

TAR: TIM 38212

Technical Assistance to the Democratic Republic of Timor-Leste for Infrastructure Sectors Capacity Development

July 2005

Asian Development Bank

CURRENCY EQUIVALENTS

Timor-Leste uses the US dollar as its currency.

ABBREVIATIONS

ADB	–	Asian Development Bank
CSPU	–	country strategy and program update
DRBFC	–	Directorate of Roads, Bridges and Flood Control
GDP	–	gross domestic product
OPM	–	Office of the Prime Minister

TECHNICAL ASSISTANCE CLASSIFICATION

Targeting Classification	–	General intervention
Sector	–	Multisector
Subsector	–	Communications, power, water supply and sanitation, transport
Theme	–	Capacity development
Subthemes	–	Institutional development

This report was prepared by a team consisting of M.J. Minc (team leader), C. Andrews, L. Cai, and R. Clendon.

I. INTRODUCTION

1. A capacity-building technical assistance (TA) project for ministries involved in infrastructure was included in the Asian Development Bank (ADB) country strategy and program update (CSPU) 2003–2004 and CSPU 2004–2005 for Timor-Leste.¹ A TA fact-finding mission visited Dili during 2–10 March 2005 to conduct an initial needs assessment. In line with the discussions held with the Government and availability of resources, the mission identified issues, rationale, scope, implementation schedule and arrangements, financing plan, and terms of reference of consultants for the TA. Members of the mission discussed the draft TA paper with the Government, and concurrence has been obtained from the Office of the Prime Minister (OPM).

2. ADB has led infrastructure support in Timor-Leste since 2000. This work has focused on urgent rehabilitation of roads, ports, water supply, and rural power supply, bringing tangible benefits to the country. However, infrastructure development and service delivery remain inadequate; therefore, ADB's continued leadership and support are necessary to achieve broad-based and long-lasting economic and social benefits through improved infrastructure. Critical needs are to (i) make more cohesive and efficient institutional arrangements and (ii) build technical capacity from a very low base.

3. The CSPU 2005–2006 identified infrastructure development as the major area for ADB assistance, and capacity development as being central to all activities. The TA will address the overall institutional framework affecting the four infrastructure sectors: communications, power, water supply and sanitation, and transport. The TA will also detail a capacity development program for the road sector and will deliver immediate road sector technical support. The design and monitoring framework of the TA is in Appendix 1.

II. ISSUES

4. **Poverty in Timor-Leste:** Timor-Leste is a newly independent country, with a population of 925,000 and a territory of 14,874 square kilometers. It is one of the most underdeveloped economies in the region, with per capita gross domestic product (GDP) estimated at about \$415 in 2003. About 40% of the population lives below the poverty line, which is defined as \$0.55 per capita per day. More than 75% of the poor live in rural areas and survive on subsistence and seasonal agriculture. Adult literacy is estimated at slightly over 40%. Life expectancy at birth is only 58 years.

5. **National development planning:** Following restoration of independence on 20 May 2002, Timor-Leste began nation building. The National Development Plan sets out the Government's development objectives and strategy. It focuses on two overriding development goals: (i) to reduce poverty in all sectors and regions of the nation and (ii) to promote economic growth that is equitable and sustainable, improving the health, education, and well-being of everyone. The Road Map (a medium-term expenditure framework) stresses strengthening governance, developing a dynamic private sector, and building institutions and capacity. Although progress has been made, significant challenges lie ahead, the greatest being strengthening growth prospects, creating employment opportunities, and reducing widespread poverty.

¹ The TA first appeared in ADB *Business Opportunities* (Internet edition) on 12 April 2005.

6. **Sector investment programs:** The Government recognizes that infrastructure is important to all sectors of the economy and society. Its National Development Plan states that “an effective system of infrastructure and services is crucial for agricultural productivity and poverty reduction, a determinant of business investment, instrumental to human development, and the foundation for private sector development,” and that there is a need “to plan for, provide and manage physical infrastructure that is efficient, cost-effective, and financially sustainable, and which supports the social and economic development priorities of the people of Timor-Leste.” Infrastructure capital and recurrent public expenditure will be guided by approved sector investment programs (prepared with ADB support) for communications, power, water supply and sanitation, and transport. Whereas these programs address each infrastructure sector individually, there has been little analysis and policy work on the overall institutional environment for infrastructure services.

7. **Infrastructure institutional framework:** As in most countries, the infrastructure institutional framework in Timor-Leste has two parts. One part comprises government functions, such as strategic planning, legislating, regulating, controlling special projects, and providing social services in the absence of market supply. The second part comprises the business of managing assets and providing services in a market. These businesses are typically urban monopolies and need not be run by the Government although Government may own the assets. But how well the Government arranges and does its strategic planning, legislating, and regulating will greatly impact business performance and service delivery in urban markets. How well the Government arranges and helps deliver services in rural areas will greatly affect living conditions outside of the urban monopolies.

