

ASIAN DEVELOPMENT BANK

TAR:ETM 34003

TECHNICAL ASSISTANCE

TO

EAST TIMOR

FOR

TRANSPORT SECTOR RESTORATION

February 2000

ABBREVIATIONS

ADB	–	Asian Development Bank
CNRT	–	National Council for East Timorese Resistance
INTERFET	–	International Force in East Timor
JAM	–	Joint Assessment Mission
UNDP	–	United Nations Development Program
UNTAET	–	United Nations Transitional Administration in East Timor
TA	–	technical assistance

NOTE

In this report, "\$" refers to US dollars.

I. INTRODUCTION

1. During the World Bank-coordinated multiagency Joint Assessment Mission (JAM) (October-November 1999), the Asian Development Bank (ADB) reviewed the transport sector restoration and development requirements of East Timor for the short and medium term (12-month, 2 and 3 years). Needs for technical assistance (TA) and investment projects were identified in consultation with the National Council for East Timorese Resistance (CNRT), World Bank, and United Nations Transitional Authority in East Timor (UNTAET), United Nations Development Programme (UNDP), and International Force for East Timor (INTERFET).

2. This report was prepared on the basis of the Mission's discussions and observations in the field. The ADB Mission under JAM reached understandings with the East Timorese counterparts and UNTAET organizational and planning elements on the TA objectives and scope.¹ A framework for the TA is provided in Appendix 1.

II. BACKGROUND AND RATIONALE

3. The referendum held on 30 August 1999 demonstrated an overwhelming preference of the population for independence over an Indonesian-controlled autonomy. After the referendum residential, public, and productive property was systematically destroyed. In the Western half of the territory and the highland areas, all property of value including residential and public buildings, utilities, telecommunications facilities, and inventories of essential food and agriculture stocks were removed, burned, and destroyed. The Eastern half experienced a similar, but less comprehensive destruction with about 75 percent of residential buildings destroyed. The territory remains only partially inhabited, and in many areas is totally deserted. East Timorese refugees are gradually returning from West Timor and the forests, with the support of humanitarian relief coordinated by the Office for Coordination of Humanitarian Affairs. Due to the mass deportation and lack of seeds, the farmers have not planted for the next harvest. Consequently, East Timor is likely to face famine during 2000.

4. Humanitarian assistance is being provided by the United Nations and bilateral agencies, and is coordinated by Office for Coordination of Humanitarian Affairs. A short-term needs assessment, the Consolidated Appeal, has identified immediate humanitarian needs for the first three months from December 1999 to March 2000 valued at \$199 million. The World Bank-coordinated JAM identified priority reconstruction objectives, and prepared estimates of external financing needs for all economic sectors. A concurrent mission of the International Monetary Fund assessed the macroeconomic parameters and initial steps to formulate a macroeconomic framework. Under the reconstruction program, a lead-agency role is allocated to ADB for infrastructure sector restoration, including the transport, energy, telecommunications, and water and sanitation sectors. This TA will implement ADB's initial intervention in the three transport subsectors by (i) taking initial steps to establish the institutions and regulator frameworks for road, port, and airport subsector and management, and (ii) reviewing the respective long-term development requirements to enable these subsectors to contribute to poverty reduction and economic growth.

A. Transitional Administration

5. All current administrative structures are dysfunctional. This includes public offices tasked to manage the transport sector. All public documentation and premises were destroyed. Under a resolution of the Security Council of the United Nations, UNTAET was established with wide

¹ The TA first appeared in *ADB Business Opportunities* in December 1999.

powers to ensure stability; and establish local government and sector administration, judiciary, policies, and laws. Under this resolution, INTERFET will be replaced by about 9,000 UNTAET's peacekeepers. UNTAET is headed by an administrator and will have a staff of 400-500. Neither the positions nor their incumbents have been identified. UNTAET will administer East Timor for 2-3 years, when general elections will be organized. CNRT has established a transitional council for consultations with UNTAET on policy determinations. The proposed TA makes a specific effort to reach and establish East Timorese future decision makers and beneficiaries.

B. Transport System

6. East Timor extends 265 kilometers (km) in length and 92 km in width. It's terrain is rocky and dry, and characterized by steep ridges rising to 3,000 meters. The territory is located in the equatorial region and receives monsoon rains from November to April with the balance of the year being hot and dry. During the dry season the riverbeds are exposed and do not, therefore, lend themselves to inland river travel. The rainy season, on the other hand, causes these rivers to cut the roads and interrupt the transport system.

7. The transport system in East Timor is multimodal, comprising about 8,000 km of roads, one port, three wharves, small jetties, boat landings, two airports, and eight grass airstrips. Demand for the East Timor transport system has been that of a domestic and provincial economy. Internal traffic in East Timor is dependent on land transport. Maritime transport is in its early stages and has potential for growth. The infrastructure was constructed under the Indonesian central government budget. Only limited, if any, maintenance has been carried out. The postconsultation violence resulted in the removal and destruction of all movable transport-related property, including heavy machinery, vehicles, and equipment.

8. A department of transport and works (DTW) with headquarters in Dili is proposed to manage the transport system for all subsectors. DTW is to be set up during the tenure of UNTAET to manage transport infrastructure and to concurrently facilitate long-term sector development and capacity building. DTW structure incorporates the principles of private sector participation, development of a maintenance culture, human resources development, and competition. An objective of the proposed structure is to gradually develop East Timorese capacity to manage, maintain, rehabilitate, and improve the transport infrastructure assets to facilitate economic development and growth. DTW organization and other details are in Appendix 2.

