

**REPORT  
ON A  
PROJECT GRANT  
FROM THE TRUST FUND FOR EAST TIMOR  
(TO BE ADMINISTERED BY THE ASIAN DEVELOPMENT BANK)  
TO THE  
UNITED NATIONS TRANSITIONAL ADMINISTRATION IN EAST TIMOR  
(FOR THE BENEFIT OF EAST TIMOR)  
FOR THE  
EMERGENCY INFRASTRUCTURE REHABILITATION PROJECT**

April 2000

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## ABBREVIATIONS

ADB	–	Asian Development Bank
DTW	–	department of transport and works
GDP	–	gross domestic product
IDA	–	International Development Association
IMF	–	International Monetary Fund
Interfet	–	International Force for East Timor
JAM	–	joint assessment mission
NGO	–	nongovernment organization
PMU	–	project management unit
TA	–	technical assistance
TFET	–	Trust Fund for East Timor
UN	–	United Nations
UNDP	–	United Nations Development Programme
UNHCR	–	United Nations High Commissioner for Refugees
UNPKF	–	United Nations Peacekeeping Force
UNTAET	–	United Nations Transitional Administration in East Timor
WFP	–	World Food Programme

## WEIGHTS AND MEASURES

km (kilometers)	–	1,000 meters
kW (kilowatt)	–	1,000 watts
m (meters)	–	unit of length
MW (megawatt)	–	1,000,000 watts

## NOTES

- (i) The fiscal year of UNTAET is from 1 August to 31 July.
- (ii) In this report, “\$” refers to US dollars.

**EAST TIMOR  
EMERGENCY INFRASTRUCTURE REHABILITATION PROJECT  
SUMMARY**

**Project Rationale**

East Timor's transport and power infrastructure has been severely damaged due to conflict and is unable to facilitate humanitarian relief efforts or security operations. The roads have been damaged in many locations and can only carry very small loads. Humanitarian aid and military vehicles have been lost in river crossings and one person died on a steep and weak embankment. Food aid is flown in at the cost of \$1,000 per ton. Because of Dili Port's extremely limited capacity, it has become a bottleneck to channelling humanitarian aid to the population. Power supply is needed to facilitate water supply and is essential to health services, but most of the power stations are unoperational due to damage and because operating staff and fuel are lacking. Restoration of power supply will enable operation of borehole water pumps, provision of emergency health care, and resumption of economic activities.

**Beneficiary**

East Timor.

**Project Description**

The Project will (i) undertake emergency road repair works to facilitate efficient transport of humanitarian aid and help revive economic activity; (ii) expand the port facilities to reduce congestion, and (iii) reinstate power supply. The Project will also support financial management of the power sector, and implementation of transport sector institutions. The closely related ADB technical assistance (TA) 3401: Transport Sector Restoration Project will help establish management of the transport subsectors and support, in tandem with the Project, implementation of efficient management mechanisms and institutions.

The Project has been classified as environmental category B. An initial environmental examination was undertaken, and its summary is a core appendix.

The immediate benefits of the Project include facilitating the (i) provision of food supplies to famine stricken areas, (ii) provision of agricultural supplies to enable cultivation, (iii) resettlement of internally displaced persons and refugees, and (iv) movement of the United Nations Peacekeeping Forces. The Project will employ people especially in rural areas, where poverty is extreme and most people do not have income-generating opportunities. The use of local labor will stimulate the economy and thus help the reconstruction of the communities.

The beneficiaries of the power component are primarily the urban and semiurban population. The reinstatement of power supply will make possible provision of essential services such as water supply, hospitals, schools, commercial establishments, and industries.