8. **Multisector approach for government functions:** External assistance from key partners, including the Japanese International Cooperation Agency (JICA), the World Bank, the Australian Agency for International Development (AusAID), and the Norwegian Agency for Development Cooperation (NORAD) has been sector-specific and with some inconsistency and overlap. Strategic planning, legislating, and regulating have been sector by sector. So, for instance, natural synergies that exist between income-generating services, such as power supply and water supply, have been little analyzed and never exploited; likewise, multisector approaches to delivering services in rural areas. In a small market like Timor-Leste, there may also be good reasons for combining legal and regulatory functions for urban monopolies, including airports and ports.

9. **Multisector approach for urban monopolies:** A multisector approach is also relevant to the asset management and service delivery part of the infrastructure institutional framework. Urban monopolies can have common customer bases, similar revenue-generating and financial sustainability imperatives, and similar management system requirements, especially telecom, power supply, and water supply, and, to a lesser extent, airports and ports. Common procurement, common infrastructure management systems, and common contract management capabilities may be appropriate in Timor-Leste’s small market. The asset management policy for each sector should consider merger and other synergy opportunities with other infrastructure services. Currently, (i) telecommunications is already privatized through a build-operate-transfer contract, (ii) airports and ports are recovering most costs and could become public corporations in the medium-term, (iii) electricity in Dili is under a management contract and is recovering most costs, (iv) water supply and sanitation is far from cost recovery and independence, and (v) roads have possible outsourcing potential. Although the progression from Government department to corporatized asset manager and service provider is partway determined, it is still haphazard and follows no clear plan that will maximize aggregate benefits across all infrastructure sectors.

10. **Controlling capital works programs:** Government ministries struggle to implement capital works programs efficiently, and this adds to the hitherto intractable problem of budget execution. Meanwhile, the Government intends tripling its own infrastructure capital spending from 2006 to 2008. Mechanisms are urgently needed to help the Government supervise and oversee publicly funded infrastructure capital expenditure programs that would mostly be executed by private engineering companies and contractors. The Government also lacks the capacity to manage large or otherwise special capital projects.

11. **Government reorganization:** The Ministry of Transport, Communications, and Public Works will soon be broken up, with functions going to three new ministries. All road-related functions will go to a new Ministry of Public Works, which will also handle urban development and housing. All water- and power-related functions will go to a new Ministry of Natural Resources, Minerals, and Energy Policy. All communications and non-road transport functions will be handled by a new Ministry of Transport and Communications. There will be a Secretary of State for Infrastructure Development, reporting directly to the Prime Minister.

12. **Vision and road map for infrastructure institutions and capacity:** Efficient and effective infrastructure development and service delivery require a clear medium-term vision for the entire infrastructure institutional framework—for government functions and for urban monopolies. With an agreed vision for the future, the Government can then prepare and follow a step-by-step road map to fill existing gaps. The vision and road map should holistically cover all infrastructure sectors and budgets. Detailed capacity development plans for each infrastructure sector can then guide government and donor-assisted programs.

13. **Road sector.** Timor-Leste has an extensive road network of 6,040 kilometers, which is generally in poor condition, and is deteriorating. The Government will incur considerable cost to rehabilitate and maintain such an extensive road network. Difficult terrain, geology, and weather conditions impose additional costs. The Government has outlined a 3-year program and a 10-year vision for the road system to (i) bring the road network to a sustainable condition, (ii) improve key roads to support a growing economy, and (iii) ensure effective capacity to manage the road system. Since 2000, ADB has administered two emergency rehabilitation projects financed by the Trust Fund for Timor-Leste. All of the subprojects except one have been substantially completed. ADB intends to maintain its leading position in the road sector and is currently processing an Asian Development Fund IX grant project for \$10 million. ADB's efforts, however, are being hampered by weak technical capacity in the sector. Project design, procurement, construction supervision, quality control, and contract management cannot be adequately handled by the country and have to be left to consultants. This partially accounted for start-up delays in projects already financed by the Trust Fund for Timor-Leste. To improve the performance of the sector and help implement road projects, an urgent training program has to be introduced to build domestic engineering capacity.

III. THE TECHNICAL ASSISTANCE

A. Impact and Outcome

14. The TA will help improve the delivery of infrastructure services, particularly power supply, water supply and sanitation, and road transport, and, to a lesser extent, airport and port services, telecommunications, and other public works. The TA will result in more integrated multisector strategic plans, laws, regulations, capital programs, and service delivery arrangements for rural areas, and more integrated urban infrastructure operations. Additionally,

for the road sector, the TA will aid capacity development and improve road engineering capacity.

B. Methodology and Key Activities

15. The TA comprises two components: (i) integrated multisector institutional development for infrastructure and (ii) technical capacity building for the road sector. An experienced international consulting firm will be engaged to carry out the two components. For the first component, the consultants provided by the firm must be highly qualified specialists in each sector and must have experience in multisector infrastructure institutional development, including merging and harmonizing the operations of public infrastructure corporations and agencies. One of the consultants will act as the team leader, responsible for coordinating with the Government and ADB, directing and coordinating the work of the sector specialists, and consolidating progress reports and final reports. Also for the first component, the firm will provide consultants experienced in designing and delivering comprehensive capacity development programs for the road sector.

