SECTOR ASSESSMENT (SUMMARY): ROAD TRANSPORT

1. Sector Performance, Problems, and Opportunities

1. Timor-Leste comprises the eastern half of the island of Timor, which is part of the Malay Archipelago. The terrain is dominated by a central mountain range, which bisects the island from east to west. Along the north coast, coastal plains are typically narrow, with wider plains with greater agricultural potential occurring along the south coast.

2. Roads are the primary mode of transport, carrying 70% of freight and 90% of passengers. The private sector competitively provides land transport services in Timor-Leste; the government’s role is limited to licensing and basic vehicle and road safety requirements. Passengers are ferried by minibuses and taxis in the urban areas, and by minibuses and light to medium trucks licensed to carry both passengers and freight in the rural areas, particularly where roads are poor. A small number of heavy trucks transport containers and large equipment, but the narrow roads and difficult terrain severely limit their coverage.

3. Timor-Leste has an extensive road network of about 6,000 kilometers (km), half of which are undeveloped rural tracks. The core network comprises 1,400 km of national roads connecting the capital, Dili, and 13 districts, and 900 km of district roads linking major population centers to the national roads. About 80% (1,800 km) of core roads are (or used to be) paved. A road survey conducted in 2008 found that only 8% of core roads were in fair condition, with the remaining in poor (22%) or very poor condition (70%). Almost the entire core road network now needs to be rehabilitated or upgraded, as many roads have prematurely deteriorated. Rural roads are also generally in poor condition. Frequent landslides and road closures caused by intense rainfall and geotechnical instability in mountainous areas compound the poor condition of the roads.

4. The deterioration in the road network means that journeys take longer, vehicles cost more to operate, and rural communities are more isolated. Significant income from agriculture and other products is lost and social conditions are worsening. The poor transport links magnify the constraints to economic growth arising from Timor-Leste’s small and isolated markets.

5. Road infrastructure must be preserved through routine and periodic maintenance. The maintenance works should be programmed systematically to allocate limited resources more efficiently and effectively over the entire road network. The required annual maintenance expenditure for the core road network (about 1,600 km), based on its condition as of 2009, was estimated at $20 million–$30 million (in 2009 prices). It was also estimated that improving the roads to a maintainable condition could cut the required funding level by more than half. The funding needed for routine maintenance is substantially above recent allocations; the 2011 budget provided $5.3 million for routine road maintenance, while annual expenditures averaged less than $2 million from 2004 to 2010. In 2013, $4.4 million was allocated for routine road maintenance. However, insufficient attention is paid to routine maintenance. Most of the

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2 ADB. 2009. Report and Recommendation of the President to the Board of Directors: Proposed Asian Development Fund Grant to the Democratic Republic of Timor-Leste for the Road Network Development Sector Project. Manila (Grant 0180-TIM).
budgetary allocation is used for ad hoc and emergency interventions. The 2013 budget includes about $38 million for such activities. The proper allocation of resources within the current ceilings could ensure adequate maintenance of all national roads.

6. Road safety is another emerging issue. The Timor-Leste National Police reported 1,656 road accidents in 2008; 50 of these resulted in fatalities, 215 in serious injuries, and 1,020 in other injuries. In 2012, 76 people died, 383 were seriously injured, and 1,381 were slightly injured in road crashes in Timor-Leste, according to traffic police data. The actual number of injuries and fatalities is believed to be significantly higher because many accidents are not reported. Accident rates could increase further as rapid economic growth leads to more vehicles—many of them unprotected motorcycles carrying up to four people—road improvements allow for faster vehicle speeds.

7. Capacity gaps in government agencies responsible for the road network also constrain road development. The Directorate of Roads, Bridges, and Flood Control of the Ministry of Public Works (MPW), the line agency responsible for planning, developing, and maintaining road infrastructure, has fewer than 20 engineers and only 5 in regional offices. Each regional engineer is assisted by a supervisor and three assistant supervisors. The government plans to decentralize the responsibility for rural roads to the districts, but capacities at this level are even more limited, posing a risk to the sustainable management of the rural road network. To construct infrastructure, including roads, the government established the Infrastructure Fund in 2011. The National Development Agency, the Major Projects Secretariat, and the National Procurement Commission were established as central agencies with responsibility for evaluating, procuring, and monitoring projects financed by the fund, including road projects. However, these agencies also suffer from capacity constraints.

8. The government encourages national contractors to participate in road construction, but they generally lack the technical and financial capacity to implement the projects properly. A lack of project management expertise and skills generally excludes national contractors from taking the main responsibility for large projects (above about $4 million), although consortia have been employed in some cases for larger works (e.g., repair and upgrading of Dili urban roads). In 2010, the government initiated a contractor registration system to raise quality standards. Under the system, contractors were to be classified according to financial, technical, and management capacity, with the classification linked to the size and type of contracts a contractor is eligible to bid for. However, the system is in place, but is not operational.