<b>Executing Agency</b>	The United Nations Transitional Administration in East Timor will be the recipient of the grant. The Project will be executed and implemented by a project management unit (PMU), comprising five East Timorese project management staff and five international counterparts including a chief technical adviser. A project steering committee involving broad stakeholder representation will monitor implementation.
<b>Cost Estimates and Financing Plan</b>	The total Project cost is estimated at \$29.8 million equivalent. The Project will be financed by a grant of \$29.8 million from the Trust Fund for East Timor (TFET). These funds have been contributed by donors and do not include resources from the Asian Development Bank (ADB). The International Development Association of the World Bank Group is the Trustee of TFET.
<b>Period of Utilization</b>	Until 31 December 2002.
<b>Estimated Project Completion Date</b>	31 May 2002.
<b>Procurement of Goods and Services</b>	<p>Civil works will be awarded on the basis of international shopping and international competitive bidding in accordance with ADB's <i>Guidelines on Procurement</i>. International contractors are encouraged to include joint-venture arrangements with local contractors and will utilize labor-intensive methodologies. Eligibility for procurement and engagement of consultants will include ADB member countries, East Timor, and all donors and members of international organizations that have contributed to the TFET.</p> <p>International consulting services will be required for the PMU and construction supervision. The consultants will be selected in accordance with ADB's <i>Guidelines on the Use of Consultants</i> and other arrangements satisfactory to ADB for the engagement of domestic consultants.</p>

124°30'E

126°30'E

# EAST TIMOR EMERGENCY INFRASTRUCTURE REHABILITATION PROJECT



## I. THE PROPOSAL

1. I submit for your information the following report on a project grant to the United Nations Transitional Administration in East Timor (UNTAET) for the benefit of East Timor from the Trust Fund for East Timor (TFET) for the Emergency Infrastructure Rehabilitation Project.<sup>1</sup> The Project framework is in Appendix 1.

## II. INTRODUCTION

2. The UNTAET has requested the Asian Development Bank (ADB) to prepare emergency assistance to rehabilitate the damaged infrastructure for early restoration of normal socioeconomic activities. An ADB appraisal mission<sup>2</sup> visited East Timor from 7 to 18 February 2000 and prepared the Emergency Infrastructure Rehabilitation Project with the authorized UNTAET representatives. The agreements reached were confirmed in a memorandum of understanding. Funding for the Project will be drawn from the TFET, which is established under the trusteeship of the International Development Association (IDA) of the World Bank Group. The TFET does not include ADB's own resources. The Project has been prepared in accordance with Doc. R74-00: Joint Management Arrangements for the Trust Fund for East Timor, approved by the Board on 23 March 2000, and also in accordance with ADB's policies and procedures for rehabilitation assistance after disasters (Doc. R191-88, Rev. 1, Final), including disasters caused by civil strife. Doc. R191-88 specifically allows for shortened processing procedures and flexibility in implementation arrangements for such assistance. Negotiations of the Grant Agreement for the Project were completed with the UNTAET on 29 March in the field.

## III. BACKGROUND

### A. Description of Damage

3. In the democratic consultation of 30 August 1999, the people of East Timor voted overwhelmingly for independence. During the following month, East Timor experienced a campaign of destruction and terror, during which three quarters of the population fled their homes and most of the country's infrastructure and private homes were destroyed. In the western half of the territory and the highland areas, all property of value were removed, burned, or destroyed, including residential and public buildings, utilities, telecommunications facilities, inventories of essential food, and agriculture stocks. The eastern half experienced similar attacks with an estimated 75 percent of residential buildings destroyed. East Timor remains only partially inhabited. Refugees are gradually returning from West Timor and the forest, with the support of humanitarian relief coordinated by the Office for Coordination of Humanitarian Affairs (OCHA). Consequent to the postconsultation destruction, all administrative structures are dysfunctional. This includes public offices tasked to manage the infrastructure sectors. All public documentation and premises have been destroyed.

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<sup>1</sup> The Project first appeared in *ADB Business Opportunities* in January 2000.

<sup>2</sup> The mission comprised S. Jarvenpaa, Project Economist (Mission Leader); E. Ouano, Sr. Environmental Specialist; M. Carr, Road Engineer/Consultant; M. Lewis, Energy Engineer/Consultant; E. To, United Nations Development Programme Infrastructure Specialist; K. Lonngren, Energy Adviser, Ministry of Foreign Affairs, Finland; E. da Silva, Counterpart Team Leader; J. Alves, Counterpart Road Engineer; V. Gutierrez, Counterpart Power Specialist; and F. Gutierrez, Counterpart Port Specialist.