16. For the second component, a separate team of consultants with relevant experience in road upgrading, rehabilitation and maintenance, construction supervision, and contract management, as well as training in those areas, will be engaged to plan, organize, and carry out the training. The consultants will be provided by the same firm and headed by a different team leader.

17. Identifying appropriate candidates and developing suitable training materials will be crucial to the success of the program. The TA will target 60 trainees to be trained in two sessions over 3 years. The first training session will take place before August 2006 and the second, August 2007. The rationale behind the 1-year interval between the two training sessions is that the quality and impact of the training needs to be reviewed and that lessons and experiences need to be incorporated into the training materials and programs for the next training session. For each session, a 3-month intermittent classroom and on-the-job training program will be provided to 30 trainees. Since the Government has limited staff with a technical background, and some of them may not be available for training due to their other commitments, it is necessary to go beyond the government system and look for candidates in the market. In principle, 15 candidates will be from the Government, and 15 from the private sector for each session. Candidates should be Timorese nationals and have minimum English-language and computer skills and technical qualifications. The list of candidates will be identified by the Government and agreed upon with ADB.

18. Various training materials already exist. The consultants will adapt them to the local context and ensure that they are user-friendly and straightforward, attending to the immediate needs of the road sector. After the first session, the consultants will review the performance of the trainees and adjust the training materials and programs accordingly.

19. The TA will finance nominal expenses for the trainees, essential training equipment, road survey equipment, and the venue. At the end of the program, trainees will be tested. Those who pass the test will be awarded certificates, and, to the extent possible, be employed in projects financed by ADB, the Government, or other funding agencies—as resident engineers, cost/quantity engineers, materials engineers, or laboratory technicians—to supervise road upgrading, rehabilitation, and maintenance projects and to assure quality.

C. Cost and Financing

20. The total cost of the TA is estimated at \$706,000. As Timor-Leste uses the US dollar as its currency, there is no difference between the foreign exchange and local cost. ADB will provide \$600,000, while the Government will provide \$106,000 in kind to cover mainly office accommodation and remuneration of counterpart staff. The TA will be financed on a grant basis by ADB's TA funding program. The detailed cost estimates are in Appendix 2.

D. Implementation Arrangements

21. The OPM will be the Executing Agency for Component 1 of the TA, under the direction of the Secretary of State for Infrastructure Development, who will chair a multi-agency body to provide strategic and policy direction to the TA. The multi-agency body will preferably be a standing infrastructure coordination committee within the OPM, and not a stand-alone steering committee for the TA only. It should represent all agencies with core infrastructure interests, and representatives should be at director general level and above. For the road sector, at least one English-speaking government counterpart staff will be assigned to help consultants liaise with the Government and other stakeholders.

22. The new Government road agency (expected to be designated the Ministry of Public Works) will be the Executing Agency for the second component. For each training session, the Government will assign two English-speaking coordinators out of the 15 government trainees to work with the international consulting team. Directorate of Roads, Bridges and Flood Control coordinators will help identify appropriate candidates for training, ensuring user-friendliness of the training materials, organizing the training workshop, and facilitating on-the-job training.

23. The TA will require a total of 23 person-months of international consulting services. Nine person-months will be for preparing a multisector integrated institutional development road map, associated terms of reference, and comprehensive capacity-development road map for the road sector. Fourteen person-months will be for road engineering training in the areas of road design, quantification, costing, contract packaging, quality control, construction supervision, and contract management. The TA will be implemented over 3 years, starting in November 2005 and ending in November 2008. The international consulting firm will be recruited by ADB in accordance with ADB's *Guidelines on the Use of Consultants*, using ADB's quality-based selection (QBS) method. QBS is justified because the quality of the consultants and the proposed approach are critical to ensuring that the medium-term capacity-building road maps will be guiding documents for ADB's continued involvement in the infrastructure sectors and that the training program will bring tangible capacity improvement to the road sector. A simplified technical proposal format will be used to invite and evaluate the proposals from the international consulting firm. The detailed terms of reference for the consulting services are in Appendix 3.

IV. THE PRESIDENT'S DECISION

24. The President, acting under the authority delegated by the Board, has approved the provision of technical assistance not exceeding the equivalent of \$600,000 on a grant basis to the Government of Timor-Leste for Infrastructure Sectors Capacity Development, and hereby reports this action to the Board.

