tracking of 415 km completed by 2017 (baseline 2013: 252 km)</td>
<td>Pipeline Projects with Estimated Amounts</td>
<td>Pipeline Projects</td>
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<td>Cross-border travel time savings of 45 minutes for trucks and 30 minutes for passenger cars along 105 km of East–West Economic Corridor and 73 km of Southern Economic Corridor (baseline 2010: average 157 minutes for trucks and 186 minutes for passenger cars along 105 km of East–West Economic Corridor and average 3-4 hours for trucks and 140 minutes for passenger cars along 73 km of Southern Economic Corridor)</td>
<td></td>
<td>133 locomotives upgraded and operating by 2017 (baseline 2012: 209)</td>
<td>2015 Managing for Development Results in the Transport Sector (CDTA, $0.7 million)</td>
<td>Railway subsector reform implemented</td>
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<td>Number of railway accidents reduced by 50% along the lines. (baseline 2009: 171 accidents)</td>
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<td>The government supports and implements a coherent policy framework for PPP for the transport sector</td>
<td>2016 Implementing PPP (CDTA, $1.5 million)</td>
<td>Prefeasibility study for one GMS connectivity and double-tracking railway project</td>
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<td>Transportation cost reduced by an average of 10% (baseline 2012: B1.72/ton-km for roads and B0.93/ton-km for rail)</td>
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<td>Financial and asset management of SRT operations improved</td>
<td>Ongoing Projects with Approved Amounts</td>
<td>Bang Yai–Kanchanaburi motorway constructed</td>
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<td>Fatality rate less than 10 deaths per 100,000 people by 2015 (baseline 2011: 20.81 deaths)</td>
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<td>Quality of infrastructure improved as measured by the World Economic Forum global competitiveness index (baseline 2012/13: value: 4.9, rank 49/144)</td>
<td>GMS Highway Expansion Project (loan, $77.1 million)</td>
<td>Capacity development in procurement and good governance for PPP</td>
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<td>Quality of rail infrastructure improved (value: 2.6, rank 65/144)</td>
<td>Implementation Plan for Strategic Intercity Motorway Network Project (PATA, $1.45 million).</td>
<td>PDF for transport sector developed and implemented.</td>
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<td>Quality of road improved (value: 5.0, rank 39/144)</td>
<td>Accounting and Financial Management System Reform of Thailand’s Railway Sector (PATA, $0.95 million).</td>
<td>Ongoing Projects</td>
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<td>Improvement of Railway Passenger Service (CDTA, $0.40 million).</td>
<td>Highway expansion constructed (176 km)</td>
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<td>Implementation plan for the strategic intercity motorway network developed and the priority motorway construction project initiated</td>
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<td>Updating of PPP feasibility for 100 km Bang Yai–Kanchanaburi motorway</td>
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<td>Requirements specified for a new management, accounting, and financial information system for SRT to meet its projected information requirements</td>
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<td>Road map, implementation plan, and strategy framework for upgrading of SRT passenger services prepared</td>
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</table>

ADB = Asian Development Bank, CDTA = capacity development technical assistance, PATA = policy and advisory technical assistance, PDF = project development facility, PPP = public–private partnership, SRT = State Railway of Thailand, VKT = vehicle kilometers traveled.