## **B. Response to Crisis**

### **1. UNTAET Organization**

4. Under a resolution of the Security Council of the United Nations (UN), the UNTAET was established with powers to (i) ensure stability, (ii) establish a transitional government, and (iii) establish the judiciary, laws, and policies. The UNTAET will administer East Timor for 2-3 years, when general elections are planned. The UNTAET is headed by an administrator and comprises three sections: (i) humanitarian assistance, (ii) public administration and governance, and (iii) the United Nations Peacekeeping Force (UNPKF). Each section is headed by a deputy special representative of the Secretary General (DSRSG). Management of infrastructure sectors is a responsibility of the head of infrastructure, who is a UNTAET staff member under the public administration and governance section, and is supported by a staff person responsible for telecommunications, postal services, electricity, water and sanitation, transport and roads, port management, and civil aviation. The UNTAET's organization chart is in Appendix 2. The UNTAET's recurrent budget is drawn from its trust fund using UN disbursement guidelines. For the first quarter of 2000, transport has been allocated a recurrent budget of \$390,000 and electricity, \$825,000. The allocations will be reassessed for the next quarter. Under the UN disbursement guidelines, the allocations will be used for salaries of East Timorese employees and recurrent consumables such as fuel. The UNTAET's financial administration will be strengthened with International Monetary Fund (IMF) technical assistance (TA). The UNTAET's financial year runs from 1 August to 31 July. The National Consultative Council (NCC) comprising representatives of the UNTAET, East Timorese civil society, and Catholic church, coordinates UNTAET activities with East Timor civil society. Currently, the UNTAET chairs sector committees to coordinate sector activities among donors, UN agencies, and nongovernment organizations (NGOs).

5. The capital development budget, to be drawn from the TFET, was assessed by a World Bank-coordinated and multiagency joint assessment mission (JAM) in October-November 1999. The JAM identified needs for TA and investment projects in consultation with the National Council for East Timorese Resistance (CNRT), World Bank, and UNTAET, United Nations Development Programme (UNDP), and the International Force for East Timor (Interfet). During the JAM, ADB reviewed transport sector restoration and development requirements in the short term (1-2 years) and medium term (2-3 years).

### **2. Impact of Crisis on Poverty**

6. In 1996, when East Timor was part of Indonesia, its gross domestic product (GDP) per capita income was \$431. The Indonesian national average was \$1,153. As a result of the 1997 Asian crisis, GDP in Indonesia including East Timor declined as the devaluation of the Indonesian rupiah and high interest rates dampened economic activities throughout Southeast Asia. Indonesia was the country hit hardest by the Asian crisis, and poverty increased. However, the decline in East Timor's GDP was more pronounced due to its dependence on Indonesian central government grants, which financed up to 85 percent of the current and capital expenditure. Between 1997 and the 1999 referendum, the East Timorese GDP was estimated to have contracted by 25 percent as a result of the Asian financial crisis. In 1996, 30 percent of the households were living in poverty—double the national average in Indonesia. The number of households living below the poverty line rose to an estimated 50-60 percent as the result of the Asian crisis.

7. On 4 September 1999, the results of the democratic referendum were announced to favor independence. The ensuing violence resulted in extensive damage to private and public buildings, their contents, and basic infrastructure. About 75 percent of the infrastructure was destroyed and GDP declined to half or less of its previous level. About 175,000 people were displaced out of East Timor and reduced to acute poverty in refugee camps. Another 200,000 people were displaced within East Timor. More than 50 percent of the total population were dislocated by the violence. Although an estimated 118,000 people have returned to their villages, a large portion of the population faces starvation as their crops, seeds, and other means of livelihood were destroyed. The international community, specifically through the World Food Programme (WFP), has been distributing food and seeds. Even the small East Timorese middle and upper income groups were not spared from poverty as banks and their records were burned. The banking sector in East Timor was exclusively serviced by Indonesian banks, and only three have plans to reopen and possibly settle depositors' claims. Up to 80 percent of the East Timorese could be living below the poverty line and a large portion are facing starvation. However, the food stability would improve if agriculture recovers as expected this year. WFP estimates that by the end of the year 2000, a considerable portion of the population will no longer be at risk of starvation, and WFP will then be able to scale down its intervention.