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
<p>Impact Improved infrastructure services available to people in all urban and rural areas</p>	<ul style="list-style-type: none"> - Improved local, national, and international transport connectivity - Improved delivery of power to urban and rural customers - Improved access to water supply and sanitation services in urban and rural areas - Improved telecommunications connectivity - Improved urban environmental sanitation 	<ul style="list-style-type: none"> - Sector performance reports from ministries and partners - Consolidation Support Program (CSP) missions and reports - National Budget papers (reduction of subsidies) - Annual reports by urban monopolies and contracted firms 	<p>Assumptions</p> <ul style="list-style-type: none"> • Adequate national budget allocations for infrastructure • Ongoing government commitment to reform agenda, including corporatization and private sector participation • Sustained national economic development • Sustained peace and security
<p>Outcome More integrated multisector strategic plans, laws, regulations, capital programs, rural service arrangements, and urban monopoly operations and a strong road sector management capability</p>	<ul style="list-style-type: none"> - All opportunities fully exploited to achieve government synergies across infrastructure sectors - The operations and systems of infrastructure urban monopolies are integrated, shared, and harmonized to the maximum extent possible - Improved road sector capacity development programming, budgeting, and delivery 	<ul style="list-style-type: none"> - Progress reports of the Secretary of State for Infrastructure - Sector performance reports from ministries and partners - Publicly available legislation, regulations, policies - CSP missions and reports - Annual reports of urban monopolies and contracted firms - Project implementation/ completion reports for Road Sector Improvement Project - Reports from JICA advisor to the Minister for Public Works - Road sector capacity assessment 	<p>Assumptions</p> <ul style="list-style-type: none"> • Secretary of State for Infrastructure Development has sufficient budget and power to require and oversee cross sector approaches. • Development partners support a multisector, multidonor approach to infrastructure capacity development • New Minister for Public Works is committed to capacity development

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
Improved road engineering capability in government and the private sector	<p>By November 2008, the following number of trainees are employed and working as qualified engineers or technicians:</p> <ul style="list-style-type: none"> (i) at least 30 resident engineers; (ii) at least 10 cost/quantity engineers; (iii) at least 10 materials engineers; and (iv) at least 10 laboratory technicians 	<ul style="list-style-type: none"> - Government recruiting, organization, and staffing pattern reports - Follow-up survey of workshop graduates 	<ul style="list-style-type: none"> • Government salaries and professional opportunities will be sufficient to retain qualified employees • Ample job opportunities continue to exist for qualified engineers in the private sector • Qualified workshop graduates will be interested in working for the ministries involved in road infrastructure and/or the domestic consulting industry • An adequate number of positions will be established and funded by the ministries involved in road infrastructure <p>Risk</p> <ul style="list-style-type: none"> • Qualified graduates may be attracted to work outside the country and/or the government infrastructure sectors
<p>Outputs</p> <p>1. A multisector infrastructure institutional analysis of government functions, including strategic planning, law making, regulating, controlling capital programs, and providing services in rural areas; also covering multisector integration opportunities for urban infrastructure monopolies</p>	A multisector infrastructure institutional analysis by August 2006	<ul style="list-style-type: none"> - Consultant's report - ADB review missions 	<p>Assumptions</p> <ul style="list-style-type: none"> • Adequate government counterpart and steering committee support • Ministries, other infrastructure service providers, and development partners cooperate
2. An integrated multisector institutional development road map for infrastructure	An integrated multisector institutional development road map for infrastructure submitted by October 2006	<ul style="list-style-type: none"> - Consultant's report - ADB review missions 	<ul style="list-style-type: none"> • Adequate government counterpart and steering committee support • Ministries, other infrastructure service providers, and development partners cooperate.

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
3. Multidonor terms of reference for strengthening the institutional framework for infrastructure	Multidonor terms of reference for strengthening the institutional framework for infrastructure submitted by December 2006	- ADB review mission - ADB registry	<ul style="list-style-type: none"> • Adequate government counterpart and steering committee support • Ministries, other infrastructure service providers, and development partners cooperate
4. Terms of reference for the ADB-supported First Infrastructure Institutional Development and Capacity Building Program	Terms of reference submitted by December 2006	- ADB review mission - ADB registry	<ul style="list-style-type: none"> • Adequate government counterpart and steering committee support. • Ministries, other infrastructure service providers, and development partners cooperate
5. An institutional framework for sound road sector development	A proposed institutional framework submitted by October 2006	- ADB review mission - ADB registry	<ul style="list-style-type: none"> • Adequate government counterpart and steering committee support
6. A capacity development road map and terms of reference for the road sector	A road sector road map and terms of reference submitted by September 2006	- ADB review mission - ADB registry	<ul style="list-style-type: none"> • Adequate government counterpart and steering committee support
7. Two training programs	<p>- Two 3-month training sessions and qualification tests conducted by June 2006 and 2008 respectively</p> <p>- At least 20 participants complete training in each session</p> <p>At least 90% of trainees pass qualification test</p>	<p>- ADB review mission</p> <p>Test results</p>	<ul style="list-style-type: none"> • At least 60 appropriate candidates available for training • No interruptions due to <i>force majeure</i> • Participant attrition/ setback rate during training will not exceed 20% • Setback and/or dropout participants can reenter program at a later date, or attempt different end target qualification
Activities with Milestones 1.1 Review policies, programs, and proposals for doing infrastructure strategic planning, law making, regulating, controlling capital programs, and delivering infrastructure services in rural areas: by June 2006			Inputs ADB financing: \$600,000 Government financing: \$106,000