9. Road and Bridge Subsector. The road network is supported by the main coastal east-west arteries along the northern and southern coast lines. These are connected by the north-south secondary roads. The main road network totals 1,400 km and about 6,600 km of rural roads with about 50 percent sealed. Sealed and unsealed roads have experienced long-term neglect of maintenance and lack of adherence to construction standards. While the sealed pavements are still in good condition, their drains are in need of immediate clearance and restoration. In all towns, road drainage systems must be cleared to avoid disruptive flooding. The roads have narrow carriageways of about 3 meters, steep banks with poor stability, and poor pavement surfaces and drainage. Gravel road conditions are rough and potholed, and most roads can be traveled only by four-wheel-drive vehicles. There are 450 bridges. While there are no signs of specific damage to the bridge structures resulting from the recent events, many bridges are missing or causeways nonexistent or in a poor state. Four-wheel-drive vehicles are needed to traverse rivers, and hence access to markets by the general population is difficult. A road maintenance operation is proposed within the DTW structure to facilitate network performance.

10. The road conditions are expected to substantially deteriorate as a result of the rainy season, as well as the heavy loads of the INTERFET and relief operations. In many areas, the

essential road links for delivery of relief aid are expected to be interrupted by major landslides and slips. A short-term emergency works program to keep the roads open is outlined in a UNDP-funded study and is estimated to cost \$15 million in the first 12-month period. The identified works include, repair of road bank slips and slides, potholes, and embankment strengthening. Currently, UNDP is funding labor-based drainage clearance for \$0.5 million. Under a separate investment project, ADB has been requested to undertake the balance of these emergency repair needs.

11. The southern coastal area is alluvial and suitable for cultivation. Development of agriculture potential is, however, constrained by the poor road conditions along the southern east-west road. A road rehabilitation and upgrade program is proposed to reduce poverty and induce economic development in the area.

12. Maritime Infrastructure. The maritime infrastructure includes the ports of Dili, Carabela, Laleia, and Com; smaller wharves in Oekussi and Liquica; and slip-landing structures and sites in Oekussi, Batugade, and Suai. The port facilities have not incurred structural damage from the postconsultation destruction. All equipment, however, have been destroyed, are inoperable or have been removed. Few navigation aids exist, and these are nonfunctioning. There is no established cargo handling licensing or cargo-handling equipment, save an inoperable crane on wheels. Shippers make their own arrangements with the three Australian private sector cargo-handlers. At all ports, all vessels need to be self-sufficient with lifting gear.

13. INTERFET manages the port sector and will implement minor civil works to facilitate port operations. Other immediate requirements for port works are given by the UNDP assessment. These include (i) completion of the Dili port extension by 40 meters, and (ii) strengthening the Dili slipway. Furthermore, all navigation aids need to be restored with new lanterns and power connections or solar panels. All INTERFET equipment will need to be replaced once its tenure expires.

14. Most urgently, port sector management needs to incorporate asset management, efficiency considerations, and a cost recovery tradition. During the UNTAET administration, the port sector will need to be managed under a sector management contract that will (i) continue international and domestic port services promoting economic efficiency and sustainability, as well as (ii) develop a locally managed ports and maritime authority through an in-house and external training programs. The objective of such a contract is to establish a ports and maritime authority as a self-financing and eventually a locally managed entity with a mission to deliver competitive port services. User charges will need to be implemented for the port services to ensure self-sufficiency and efficiency of the entity. An internationally tendered management contract is envisaged to include (i) pilotage, (ii) port state control, (iii) pollution control, (iv) general harbor control, (v) port asset management, (vi) training, (vii) policy and administration, and (viii) establishment of a ports and maritime authority. The engaged contractor will apply the principles of out-sourcing to the extent possible, in particular for stevedoring, cargo-handling, and operating tug and line boats. The contract will incorporate incentives for using local human resources; East Timorese personnel with appropriate qualifications will be recruited internationally and locally. A port sector pricing study is under way to formulate a sector tariff to induce economic use and productivity of the port assets.

15. Aviation Infrastructure. East Timor has two international standard airports with sealed runways and eight grass landing fields. INTERFET movements, heavy helicopter traffic, and UNTAET and aid deliveries dominate the traffic. While the civil infrastructure and structures are in good condition, the postconsultation destruction resulted in removal of all navigation equipment and communications. The two airports can only facilitate daytime operations as there is no runway or approach lighting. The overall condition of the two international standard airports is good and capable of supporting C130 aircraft without restrictions. The airports have, however, no functional

fire fighting or weather recording equipment. The airports do not have any aircraft services, including refueling facilities. Utilities, including power and water, are received from the main power and water supply only intermittently.

16. INTERFET manages the airports subsector. It will finance short-term infrastructure works at the airports facilitating its activities in East Timor. With the exception of a few (Suai airstrip lengthening and Dili hangar), these cannot be expected to lead to longterm benefits. All INTERFET equipment will need to be replaced under the next sector administration.