8. The savings rates of families who find employment in the reconstruction activities, or those able to harvest crops in 2000, are expected to be very low for the next five years. A considerable portion of these incomes will be used for rebuilding residences, replacing their contents, and rebuilding livelihoods. The current living conditions are extremely poor, aggravated by a very high level of unemployment. The population is surviving on day-to-day access to nourishment. Burned houses are temporarily rebuilt using plastic sheets, tenting materials, and scraps. While reconstruction activities are expected to generate employment, the neglect of basic infrastructure such as roads, bridges, ports, and power supply facilities has increased the cost of moving goods and services within the country. For example, travel from Dili to Ainaro now costs \$4.30 compared to \$0.70 a year ago. Food prices increased by as much as 200 percent during the two months of the violence. These have since declined due to intervention from the international community. While the risk of starvation is being overcome, infrastructure bottlenecks hamper the aid delivery and economic recovery.

### **3. Restoration Programs**

9. In response to the crisis, the United Nations Mission in East Timor (UNAMET) established emergency services and humanitarian assistance of the UN and bilateral agencies. The Office for Coordination of Humanitarian Affairs' short-term needs assessment, the Consolidated Appeal, identified immediate humanitarian needs for the first three months from December 1999 to March 2000 in the amount of \$199 million. These do not include restoration of the infrastructure.

10. To plan for the urgent medium-term rehabilitation in a coordinated manner, ADB joined the JAM in October-November 1999. A concurrent IMF mission assessed the macroeconomic parameters and prepared an initial macroeconomic framework. As a result, ADB and the World Bank have agreed to work together to assist the East Timorese people and UNTAET in the reconstruction and socioeconomic development of the country. In particular, during the Tokyo donors' conference of 17 December 1999, representatives of the two institutions and other donors have endorsed the cooperative use of grant resources from the TFET. ADB is to be the lead agency for restoring the infrastructure sector including the

transport, energy, telecommunications, and water and sanitation. ADB's Board has approved delegated approval of project proposals by ADB's Management, expanded eligibility under ADB's procurement guidelines, disbursement procedures in accordance with ADB's disbursement guidelines, and the establishment of grant agreements of projects funded under the TFET.<sup>3</sup>

11. Concurrently with the JAM, UNDP commissioned a short-term needs assessment in the infrastructure sectors covering, inter alia, roads, ports, and energy. UNDP does not, however, have the resources to address the identified emergency infrastructure rehabilitation requirements. Subsequently, UNDP has endorsed ADB's lead-agency mandate in the infrastructure sectors and in preparing the Project.

12. The ADB-funded TA 3401: Transport Sector Restoration Project<sup>4</sup> will implement ADB's first intervention in the three transport subsectors by taking steps to establish the institutions and regulatory frameworks in the road, port, and airport subsectors, and by reviewing the long-term development requirements to enable these subsectors to contribute to poverty reduction and economic growth. The Project will be integrated with this process. In the power subsector, Portugal will assist the UNTAET to establish a power utility and the Project will support development of financial management. ADB has undertaken port and airport subsector pricing studies that advise the UNTAET on immediately implementable user charges. A similar study will be conducted in the power subsector in March 2000.

### **C. Transport Subsector Description**

13. The transport system in East Timor is multimodal, comprising about 8,000 kilometers (km) of roads, 1,400 km being major arteries; one container port, three smaller wharves, small jetties, and landings; and two international airports and eight grass airstrips. The past demand for the transport system in East Timor has been that of a provincial economy. Internal traffic in East Timor depends on land transport. The domestic maritime transport is currently limited and has potential for growth. Infrastructure has been constructed under Indonesian central government budget. Only limited, if any, maintenance has been carried out. While there is no evidence of physical damage to the transport infrastructure, the postreferendum violence resulted in the removal and destruction of all transport-related property, including equipment and vehicles. Infrastructure has also suffered from a long-term lack of maintenance.