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
1.2 Review institutional arrangements and responsibilities for infrastructure development and service delivery: by June 2006. 1.3 Prepare a medium-term <i>vision</i> for a multisector institutional framework: by August 2006 1.4 Analyze shortcomings in the current institutional framework compared with the medium-term vision: by August 2006			Beneficiaries: the Government of Timor-Leste, development partners, government officials, private consulting firms and contractors, and private citizens
1.5 Prepare a road map for overcoming institutional shortcomings and moving towards the vision: by October 2006 1.6 Define roles and responsibilities for implementing the road map: by October 2006.			
1.7 Analyze opportunities for development partners to help government address shortcomings and achieve the <i>vision</i> : by November 2006. 1.8 Prepare terms of reference for a multidonor support program to help government implement the road map: by December 2006 1.9 Prepare terms of reference for ADB's <i>First Infrastructure Capacity Development TA</i> : by December 2006 2.0 Prepare Road Sector Capacity Development Road Map: by October 2006			
2.1 Develop and adopt training materials for user-friendly technical training by March 2006 and 2008 2.2 Purchase related equipment by March 2006 3.1 Conduct classroom training and on-the-job training by June 2006 and 2008 3.2 Conduct qualification testing by June 2006 and 2008			

ADB = Asian Development Bank; JICA = Japan International Cooperation Agency; MTCPW = Ministry of Transport, Communication, and Public Works; TA = technical assistance.

Indu Bhushan.
Director, Area B, PAHQ

Philip Erquiaga
Director General, PARD

COST ESTIMATES AND FINANCING PLAN
(\$'000)

Item	Foreign Exchange	Total Cost
A. Asian Development Bank Financing^a		
1. International Consultants		
a. Remuneration and Per Diem	345.0	345.0
b. International and Local Travel	24.0	24.0
c. Reports and Communications	2.0	2.0
2. Equipment ^b	30.0	30.0
3. Training, Seminars, and Conferences		
a. Participants	108.0	108.0
b. Training Program	10.0	10.0
4. Miscellaneous Administration and Support Costs	5.0	5.0
5. Representative for Contract Negotiations	5.0	5.0
6. Contingencies	71.0	71.0
Subtotal (A)	600.0	600.0
B. Government Financing		
1. Office Accommodation and Transport	40.0	40.0
2. Remuneration and Per Diem Of Counterpart Staff	56.0	56.0
3. Others	10.0	10.0
Subtotal (B)	106.0	106.0
Total	706.0	706.0

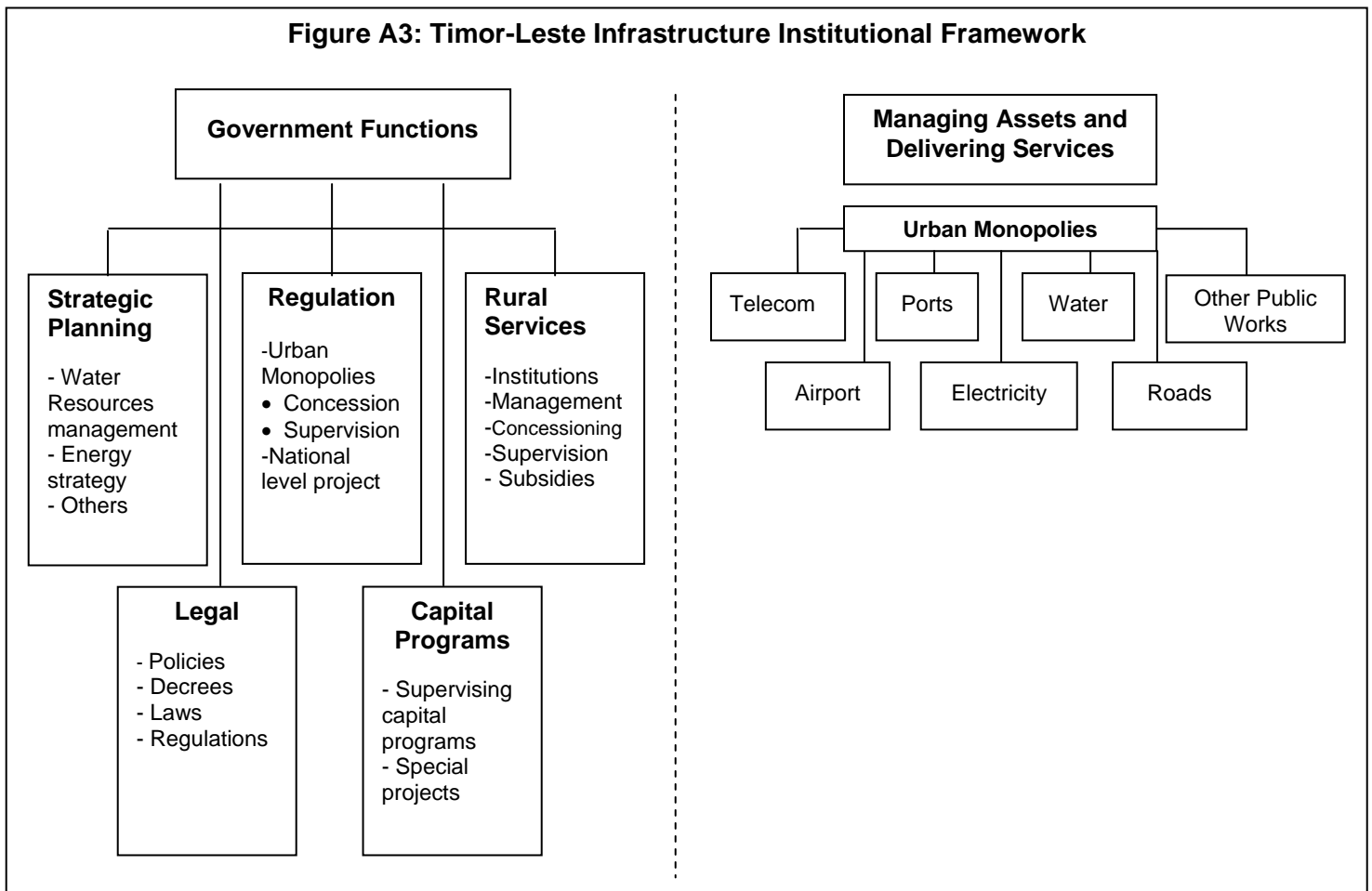
^a Financed by the Asian Development Bank's technical assistance funding program.