17. Careful planning for aviation sector services needs to be initiated immediately. Similar to the ports subsector, during UNTAET administration the aviation subsector needs to be managed under a sector management contract. This will (i) continue international and domestic port services, (ii) initiate economically efficient and sustainable operations, and (iii) establish a locally operated civil aviation authority. For this, a management contract will be tendered through international competitive bidding. Under such a contract, development of local airport management will be encouraged to underpin establishment of a civil aviation authority for long-term sector management. A minimum package of navigation and safety equipment with the respective communications is required immediately to avoid disruptions in services once INTERFET removes its equipment.

18. An objective of the airport management contract will be to establish a civil aviation authority as a self-financing and a locally managed entity with a mission to deliver competitive aviation services. The entity will be financed from user charges. The contract will incorporate incentives and emphasize using local human resources by providing internal on-the-job and regional training programs. The contractor will organize this training using regional aviation institutions.

19. An airport cost-recovery and tariff study is under way to introduce development of a cost recovery mentality, economic use, and productivity of the airport assets.

III. THE TECHNICAL ASSISTANCE

A. Objectives

20. The TA objectives are to (i) prepare a comprehensive transport sector study covering the three transport modes in East Timor, and (ii) develop an integrated plan for an efficient and effective multimodal transport system to support long-term development and growth potential of the territory. The plan will encourage private sector development and pay particular attention to the infrastructure requirements of the poor.

B. Scope

21. For each of the three subsectors, namely land, maritime, and air transport, the TA will (i) review the legal, regulatory, and policy frameworks; (ii) propose and establish immediate management and administrative structures; (iii) outline specifications for an immediate and long-term restoration and procurement needs and development program.

C. Cost Estimates and Financing Plan

22. The TA is estimated to cost \$1.0 million. The entire cost of the TA will be financed by ADB on a grant basis from the ADB-funded TA program. This includes international consultant remuneration and per diems, international and local travel, communications, office equipment, supplies, and contingencies. The TA will also finance all costs of East Timorese counterparts in the

absence of an administration with a local payroll for counterpart staff. Detailed cost estimates are provided in Appendix 3.

D. Implementation Arrangements

23. The TA will require about 30 person-months of international consulting services. A team of international individual consultants and East Timorese counterpart personnel will be engaged to undertake the TA. Services of individual consultants will be selected due to the urgent need to establish sector institutions and restoration work in accordance with ADB's *Guidelines on the Use of Consultants* and other arrangements satisfactory to ADB. The detailed terms of reference for the international consulting services are in Appendix 4.² These will include the following expertise: transport infrastructure restoration coordination; transport economist-planner, policy, and institutional specialist; road and bridge engineering; port engineering-planning and port management; port and airport cargo handling; airport engineering-planning and airport management; air traffic management; and social, poverty, and environmental analysis.

24. The international consultants will prepare specifications for the procurement of six sets of desk computers for the new institution to be used by the transport sector and professional equipment supporting asset management activities. Procurement under the TA will be in accordance with procedures and arrangements acceptable to ADB. The TA will also require 64 person-months of East Timorese counterparts covering airport, port, and road subsector management skills. In consultation with ADB, UNTAET, and CNRT the international consultants will identify appropriate candidates for these assignments, and prepare the respective detailed terms of reference. These will be remunerated under the TA budget based on the established United Nations System for local salaries. These are assumed to be established in light of sustainability concerns.

25. The Executing Agency for the TA will be UNTAET. Daily TA activities will be carried out in close consultation with CNRT and other funding agencies active in East Timor, particularly the World Bank. A steering committee comprising the relevant offices of UNTAET and CNRT personnel will be established under the TA.

26. The TA will be carried out over eight months commencing in February 2000 and ending in September 2000. The consultants will submit an inception report, periodic reports, a medium-term report, a draft final report, and a final report. Tripartite meetings of the steering committee, the consultants, and ADB will be convened to consider the reports. A minimum of four tripartite meetings will be convened to ensure a close monitoring and consultation process. Coordination of external funding agencies will be conducted in connection with the scheduled three tripartite meetings.

IV. THE PRESIDENT'S DECISION

27. The President, acting under the authority delegated by the Board, has approved the provision of technical assistance, on a grant basis, to the United Nations Transitional Administration in East Timor, in an amount not exceeding the equivalent of \$1,000,000, for the purpose of Transport Sector Restoration, and hereby reports such action to the Board.

² Individual terms of reference for each expert are available from the mission leader.

TECHNICAL ASSISTANCE FRAMEWORK

Design Summary	Targets	Project Monitoring Mechanism	Risks/ Assumptions
<p>A. Sector Goal</p> <p>1. Establish an effective transport sector management (TMS).</p>	<p>1. Agree on format for efficient TSM by the end of the Technical Assistance (TA).</p> <p>2. Establish efficient TSM by the end of the TA.</p> <p>3. Establish rudimentary but operational road maintenance operation by end of 2000.</p> <p>4. Establish port sector management contract by end of the TA.</p> <p>5. Establish airport sector management contract by end of the TA.</p>	<p>1. Consultations with authorities</p>	<p>1. Timely and systematic reference group meetings for development of consensus</p> <p>2. Availability of capital investment funds for required restoration needs</p> <p>3. Identification of adequate number and quality of East Timorese staff for localization programs under the proposal</p>
<p>B. Purpose/Objectives</p> <p>1. Review of legal, regulatory, policy, and institutional frameworks.</p> <p>2. Propose and initiate establishment of efficient transport sector management and administrative structures.</p> <p>3. Propose and initiate a business-oriented contracting industry.</p> <p>4. Outline specifications for a medium-term restoration program.</p>	<p>1. Agree on establishing and developing of an appropriate legal, regulatory, and policy frameworks by the end of the TA.</p> <p>2. Establish contracts for works and induce employment, business starts, in contracting industry by the end of the TA.</p> <p>3. Establish of immediate management and administrative structures by the end of the TA.</p> <p>4. Outline needs for an immediate restoration and procurement needs by the end of the TA.</p> <p>5. Prepare medium-and long-term development program by the end of TA.</p>	<p>1. Periodic TA reports</p> <p>2. TA review missions</p> <p>3. Tripartite meetings</p>	<p>1. Systematic reference group meetings</p> <p>2. The United Nations Transitional Administration in East Timor/donor agencies/National Council for East Timorese Resistance accepting and implementing recommendations</p> <p>3. Availability of capital funds for the needed investments</p>