#### **1. Roads**

##### **a. Description**

14. East Timor is 265 km long and 92 km wide, with a central mountain spine closer to the northern than to the southern coast. The highland is typically precipitous, but rarely exceeds 3,000 meters (m). The predominant geology in the highland area is lightly consolidated sedimentary materials overlying limestone. The island lies wholly within the equatorial region, and receives monsoon rainfall from November to April, averaging 2,500 millimeter per year.

<sup>3</sup> R74-00: *Joint Management Arrangements for the Trust Fund for East Timor*, 23 March. An arrangement for the TFET and an expansion of eligibility under ADB's procurement and engagement of consultant guidelines to include member countries, East Timor, and all donor and member of international organizations that have provided contribution funds to the TFET.

<sup>4</sup> TA 3401-ETM: *Transport Sector Restoration*, for \$1,000,000, approved on 10 February 2000.

The rest of the year is hot and dry. Vegetation is tropical savannah with medium to light tree cover. Coffee is grown and cattle are reared in parts of the central highlands. The southern coastal plain is suited to rice and wheat production, but is not developed.

15. 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 of them sealed. All roads have suffered from long-term neglect of maintenance. The main centers of population, including the capital, Dili, are on the north coast, and are connected by the county's principal roads. The condition of the southern coastal road varies greatly: some sections are paved and are in good condition, while others are little more than tracks. The route crosses a number of large braided rivers by a combination of bridges and causeways. These causeways are vulnerable to the natural realignment of the waterways, and two major bridges, Punta Cassa and Zumala, are incomplete. Five national and provincial north-south roads, all showing severe signs of neglect, provide vehicular access to the south coast. During the dry season, the riverbeds are exposed and are inappropriate for inland river travel. During the rainy season, rivers cut the roads and interrupt the transport system. The road drainage needs immediate clearance and restoration. In all towns, the road drainage needs to be cleared to avoid disruptive flooding. The roads have narrow carriageways of about 3 m, steep banks with poor stability, and poor pavement surfaces and drainage. An inventory of the road network and bridges is in Appendix 3.

16. Present road usage is dominated by Interfet, the UN military, and by aid agencies' vehicles, in particular by those of the United Nations High Commissioner for Refugees (UNHCR) and WFP. This will continue in the foreseeable future. This usage exposes the roads to relatively heavy loads, which has exacerbated widespread pavement damage. In addition, tracked military vehicles have damaged road surfaces in some places. Much of the road network has deteriorated significantly due to lack of maintenance and an upsurge in traffic. During the rains that commenced in November 1999, some roads became impassable, and others dangerous and difficult to use. Humanitarian aid can also be delivered through coastal shipping and to beaches, and by air. However, these modes are more expensive than land transport and the onward distribution relies on part of the road network.

17. The road network is fragile. It has been constructed for low traffic volumes and light axle loadings. It traverses steep and unstable mountain slopes, experiences intense tropical rainfall, and crosses many wide rivers with ill-defined riverbeds. Under normal conditions, the network would require a moderately high level of maintenance. Under current conditions, the roads are rapidly deteriorating. Interfet was able to maintain the road access it requires, but the expedient nature of such works means that the improvements are frequently transitory and of little benefit to other users. Interfet has maintained key parts of the road network to give access to civilian vehicles—particularly on sections of the northern east-west road. Since January 2000, Interfet has handed security operations to UNPKF. UNPKF will have a reduced capacity to maintain roads in future.

18. About half of the road network is paved. This represents an extremely valuable national asset. Given the foreseeable economic circumstances for the country, an extensively paved national road network could be an irreplaceable national asset that could be irreparably damaged if regular maintenance is not instituted as a matter of urgency. Road conditions are given in Appendix 4.