^b Computer, printer, overhead projector, design management software, and road survey equipment.
Source: Asian Development Bank estimates.

OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

1. The technical assistance (TA) comprises two components: (i) integrated multisector institutional development for infrastructure and (ii) technical capacity building for the road sector. An international consulting firm will be engaged to provide a total of 23 person-months of services. Each component will have a team leader to organize and coordinate activities under the TA and consolidate the reports. For component 1, the consultant will provide 9 person-months of services to analyze and prepare a road map for improving institutional arrangements for government functions such as strategic planning, legislating, regulating, and delivering rural services, for infrastructure sectors, including power supply, water supply and sanitation, telecommunications, airports and ports, roads, and other public works. The consultant will prepare terms of reference for follow-on TAs. In component 1, the consultant will also prepare a comprehensive road sector capacity development program to be implemented in follow-on TAs. The scope of the analysis, road map, terms of reference, and capacity building program covers core responsibilities of three newly created ministries: the Ministry of Public Works for roads and urban development; the Ministry of Natural Resources, Minerals, and Energy Policy for power and water supply; and the Ministry of Transport and Communications for ports and airports and telecommunications. In addition, the Government has created a new secretary of state position for infrastructure development, located within the Office of the Prime Minister (OPM). Accordingly, OPM will execute component 1 of the TA, under the direction of the Secretary of State for Infrastructure Development.

Figure A3: Timor-Leste Infrastructure Institutional Framework



2. For component 2, the consultant will provide 14 person-months of services to train 60 Timorese with 5-year experience and technical qualifications in the areas of road project design, quantification, costing, contract packaging, quality control, construction supervision, and contract management. Two training sessions will be conducted intermittently in the form of classroom, on-the-job, and field training from 2006 to 2008. Each session will be for 3 months and have 30 participants. The outline terms of reference for the consulting services include (but are not limited to) the following:

A. Component 1: Institutional framework for infrastructure (9 person-months)

1. Multisector infrastructure institutional analysis:

25. The task and processes described below will be sufficiently collaborative and consultative to ensure recommendations and programs are high quality, plausible, and have maximum “buy-in” from key stakeholders.

- (i) Review essential government functions, such as strategic planning, law making, regulating, managing special capital programs, and delivering infrastructure services in rural areas (left side of the institutional framework model in Figure A3). The review will cover all existing and proposed programs and policies. The principal source of information will be the approved sector investment programs for Power, Water Supply and Sanitation, Transportation, and Urban Development and Housing, and the Government’s other budget documents. All relevant technical assistance programs from development partners¹ will be reviewed and all laws that have shaped the development of infrastructure sectors since 1999 will be reviewed.
- (ii) Review the structure, functions, procedures, and resources of all government ministries and agencies with core responsibilities in infrastructure development and services, including the new Ministry of Public Works, the new Ministry of Transport and Communications, and the new Ministry of Natural Resources, Minerals, and Energy Policy.
- (iii) Review the structure, functions, procedures, and resources of urban monopolies such as the Electricidade de Timor-Leste, the Water and Sanitation Service, and private sector partners implementing management contracts, build-operate and transfer (BOT) contracts, and other private-public arrangements, including Companhia de Electricidade de Macau, Timor Telecom, Aguas de Portugal, and others (right side of the institutional framework model in Figure A3).
- (iv) Analyze opportunities for integrating and harmonizing government functions (left side of Figure A3) to improve infrastructure development and service delivery. Synthesize these opportunities into a medium-term multisector *vision*² for an efficient and effective institutional framework.
- (v) Identify gaps in existing and proposed institutional arrangements compared with the vision enunciated in (iv) above.