(Reference in text: page 1, para 2)

Design Summary	Targets	Project Monitoring Mechanism	Risks/ Assumptions
<p>C. Outputs</p> <p>1. Revision of the legal, regulatory, and policy frameworks.</p> <p>2. Transport sector management structures</p> <p>3. Medium -and long-term restoration and procurement needs</p>	<ul style="list-style-type: none"> - Comprehensive transport data base by end of the TA - Revised sector policies to meet network requirements by the end of 2000 - Purposeful design standards, audit practices, cost recovery, transport system by the end of 2000 - Measures to encourage private sector involvement in sector operations by the end of the TA - Institutional framework with a focus on localizing sector management, private sector development, and sector efficiency end of TA - Identification of a road maintenance regime and a candidate road maintenance program the end of the TA - Guidance to establish the institution by the end of the TA - Management contract for port operations with a focus on localizing and establishing a ports and maritime authority by the end of the TA - Management contract for the airport subsector operations with a focus on localizing and establishing a local civil aviation authority by the end of the TA - Feasibility study on restoring and improving projects by the end of the TA - Specifications and feasibility analyses for proposals by the end of 	<ol style="list-style-type: none"> 1. Tripartite meetings 2. Review missions 3. Periodic TA reports 	<p>Availability of counterpart and United Nations Transitional Administration in East Timor staff for effectively and timely carrying out the task</p>

Design Summary	Targets	Project Monitoring Mechanism	Risks/ Assumptions
	the TA		
D. Inputs International consulting services Local staff/domestic consultant services Equipment	Selection of individual consultants for \$0.6 million by the end of February 2000 Selection of domestic consultant for about \$0.1 million by the end of February 2000 Procurement of administrative and professional equipment for \$40,000 by the end of the TA	TA reports	Timely deployment of competent consultants

PROPOSED ORGANIZATIONAL STRUCTURE OF THE TRANSPORT SECTOR

1. Establishment of a maintenance regime is proposed in a context of a central Department of Transport and Works (DTW). While the roads will need to be reclassified, the DTW structure will manage all the roads, given the small size of the network. The proposed administrative structure aims to ensure development of a road asset management and maintenance system that establishes local capacity to manage, maintain, rehabilitate, and improve the road assets to facilitate transport needs and economic development and growth. The principles guiding establishment of DTW will include (i) establishment of a private sector contracting industry, (ii) development of a road maintenance culture in DTW and the communities, (iii) localization of human resources, and (iv) encouragement of competition. DTW would be headquartered in Dili. It is proposed to have three major divisions: (i) transport division to assume regulatory and policy responsibilities for roads, (ii) planning and design division, and (iii) operations division. Consultant support to United Nations Transitional Administration in East Timor (UNTAET) is proposed in detail to initiate establishment of DTW. In the first year 115 staff are required including 21 expatriate staff. The number of expatriate staff is proposed to be reduced gradually to 10 in the third year as technology transfer is incorporated in the incentives under the incumbents' contracts. All international positions will be twinned by an East Timorese counterpart. The organizational structure of DTW includes four major functions:

1. **Transport Division**
2. **Land Transport Regulation.** Activities include
 - (i) reclassify roads;
 - (ii) review, revision, and adjustment of the road sector legal framework including road safety program to directly cater to the needs of East Timor road users;
 - (iii) establish and implement of road transport regulations in collaboration with the police;
 - (iv) support central UNTAET in preparing procurement guidelines for works and supplies contracts; these are proposed to adhere to the principles of economic efficiency from competition and establishment of a local contracting industry;
3. **Maritime and Port Sector Regulation.** Activities include
 - (i) implement international conventions, and
 - (ii) managing contracts.
4. **Aviation Sector Regulation.** Activities include
 - (i) implement international conventions, and
 - (ii) manage contracts.
2. **Planning and Design division**
5. Activities include
 - (i) management of feasibility studies for capital investment projects, and technical evaluation of international tenders;
 - (ii) contract management;

- (iii) relations with external financiers; and
- (iv) developing a road asset management system.

3. Operations Division

6. The division will be located in five regional centers: Dili, Baucau, Same, Maliana, and Oekusi; and will carry out routine and periodic maintenance, and manage works through (i) minor labor-based contracts to the communities to maintain community minor roads (district roads), and (ii) specific maintenance and periodic maintenance contracts to organized labor.