## **b. Medium- to Long-Term Sector Development**

19. A 12-month emergency works program for keeping the roads open has been outlined in a UNDP-funded short-term study. The works were estimated to cost \$15 million. The identified works include repair of road bank slips, slides, and potholes, and embankment strengthening. UNDP is funding labor-based drainage clearance with \$0.5 million from the Government of Norway. The Government of United Kingdom will fund \$1.6 million of these needs through its Department for International Development. Both programs are highly labor-intensive and will end in April 2000.

20. ADB-funded TA for transport restoration (footnote 4) will prepare a comprehensive transport sector plan. This will focus on establishing an efficient and effective multimodal transport system to support long-term development and growth in East Timor. The plan will outline and initiate establishment of efficient institutions in the transport subsectors. In developing these, the proposals and implementation mechanisms will pay particular attention to private sector involvement and to the infrastructure requirements of the poor. Specifically, the TA will (i) review the legal, regulatory, and policy frameworks; (ii) propose and establish immediate management and administrative structures; and (iii) outline specifications for immediate and long-term restoration needs and development. The TA includes development of management contracts for airports and ports to integrate efficient sector operations, and cost recovery development. It will also prepare a road sector management system integrating the strengthening and training activities under the Project with long-term sector development needs.

## **c. Subsector Management**

21. The UNTAET's current sector management involves four people: the head of infrastructure, a roads engineer, a port manager, and an aviation official. A department of transport and works (DTW), with headquarters in Dili, is proposed to be established to manage the transport system covering all subsectors. The DTW would be set up during the UNTAET tenure, for transport infrastructure management and to concurrently facilitate long-term sector development and capacity building. The DTW's structure will incorporate the principles of private sector participation, development of a maintenance culture, human resources development, and competition. An objective is to gradually develop East Timorese capacity to manage, and improve the transport infrastructure assets to facilitate economic development and growth. The DTW's administrative structure will aim to institute a road asset management and maintenance system that establishes local capacity to manage transport needs for economic development. The DTW will have four major divisions: (i) a transport division to assume regulatory and policy responsibilities for the three modal subsectors, (ii) a planning and design division, (iii) an operations division, and (iv) a finance division. Consultant support to the UNTAET will be provided under the ADB-funded TA for transport restoration, to initiate establishment of the DTW. The project management unit will become the nucleus of the new administration. A total of 115 staff members are required in the first year, including a maximum of 21 foreign staff. The number of foreign staff will 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 coupled with East Timorese counterparts. An organization chart of the planned DTW is in Appendix 5.

## **2. Ports**

### **a. Subsector Description**

22. The maritime infrastructure includes Dili Port; Carabela Port in Laleia with a mechanical roll-on roll-off facility; Com Port; smaller wharves in Oecusse and Liquica; and slip landing structures and sites in Dili, Batugade, Oecusse, and Suai. While the port structures have not been damaged by the postconsultation destruction, all equipment were destroyed. Few navigation aids exist, and these are now in operation. There are no established cargo handling systems or cargo handling equipment, save an inoperable crane on wheels. Shippers make their own arrangements with two Australian private sector cargo-handlers, who bring their own equipment. At all the ports, all vessels need to be self-sufficient with lifting gear. Other than at Dili Port and cargo landings at Suai, the wharves are used only to a very limited extent; some not at all. The use of port facilities outside of Dili is constrained by narrow roads and poor road conditions.

23. Given the large cargo volumes and the physical constraints, Dili Port is under pressure and highly congested. Commercial vessels have experienced long turn-around times. This congestion hampers timely delivery of relief and security goods to East Timor. It also increases the cost of humanitarian aid, and has led to acute shortage of food and other relief material in the rural areas, where returning refugees are left with minimal support.