¹ Highly relevant technical assistance from development partners include the *Strengthening the Institutional Framework and Capacities in the Power Sector* (World Bank), various capacity building programs in the road and water supply sector supported by the Government of Japan, and others.

² The vision should clearly detail institutional roles, responsibilities, and outputs and results. Without limiting its scope, the vision should be measurable, time-bound, and therefore able to be monitored. The should be detailed enough so that existing gaps can be identified and thence a roadmap for overcoming these gaps. So for instance, the vision should describe the structure, workings, and results of regulatory regimes, and should analyze the efficiencies this would achieve and the benefits accruing to stakeholders, particularly consumers and users.

- (vi) Analyze opportunities for integrating and harmonizing the operations of urban infrastructure monopolies. Synthesize these opportunities into a medium-term multisector vision for achieving synergies and improving quality of functions listed on the right side of the infrastructure institutional framework (Figure A3).
- (vii) Identify gaps in existing and proposed corporate and operating arrangements compared with the vision enunciated in (vi) above.

2. Integrated multisector institutional development *road map*:

26. The task and processes described below will be sufficiently collaborative and consultative to ensure recommendations and programs are high quality, plausible, and have maximum “buy-in” from key stakeholders.

- (i) Prepare and analyze options for overcoming the gaps enunciated in A. above. This options analysis process will be highly consultative and will be grounded on the visions agreed with stakeholders in A. above.
- (ii) Use the results of the options analysis to construct a step-by-step *road map* for achieving the total institutional framework vision. The road map will describe steps to harmonize, merge, and integrate functions and arrangements, and to use the resources and capabilities of other stakeholders, including development partners and the private sector.
- (iii) Define roles and responsibilities for implementing the road map. Draw particularly on advice from the OPM,³ commitments and capabilities of development partners, budget papers and others related to the Sector Investment Programs, and relevant studies such as the World Bank-supported *Strengthening the Institutional Framework and Capacities in the Power Sector*.
- (iv) Prepare detailed options and recommendations for (a) combined sources for funding facilities to build infrastructure capacity and (b) development partners to help oversee and supervise government capital programs and manage special projects.

3. Multidonor terms of reference (TOR) for strengthening the institutional framework for infrastructure:

27. The task and processes described below will be sufficiently collaborative and consultative to ensure recommendations and programs are high quality, plausible, and have maximum “buy-in” from key stakeholders.

- (i) Analyze opportunities for development partners to help the Government follow the *road map* prepared in 2 above. Consider existing and proposed commitments and opportunities for partners to expand their infrastructure support.
- (ii) Prepare a TOR for a multidonor program⁴ to help the Government follow the road map. The TOR will comprise at least two parts, the first covering government functions (*left side* functions, Figure A3) and the second covering urban monopolies (*right side* arrangements, Figure A3). Special attention will also be given to

³ Within the Office of the Prime Minister, the new Secretary of State for Infrastructure Development, and the Capacity Development Coordination Unit.

⁴ The TOR should include preferred donor collaboration options. “Multidonor” encompasses a wide range, from joint cofinancing, through parallel cofinancing, to complementation. The TOR should narrow this range.

- establishing and managing a combined source⁵ facility for building infrastructure capacity and a mechanism to help manage capital programs and special projects. The TOR will include a detailed scope and methodology, key activities, and resources and budget.
- (iii) Prepare a dissemination and consultation package to assist road map consultations with development partners and other stakeholders.

4. Terms of Reference (TOR) for the ADB-supported *First Infrastructure Capacity Development* TA project:

28. The task and processes described below will be sufficiently collaborative and consultative to ensure recommendations and programs are high quality, plausible, and have maximum “buy-in” from key stakeholders.

- (i) Analyze ADB's preferred role and contribution to the multidonor program prepared in 3. above. Concentrate on (a) ADB overall supervision and coordination, (b) capacity development support for the road sector,⁶ (c) helping the government establish and manage a combined sources facility for infrastructure capacity development, and (d) helping the government make arrangements to oversee and supervise capital programs and manage special projects.
- (ii) Prepare a scope, methodology, and detailed consultant's TOR in a format suitable for ADB purposes.

5. Capacity development road map for the road sector

29. The task and processes described below will be sufficiently collaborative and consultative to ensure recommendations and programs are high quality, plausible, and have maximum “buy-in” from key stakeholders..