4. Finance division

7. The division will prepare budget requests, budget allocation, and reporting on disbursements and payments to the national administration

8. The DTW's regional depots will be established by an international chief road and bridge engineer, the chief engineer, accountant, and a few clerical staff. To the extent possible East Timorese skills will be identified to fill these positions. The DTW structure includes no labor contingent. Small labor groups are expected to emerge from the human resource ranks of contractors operational during the previous administration in the sector. These have received some experience during the first months' emergency works proposed under the United Nations Development Program's (UNDP) short-term road sector assessment. While skill levels will vary from region to region, technical and supervisory skills are expected to be available. The chief engineers will identify these skills and prepare a technical on-the-job training program with the objective of building a local contracting industry. Private sector practices will be encouraged in by, for example, leasing the plant pool to organized local groups for undertaking the works.

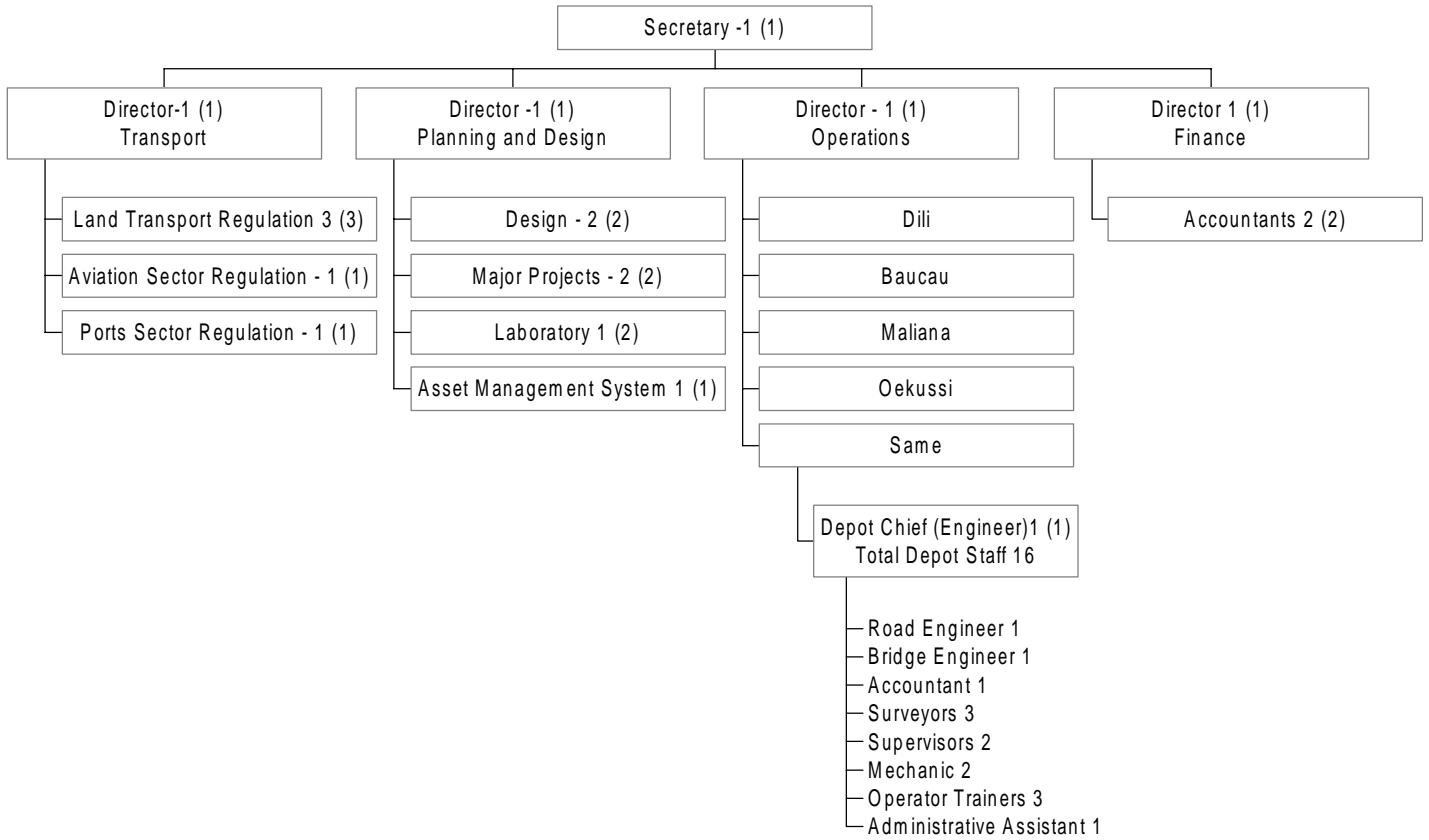
9. The regional depots will monitor and record road conditions, establishing, in collaboration with the headquarters, a road asset management system. This will provide the basis for identifying prioritized road rehabilitation requirements and maintenance works schedules. Through such an asset management system, DTW will establish a road maintenance regime capable of carrying out works in the immediate future based on preventive maintenance planning in the long term and continuous monitoring of the road conditions.

10. A minimum road maintenance plant is proposed to establish a maintenance function and carrying out routine and periodic maintenance activities. These will be transferred to the private sector as soon as the private sector operators have grown to the necessary capacity. This capacity building will be supported by the DTW's operational depots through training, small contracts, monitoring the execution of works to standards, and leasing of equipment. Staff in the depots will determine, case by case, the requirements for such a support program.