#### **i. Operations at Dili Port**

24. The wharf at Dili Port is 180 m long and 20 m wide, has a draft of 7.2 m, and has the capacity to handle 7,000 tons. Demand for port services and infrastructure has dramatically increased since the consultation as a result of the humanitarian and security activities. The berths at Dili Port have a queue time ranging from 9 to 12 days. Ships are turned around in 12-24 hours. There are no detailed data on the cargo volumes handled by the port. Commercial cargo accounts for 70 percent of the current total volume, and includes humanitarian aid, business cargo, and used vehicles. Military and peacekeeping cargo is dominated by food rations. Under a letter of assistance, Interfet will continue to handle UNPKF military cargo until the end of UNPKF's mandate in East Timor. The current volumes exceed the port's capacity, and over the next two months, the cargo volumes will further surge temporarily as Interfet exports its equipment and hands over the security control to the UNPKF.

25. Two Australian cargo-handling companies operate at Dili Port. Additionally, Interfet and aid agencies carry out their own stevedoring. A temporary barge has been attached to the western end of the berth to alleviate pressure on the berth space. Interfet resides currently in the storage facilities within Dili Port, and is scheduled to vacate these facilities gradually by 30 June 2000. By 1 April 2000, Interfet and UNTAET will determine how to continue the leases for equipment currently leased. The JAM recommends that the UNTAET continue leases for the 25 ton forklift truck and the temporary barge. The UNTAET could then sublease the forklift truck to commercial operators on a cost recovery basis until cargo volumes have stabilized. The barge will provide additional space for cargo handling operations until the third berth is constructed.

## **ii. Suai Beach Landing**

26. Because the road network is in poor condition, relief goods are also being unloaded from barges in Suai. Interfet's unloading equipment was removed when Interfet departed on 23 February. However, as humanitarian relief cargo will continue to be unloaded at Suai until the end of 2000, additional cargo-handling equipment is needed in Suai under the Project. This equipment will be under the control of the UNPKF until the planned DTW can assume responsibility for it.

## **b. Demand for Port Services**

27. While meaningful trade data are missing, Dili's importance is clear. Most international trade enters East Timor through Dili Port, and the infrastructure in Dili is far more extensive than at any of the other port sites. While beach landing sites are currently used for the delivery of military supplies and reconstruction materials, the future demand for port facilities outside of Dili, Oecusse, and Com is in considerable doubt, and the port revenues are likely to be limited to Dili Port. Past trade data demonstrates that most exports are agricultural (coffee) and most imports are food and construction materials. The number of trading ships visiting Dili Port during the preconsultation period ranged from 170 to 270 vessels per year. The current shortages of commodities, especially rice, suggest considerable volatility in these volumes. No formal statistics have been kept on vessel movements through Dili Port since the consultation. Past cargo data and a reasonably comprehensive list of the current main movements at the Port are summarized in Appendix 6.

### **i. UNTAET Cargo**

28. While the UNTAET has not estimated its future cargo volumes, logistics support of the UNTAET's operations will dominate total cargo over the next 2-3 years. Although in the short run the replacement of Interfet with the UNPKF will cause a surge in exported and imported cargoes, this is unlikely to affect the volumes on a sustained basis. Force reductions are likely to occur in June 2000, with similar reductions taking place every 4-6 months thereafter.

### **ii. Food and Medical Cargoes**

29. The total shipments of food aid during March-June 2000 are estimated to rise to 50,000 tons, but thereafter will likely settle to 30,000-40,000 tons per annum. Medical aid cargoes currently fill 5-10 containers per week, and are likely to continue for the next 2-3 years, and possibly longer.

### **iii. Construction Materials**

30. UNHCR anticipates shipping approximately 500 housing units every two weeks through Dili Port over the next three months, and an additional 1,000 units through other ports and beaches, each unit with a mass of about 1.5 tons. The International Red Cross will ship 5,500 housing units (excluding cement) over the next 12 months, while World Vision will import 10,000 packs of roof sheltering and timber in the second quarter of this year. Other NGOs have smaller housing programs that will also generate import volumes. The United Nations Children's Fund (UNICEF) has building and water programs that generate modest amounts of

construction cargoes, including about 5 containers per month, plus 100-150 cubic meters of loose construction materials.