- (i) Analyze and assess the adequacy of the institutional framework for the road sector development, including the organizational and funding arrangement, and legal and regulatory framework.
- (ii) Assess the capacity of the Government agency/ies responsible for the road sector (possibly the Ministry of Public Works) to develop institutional, legal, and regulatory framework for sound sector development and to enforce rules and regulations.
- (iii) Review the current road design, safety, and maintenance standards. Assess the capacity of the Government road agency to carry out those functions.
- (iv) Assess the capacity of the Government road agency and road sector for asset survey and analysis, future operating, maintenance, capital replacement, and new capital expenditure projection, strategic planning, prioritization of road investment, project preparatory studies (including feasibility studies and preliminary and detailed designs), and implementation of road investment project.
- (v) Identify and propose an institutional framework for the sound road sector development that is feasible in Timor-Leste.
- (vi) Develop a staged capacity building road map for the Government road agency and road sector. Prepare the detailed terms of reference for the road sector capacity

⁵ Combined sources includes (i) the Government's own financed budget, (ii) donor financed on-budget programs, and (iii) what would otherwise have been donor financed off-budget programs

⁶ ADB will only focus on the road sector in the *First Infrastructure Capacity Development* TA. ADB will support institutional development and capacity development in the water supply and sanitation sector through a separate TA.

building to be included in ADB's First, Second, and Third Infrastructure Capacity Development TAs, including targeted impact, outcomes, and outputs.

B. Component 2: Technical Training for the Road Sector (14 person-months)

1. Design, Quantification, Costing, and Contract Packaging. The areas of training include:

- (i) Topographical surveys that encompass roads, bridge sites, and other drainage structures, in compliance with international standards, and preparation of plans of all survey work for compiling benchmark information and description of features.
- (ii) Geotechnical tests of soil conditions, slope stabilization and bio-engineering techniques, and other characteristics, definition of frequency of test locations that are sufficient to determine base and subbase, slope reinforcement, or other technical requirements.
- (iii) Material testing and estimation of the quantity and quality of material needed to comply with the relevant code available from each site. Identifying the extent of any construction activities required to excavate, treat (if necessary), and load the material.
- (iv) Preparation of road design criteria and design speed in conformity with the scope of works recommended in the approved feasibility studies in accordance with international standards.
- (v) Preparation of preliminary designs for road cross sections, geometric alignment (horizontal and vertical), pavement type and thickness, road furniture, and drainage structures, incorporating material and work quality specifications, preliminary construction quantities and cost rates, and a construction cost estimate to an accuracy of 20%.
- (vi) Preparation of detailed design drawings of all construction items, including longitudinal sections in the minimum scales of horizontal 1:2000 and vertical 1:200, and cross sections minimum horizontal scale of 1:100. All drainage structures will be detailed in plan, longitudinal, and sections.
- (vii) Preparation of final design report incorporating final design solutions, details of all decisions made and the rationale behind them all drawings prepared, environmental impacts and mitigating measures adopted, final construction quantities and cost estimates, draft work quality and materials specifications, notes for use during construction, and draft tender and sample contract documents. Contract packaging, preparation of prequalification and bidding documents in compliance with ADB's procurement guidelines, and FIDIC (Federation Internationale des Ingenieurs Contract) terms of contract.

C. Construction Supervision and Contract Management. The areas of training include:

- (i) Review of the contractors' organizational arrangements, key personnel, and construction programs, plant and equipment.
- (ii) Supervising the status of drawings, procedures for revision of drawings, and submission of drawings to the client/engineer for approval.
- (iii) Review and approval of design changes and approval procedures, including instructions to the contractor to make design changes, understanding and acting as appropriate on the implications of any changes in quantities and payments.

- (iv) Materials supply and requirements and sampling and testing procedures to determine compliance with proposed material specifications, inspections, control, and acceptance.
- (v) Recording of construction works and bill of quantities, survey checking, keeping measurement books, and preparing quantity sheets.
- (vi) Review of contractor's applications for civil works subcontracting and settlement of disputes with contractors.
- (vii) Monitoring progress of works against programmed targets, inspection and approval of proposed contract variations and additional works, determination of rates for works, and contractors' claim settlement.
- (viii) Quality assurance principles and procedures, and compliance with specifications, material testing, and quality control.
- (ix) Documentation of procedures, preparation of standard forms, minutes and records, diary documentation, and other requirements.
- (x) Process of controlling payments in accordance with tendered schedule of rates, lump sum or day rates. Auditing of all payments.
- (xi) Preparation of progress reports, progress charts, executed drawings, and project completion report.
- (xii) Preparation and review of instructions to contractors and all reporting requirements.
- (xiii) Preparation and maintenance of security and accident records, managing and overseeing traffic arrangements during construction.
- (xiv) Preparation of quality standards and codes and quality audit.
- (xv) Issuance of certificates of payment to the contractors and certification of the completion of the civil works.