Figure A2.1: Equipment for Each Regional Depot

1. Machinery				
Item	Description	Quantity	Unit	Amount
			AUD	\$
1.1	Bulldozer mini	1	20,000	20,000
1.2	Loader on wheel	1	100,000	100,000
1.3	Loader on track	1	150,000	150,000
1.4	Motor grader	1	100,000	100,000
1.5	Excavator	1	100,000	100,000
1.6	Road Roller 2.5 ton	1	20,000	20,000
1.7	Road Roller 6 ton	1	25,000	25,000
1.8	Road Roller 10 ton	1	30,000	30,000
1.9	Vibrator Roller	1	30,000	30,000
1.10	Compressor	1	10,000	10,000
1.11	Water Tank	1	30,000	30,000
1.12	Sakai	1	100,000	100,000
1.13	Asphalt mixer plant	1	200,000	200,000
1.14	Asphalt finisher	1	50,000	50,000
1.15	Stone crusher	1	70,000	70,000
1.16	Dump truck 3 ton	2	25,000	50,000
1.17	Dump truck 6 ton	2	40,000	80,000
1.18	Tadano (Kran)	1	30,000	30,000
1.19	Motor cycle	2	3,000	6,000
1.20	Operational car	2	28,000	56,000
			TOTAL	\$1,257,000
2. Laboratory Equipment				
Item	Description	Quantity	Unit	Amount
			AUD	\$
2.1	Soil & Rock	1	5,000	5,000
2.2	Concrete	1	5,000	5,000
2.3	Asphalt	1	5,000	5,000
2.4	Water	1	5,000	5,000
			TOTAL	\$20,000
3. Survey Equipment				
Item	Description	Quantity	Unit	Amount
			AUD	\$
3.1	Total Station	1	30,000	30,000
3.2	Water pass	2	4,000	8,000
3.3	Lawn Mowers	4	1,000	4,000
			TOTAL	\$42,000
4. Workshop				
Item	Description	Quantity	Unit	Amount
			AUD	\$
4.1	Tools Box Special	3	2,000	6,000
4.2	Grease Gumpump	4	500	2,000
4.3	Drilling machine	2	1,000	2,000
4.4	Torno Manual	2	1,000	2,000
4.5	Welding Equipment	1	4,000	4,000
4.6	Arc Welding	1	4,000	4,000
			TOTAL	\$20,000
			TOTAL AUD	1,339,000
			TOTAL USD	870,350
			Shipping Costs	174,070
			TOTAL/ DEPOT	\$ 1,044,420

Figure A2.2: Organization of the Department of Transport and Works¹



¹ Numbers outside of parenthesis reflect year 1 requirement for international staff and those within parenthesis domestic staff. Staffing of DTW is kept to the minimum to account for the presence of the United Nations Transitional Administration in East Timor peacekeeping engineering staff, and to encourage private sector participation in the operations, and cost-effective sector management.

COST ESTIMATES AND FINANCING PLANS
(\$)

Item	Foreign Exchange	Total Cost
Financed by Asian Development Bank		
1. Consultants		
a. Remuneration	570,000	570,000
b. Per Diem	144,000	144,000
c. International Travel	30,000	30,000
d. Local Travel	15,000	15,000
e. Counterpart Personnel	66,600	66,600
2. Equipment ^a	48,000	48,000
3. Miscellaneous		
a. Communications	8,000	8,000
b. Report Preparation	6,000	6,000
c. Office Supplies	2,000	2,000
d. Office Space	10,000	10,000
4. Contingencies	100,400	100,400
Total	1,000,000	1,000,000

^a The equipment will be transferred to United Nations Transitional Administration in East Timor and eventually to the indigenous government upon the completion of the Technical Assistance.

TERMS OF REFERENCE FOR CONSULTING SERVICES

A. Terms of Reference

1. The transport infrastructure restoration coordinator will coordinate the work of the consultants. The tasks are cover three areas.

1. Legal, Regulatory, and Policy Framework Analysis

2. The tasks include the following:

- (i) Review transport sector data, and develop a transport database and demand projections.
- (ii) Review transport sector policies, legislation, and regulations. Recommend short-, medium-, and long-term policies and strategies for the sector as a whole and for the individual subsectors. These must be consistent with the economic development scenarios for other sector studies, i.e., agriculture, mineral, and social sectors. This review will identify areas for simplification, modification, and deregulation to establish a purposeful regulatory framework for the sector.
- (iii) Identify alternative transport sector regulations for infrastructure development and maintenance. Draft alternative regulatory instruments, standards, and legislation for the consideration of the United Nations Transitional Administration in East Timor (UNTAET) and the East Timorese civil society.
- (iv) Review private sector capacity to provide transport services and develop transport infrastructure. Recommend measures to encourage involvement of the private sector; determine technical institutions for training; and implement a contracting regime for small, medium, and large works in accordance with internationally accepted standards and principles that encourage economic efficiency.
- (v) Prepare terms of reference for domestic counterparts, and assist in their recruitment and establishment of a disbursement mechanism under the technical assistance (TA).