9. Indonesia is the largest source of Timor-Leste’s imports and its third largest export market. National roads in the border region are the main corridors to Indonesia. To facilitate cross-border commercial or social activities, Timor-Leste must improve its cross-border facilities and national roads in the border regions. Better connectivity in these areas will create economic benefits, reduce poverty, and promote the country’s engagement in international cooperation and integration.

10. Several lessons can be drawn from past and ongoing road projects in Timor-Leste: (i) difficult terrain, geology, and weather conditions require more intensive routine and preventive maintenance of the road network; (ii) the road construction period is essentially reduced by 4–6 months every year by the rainy season; (iii) regular coordination is needed to synchronize support and avoid duplication of investment; (iv) the capacity of national contractors

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must be developed through actual works of appropriate size and well-targeted training; (v) the MPW and the new central agencies need support in implementing large projects; and (vi) more effective skills transfer from project consultants to government staff is needed.

11. The quality and sustainability of road infrastructure requires more attention. Past road projects aimed to restore accessibility and centered on repairing only the damaged sections of the network. While Dili’s connection with most other areas of the country improved, overall road conditions continued to worsen because the government could not afford to maintain them. The Road Sector Improvement Project, completed in 2009 with Asian Development Bank (ADB) support, was the first attempt to move from emergency work to comprehensive rehabilitation of the core road network. Higher-quality road maintenance and rehabilitation projects, and periodic reviews of road sector plans, are needed to achieve an effective road network. Improvement of the core road network, adequate road maintenance, and community participation, including women, in rural road development must be integrated and progressively expanded in the course of road sector development. To make road sector investments sustainable, stand-alone maintenance contracts should be avoided. A functioning road maintenance program, including institutional setup, policy framework, programming and implementation capacity, and sufficient budget support, is essential.

2. Government’s Sector Strategy

12. The Strategic Development Plan (SDP), 2011–2030 was released in July 2011. Implementation began with the 2011 budget. Road infrastructure development is prominent in the plan. It commits the government to undertake substantial and long-term investment in roads to maintain the current road network, including a major program of road rehabilitation, repair, and improvement. New roads are only to be built if they serve important economic or social objectives. The SDP establishes the following targets: (i) rehabilitating or fully upgrading and widening to international standard key national and district roads by 2015; (ii) rehabilitating all local roads by 2015 using locally based contractors; and (iii) conducting an annual condition monitoring survey on all improved roads to determine maintenance needs. The Fifth Constitutional Government, elected in 2012, prepared a 5-year action plan for the implementation of the SDP. However, the target dates for implementation of road sector initiatives were generally pushed back until the end of 2017.

13. The government identified infrastructure (electricity, roads and bridges, and water and sanitation) as the top development priority for 2010 and 2011. Substantial funds were set aside in the 2012 budget for infrastructure (through the establishment of the Infrastructure Fund), and the government has committed to maintain a high level of funding for infrastructure in the near term. The 2013 budget allocated $604.4 million from the Infrastructure Fund for infrastructure development projects, including road projects. The MPW is responsible for managing the road network.

3. ADB Sector Experience and Assistance Program

14. The 2005 Road Sector Improvement Project initiated the transition of ADB support for road transport beyond emergency work. The project rehabilitated longer stretches of road than

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8 ADB. 2005. *Report and Recommendation of the President to the Board of Directors: Proposed Asian Development Fund Grant to the Democratic Republic of Timor-Leste for the Road Sector Improvement Project*. Manila (Grant 0017-TIM).
previous projects and initiated labor-intensive maintenance and a larger role for local communities. It focused more on sector planning, with roadwork selected from high-priority roads identified in a 5-year road strategy and program developed with ADB technical assistance in 2005 and adopted by the government in 2006.9 A sector approach allowed the government to expand its lead role and provided flexibility in the use of ADB resources.

15. The 2009 Road Network Development Sector Project continued the transition (footnote 2). It was designed to initiate the implementation of a 10-year plan for the core road network developed with the support of ADB technical assistance (footnote 1). The project is addressing a lack of sustainability in maintenance by facilitating a move from stand-alone maintenance contracts for individual road sections to performance-based contracts covering one or more administrative district. A road maintenance program will be established through the development of a policy framework, as well as programming and implementation capacity. Funds are allocated for the initial maintenance program. The project will also address weaknesses in the capacity of local contractors. It provides contract packages appropriate for small national contractors, who will be trained in road maintenance technology, bidding, contracting, and project management. The project is complemented by the Our Roads Our Future Project.10 This will establish a model for community participation in the rehabilitation and maintenance of rural feeder roads and small-scale community infrastructure in areas supported by the Road Network Development Sector Project.