2. Transport Sector Management and Administrative Structures

3. Activities include the following:

- (i) Identify an institutional framework for the sector, and recommend a sector institution.
- (ii) Prepare the institution's mission, objectives, strategy, three-year business plan, functions, regional organization, performance specifications and targets, financial projections including road tariff/user charges, balance sheet, operating statement, source and application of funds and budget allocation process from UNTAET, staffing, skills and training requirements, plant pool with specifications and budgets, plant pool disengagement program for the private sector if

appropriate, financial management including internal cost control, public accountability and reporting requirements, and public relations approach including logo and public information campaign.

- (iii) Building on analysis under items 2(i) and 2(ii), review and recommend a road sector management and road maintenance operation that is equipped and has the capacity to maintain the network at the recommended standard, prepare its plant pool with technical specifications and budgets, prepare management systems including asset management system and operations, and help procure equipment as appropriate.
- (iv) Identify a road maintenance program and develop a five-year schedule. The program should be coherent with the developed proposals under items outlined in section 3.
- (v) Prepare documentation covering all aspects of the proposed institutional arrangement, consult with all involved parties to obtain agreement; and identify an action plan to establish the entity, including all its functions and operations.
- (vi) Prepare documentation for the agreed institutional framework, and obtain approval for its management structure and executive, and prepare and implement staff recruitment.
- (vii) Guide establishment of the institution providing all support required including setting of priorities, timetable for milestones, recruitment, remuneration, duty statements, training programs both for staff and entrepreneurs, data system, financial management systems, controlled documentation, and standard work practices and safety procedures.

a. Port Sector Management

4. The consultants will undertake the following:

- (i) Prepare a proposal and help tender a management contract for the port sector operations focusing on localizing human resources in five years. This contract is envisaged to include (a) pilotage, (b) port state control, (c) pollution control, (d) general harbor control, (e) port asset management, (f) on-the-job and external training, (g) policy and administration, (h) financial management, and (i) establishment of a ports and maritime authority. This contract would incorporate private sector participation to the extent possible, a strong incentive for gradually localizing all positions, management of all ports in the territory on a needs basis, implementation of the Clean Port Policy under the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78), and implementation of a cost recovery policy.
- (ii) Investigate opportunities for East Timor to apply, and prepare an application, as appropriate, for membership with the relevant port sector organizations, including the International Maritime Organization.
- (iii) Prepare a detailed procurement package for minimum equipment needed for port operation and help with the tender process.

- (iv) Prepare a twinning arrangement with an international port authority abroad for continuing collaboration in training, environmental disaster prevention, etc.
- (v) Monitor and record infrastructure investments made by International Force in East Timor (INTERFET), UNTAET, and aid agencies in the port sector.

b. Airport Management

5. The consultants will have responsibility for the following:

- (i) Prepare a proposal for, and help tender a management contract for the airport sector operations, focusing on localizing human resources in 10 years. This contract is envisaged to include (a) management of all airports in the territory on a needs basis; (b) air traffic management; (c) communications, navigation aids, mechanical, electric, and civil engineering; (d) airport services, e.g., pavement, lighting, and terminal management, including all technical and clerical functions; (e) financial management; (f) establishment of inspection functions; (h) meteorological services; (i) on-the-job and external training; (j) policy and administration; and (k) establishment of air routes. This contract will incorporate private sector participation to the extent possible, a strong incentive for localizing airport management, implementation of International Civil Aviation Organization (ICAO) safety principles, implementation of a sector cost recovery policy, and establishment of a local civil aviation authority to assume responsibility for the sector.
- (ii) Recommend modalities for cost-effective service provision contracts for the sector, as required, including cargo handling; and prepare the necessary contracts. These will incorporate periodic reviews for ensuring economic pricing.
- (iii) Examine financing options and cost recovery issues, including landing and navigation fees; and propose justified cost recovery charges.
- (iv) Identify a marketing action plan for Baucau airport and the secondary airfields.
- (v) Prepare a detailed procurement package for minimum equipment needed for airport operation and help with the tender process.
- (vi) Investigate opportunities for East Timor to apply, and prepare an application, as appropriate, for a membership with the relevant aviation sector organizations, including ICAO.
- (vii) Prepare a recommendation for upper airspace navigation services and a twinning arrangement with an international airport authority for continuing consultation in training, safety, etc.
- (viii) Monitor and record infrastructure investments made by INTERFET, UNTAET, and aid agencies in the airport sector.

3. Immediate and Long Term Restoration and Procurement Program

6. The consultants will undertake the following:

- (i) Identify, analyze, prioritize, and schedule transport sector (including road, maritime, and aviation subsectors) investment requirements; identify improvement projects, and issues arising in their formulation, funding, and implementation; and prepare a road restoration feasibility study for upgrading the southern east-west road. This feasibility study will be prepared in accordance with all relevant Asian Development Bank (ADB) guidelines on technical, financial, economic, social, environmental, poverty, and institutional aspects of the proposal. These are expected to include the following activities:
 - (a) Review transport investment proposals in the light of available studies, review any available traffic counts and origin-destination surveys, prepare information and forecast the present and expected pattern of the traffic by vehicle type, and review terrain types and existing design standards.
 - (b) Identify road rehabilitation and upgrading treatment and procurement specifications, where needed, for costing and economic evaluation.
 - (c) Using the results from item (a) prepare traffic forecasts for each recommended investment proposal; and determine demand on the investment by analyzing stakeholders, households, enterprises, and villagers use of the investment; and quantify in annualized demand indicators (daily traffic for road investments), analyzing types of demand (e.g., freight and passenger transport), estimating elasticity for transport demand investments, and devolving appropriate design standards from this economic and least cost analysis.
 - (d) In the case of road investment, prepare preliminary designs that show the existing roads and preliminary proposed alignments (horizontal and vertical), including those for bridges.
 - (e) Investigate costs of locally available and imported materials required under each investment proposal.
 - (f) Estimate construction and maintenance costs of maintenance, rehabilitation, and upgrading options, and the economic maintenance costs of the existing transport infrastructure being replaced under the investment proposal.
 - (g) Undertake feasibility studies for the proposals. These include an economic evaluation, in accordance with ADB guidelines and including environmental costs and benefits, for each project over the study period (20 years) by calculating the economic and net present values of investment proposals and other feasibility indicators; the appropriate sensitivity tests of major parameters such as improvement costs, traffic demand, and demand elasticity, and other economic, and social benefits over the implementation period; and alternative maintenance treatment