16. Other major development partners in the road transport sector include the European Union, Japan, and the World Bank. The European Union has provided more than $50 million through three rural development programs, each one with a rural road rehabilitation component. The latest component, valued at about $20 million, is intended to improve the condition of about 200 km of rural roads (mainly in the western part of the country, including Oecussi). It will also assist in continuing to build small-scale local road construction capacity. Since 2000, the Government of Japan has provided more than $35 million in grants for transport—about half for road improvements—and for project studies and training in the sector. The Japan International Cooperation Agency has funded technical assistance for capacity building in road maintenance and for the preparation of guidelines and manuals for roads. It also has provided a grant for bridge construction, and in 2012 provided its first loan to upgrade the road from Dili to Baucau. In May 2011, the World Bank approved a $20 million grant to start the rehabilitation of the national road from Dili to Ainaro and is planning to expand this support through a loan. The International Labour Organization and the governments of Australia, Ireland, and Norway are also active in the rehabilitation and maintenance of rural roads.

17. ADB will continue to support the implementation of the core road network. The ADB program will progress from support for the rehabilitation of roads to the upgrading of key roads. The program will emphasize investment projects of national significance that are instrumental to the government’s efforts to fast-track development and promote inclusive economic growth. Supporting the road maintenance program and building the capacity of government agencies and staff, as well as local and community-based contractors, will remain a high priority. Investment projects that demonstrate government leadership through cost sharing will be favored.

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10 ADB. 2009. Proposed Grant Assistance to Timor-Leste: Our Roads Our Future—Supporting Local Governance and Community-Based Infrastructure Works. Manila (Financed by the Japan Fund for Poverty Reduction, Grant 9142-TIM).
Problem Tree for Road Transport

Limited economic growth
  - Small markets for goods and services

High poverty incidence
  - Underemployment

Poor access to social and business facilities

Development Problem

Road network of Timor-Leste is unreliable and unsafe

Frequent road closures
  - Lack of capacity for emergency repairs
  - Insufficient drainage and flood-prone alignment
    - High rainfall density
  - Unstable cut faces and embankments

Roads in poor condition
  - Lack of routine maintenance
  - Lack of programmed periodic maintenance
    - Insufficient maintenance planning capacity
    - Insufficient periodic maintenance budget

Frequent road accidents
  - Drivers have poor driving skills
  - Communities lack road safety awareness
  - Poor road geometric standards
    - Lack of capacity to enforce road safety regulations
    - Lack of safety awareness education
    - Contractors have lack of capacity and skills
    - Insufficient periodic maintenance budget
    - Lack of periodic maintenance planning capacity
### Sector Results Framework (Road Transport, 2011–2015)

<table>
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<tr>
<th>Country Sector Outcome</th>
<th>Country Sector Outputs</th>
<th>ADB Sector Operations</th>
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<td><strong>Sector Outcomes with ADB Contributions</strong></td>
<td><strong>Indicators with Targets and Baselines</strong></td>
<td><strong>Planned and Ongoing ADB Interventions</strong></td>
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<tr>
<td>Increased and more efficient movement of people and goods</td>
<td>Highway system established and maintained.</td>
<td>Planned key activity areas</td>
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<td>Paved, all-weather roads linking all of the 13 districts of Timor-Leste into a coherent road network.</td>
<td>National and district roads (90% of funds).</td>
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<td>All-weather roads that reach local communities.</td>
<td>Rural roads (5% of funds).</td>
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<td>The government will rehabilitate or upgrade at least 500 km of highway and district roads by 2015, based on strong domestic participation.</td>
<td>Sector policy and capacity development (5% of funds).</td>
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<td>The national road system on track for completion by 2020.</td>
<td>Pipeline projects with estimated amounts.</td>
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<td>Road Network Upgrading Sector Project (Additional Financing, $40 million).</td>
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<td>Infrastructure Asset Management TA ($1.5 million).</td>
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<td><strong>Ongoing projects with approved amounts</strong></td>
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<td>Road Network Development Sector Project ($46 million).</td>
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<td>Road Network Upgrading Project ($40 million).</td>
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<td>Our Roads Our Future—Supporting Local Governance and Community-Based Infrastructure Works ($3 million).</td>
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<td><strong>Main Outputs Expected from ADB Interventions</strong></td>
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<td>Planned key activity areas</td>
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<td>242 km of national and district roads upgraded or rehabilitated.</td>
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<td>Detailed design prepared for upgrading 169 km of national road.</td>
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<td>Performance-based road maintenance program expanded.</td>
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<td><strong>Pipeline projects</strong></td>
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<td>143 km of national and district roads upgraded or rehabilitated.</td>
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<td><strong>Ongoing projects</strong></td>
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<td>About 125 km of national roads upgraded.</td>
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<td>Heavy maintenance implemented on about 42 km of national roads.</td>
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<td>90 km of rural feeder roads rehabilitated and maintained by community workers.</td>
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**ADB** = Asian Development Bank, km = kilometer, TA = technical assistance.

* Population in subdistricts with rehabilitated or upgraded roads.