and timing of treatments. This analysis includes estimation of specific and standard conversion factors. (Where the analysis cannot be carried out due to the current circumstances of East Timor, the consultant will provide extensive reasons for this together with alternative, acceptable, evaluation analysis).

- (h) Estimate nonmonetary costs and benefits of improvements.
- (i) Break down construction cost estimates into foreign (both direct and indirect) and local components, as well as taxes and customs duties. Indicate equipment depreciation costs and costs of spare parts, fuel, lubricants, materials, labor, and overhead, etc., as well as general items, such as earthworks, subbase, base, surfacing, drainage, bridges, and road furniture, as required under the investment proposal.
- (j) Identify the extent of employment, wages, and salaries expected to be generated by the civil works required.
- (k) Prepare an initial environmental examination and/or an environmental impact assessment, if required, including a detailed benefit-cost analysis, and its summary, if required, in accordance with the *Environmental Assessment Requirements of the Asian Development Bank (March 1998)*, and liaise with the national environmental authorities and all relevant district and nongovernment agencies and individuals to incorporate their views into the feasibility study. Help prepare required documentation for the UNTAET environmental clearance, if any, of the feasibility study and in organizing meetings to consult the affected people and interested organizations, and incorporate environmental considerations in the feasibility study and a summary initial environmental examination and/or an environmental impact assessment as a stand-alone document.
- (l) Devise a program for, and undertake beneficiary consultations to, develop a consultation mechanism, and help implement beneficiary consultations to enable consideration of views of the various interest groups surrounding the works program.
- (m) Conduct a social assessment for the feasibility study in accordance with *ADB Guidelines for Incorporation of Social Dimensions in Bank Operations*, identifying the road users, and those who will benefit from the project, including their socioeconomic profiles, needs and demands, livelihood, income, education, utilization of transportation and expenses incurred, and alternative means of transportation. Assess the needs of the target client groups for the roads/road transport services in relation to their other needs (hospitals, schools, livelihood opportunities), as well as those that complement the project proposal (agricultural extension services, access to communities, water supply systems, health clinics, and schools) and the problems with the current transportation conditions. Determine the preferred improvements and willingness of the users to pay for the treatments/improvements suggested under the feasibility study. Organize and ensure that participatory practices are implemented

enabling all stakeholder groups to review and have an impact on the proposed programs.

- (n) Prepare a poverty reduction impact analysis of the TA and the ensuing project complying with ADB's relevant guidelines, and advise the team of consultants on modalities that can be adopted to target expansion of employment opportunities and poverty reduction.
- (o) Assess the capacity of sector institutions to manage the project, contract administration, and prepare alternative implementation arrangements, as required including project implementation, financial management, and coordination between the investment proposals, UNTAET, East Timorese civil society, and aid agencies.
- (p) Develop performance indicators for the proposed projects and their components, separating outputs, expected impacts, and indicators with preliminary baseline data and target indicators to be reached through implementation of the project.

B. Reports

7. The consultant will submit the following reports in English to UNTAET (five copies) and ADB (four copies). The consultant will organize a minimum of four tripartite meetings for considering inception, midterm, and draft final reports, and TA status, progress, and direction. In connection with these meetings, consultation meetings with aid agencies will be arranged. The consultants will prepare and circulate minutes of these meetings, and incorporate comments in the TA reports and activities, as appropriate.

8. **Inception Report.** This brief report will be submitted within four weeks of the start of the TA. It will outline, in accordance with the terms of reference, the consultants' approach, methodology, and work plan, as well as cost implications for consulting services. The report will provide a bar chart of all activities under the TA, and recommend changes to the implementation arrangements, and a list of equipment to be procured for both the feasibility study and the preparation of an operational maintenance regime.

9. **Monthly Progress Reports.** These brief reports will inform UNTAET and ADB of TA achievements, identify emerging difficulties in the TA implementation, if any, outlining proposed solutions. The reports will provide, in clear graphic presentations, the status of the TA, TA performance, and the personnel schedule and accomplishments under each item of the terms of reference, as well as plans for the next months' work. These reports will adopt a uniform format facilitating TA monitoring and will update the bar chart on all activities under TA.

10. **Draft Final Report.** This report will be submitted on completion of the TA. It will summarize the TA activities and recommendations. It will provide recommendations on each item under the terms of reference in detail with action plans.

11. **Final Report.** This report will be submitted by the consultants one month after receipt of the comments on the draft final report from ADB and the Government.