#### **iv. Commercial Cargoes**

31. While it is extremely difficult to estimate commercial imports, the large demand for construction materials needs to be recognized. Apart from the large influx of vehicles for the UNTAET, demand for imported motor vehicles, mostly second hand, has recently surged and is estimated at 100-200 vehicles per month, with the likelihood of significant future growth.

#### **c. Long-Term Subsector Development**

32. ADB-funded TA (footnote 4) will (i) prepare port traffic forecasts; (ii) undertake long-term port subsector planning, including development of a port and maritime master plan and preparation of related feasibility documentation; (iii) prepare an operational management contract for port subsector operations; (iv) recommend modalities for service provision contracts; (v) prepare applications for joining international subsector organizations; (vi) identify potential partnership arrangements; (vii) recommend efficient cargo handling services at the ports; (viii) review needs related to hydrographic charting, navigational aids, search and rescue, emergency oil spill response, and other maritime safety operations; and (ix) develop recommendations for establishment of a maritime authority.

#### **d. Port Management and Cost Recovery**

33. Interfet manages the port sector. It will implement minor civil works to facilitate its operations. These include demolishing sheds on the western end of the wharf to provide access to a newly developed private gravel-surfaced container yard. Interfet's tenure in the management of the subsector expired on 28 February. Between now and June 2000, Interfet will gradually move out of the port facilities. The UNTAET has appointed a Portuguese-funded harbor master who will manage the port in the interim together with the UNTAET port manager until a management contract is in place. ADB-funded TA (footnote 4) will prepare a management contract to facilitate East Timorese management of the subsector and to establish a port authority. This management contract will be tendered in April 2000. The tendered management contract will be financed from UNTAET's trust fund and port charges.

34. ADB is conducting a port pricing study that will prepare a detailed analysis of the marginal costs of the port sector and develop a port tariff for immediate implementation. The recommendations of the study will be available in late March 2000. In the interim, the port manager has developed a set of provisional tariffs based on comparisons with other regional ports, and a provisional staffing structure for the port. The implications of these for the level of cost recovery in the port will be examined and administrative collection mechanisms will be developed in detail under ADB's intervention. The practicalities of implementation have also been discussed in some detail. The principles governing the recommendations are to (i) minimize the risk of facilitation payments and illegal transfer of funds, and (ii) avoid revenue collection hindering vessel and cargo movements.

### **3. Energy**

#### **a. Subsector Description**

35. East Timor has 57 electricity generating stations. All electricity generation has been produced by diesel engines operating on light diesel fuel. The installed capacity in the stations ranged (prior to the postconsultation destruction) from 25 kilowatts (kW) to approximately 16,000 kW. Most of the total generation capacity, approximately 24 megawatts (MW), is provided by the two power stations serving Dili. The distribution system consists of approximately 700 km of 20 kilovolt lines for transmission, and about 700 km of 230/400 volt distribution lines. The peak demand prior to August 1999 was about 32 MW. The load factor for most generating stations was very low (about 10-20 percent). The system facilities have been correctly installed, but the maintenance of the stations and network has been of a low standard.

36. The power system was heavily damaged during the post consultation destruction. Most generating station equipment and powerhouse structures were damaged and most of the control panels, fuel systems, and wiring were destroyed by fire. Many auxiliary items, such as batteries and starter motors, were removed. Of the 57 stations, 21 have been returned to operation under bilateral assistance from the Government of United Kingdom. Smaller single- unit stations are now able to produce a high percentage of their installed capacity, while other larger multiple unit stations are reduced to a single-unit operation. The Comoro station in Dili, serving most of the Dili area load, has been returned to a capacity of 7-8 MW operation. Although this station was not damaged, poor maintenance has severely reduced its reliability and operation. Many regional centers remain without power or receive significantly reduced supply. Oecusse Enclave of East Timor has had no central generation since the popular consultation.

37. The distribution network suffered considerable damage to the low-voltage system when homes and buildings adjacent to the overhead lines were burned. Lack of maintenance has reduced the network's reliability significantly. Most service connections have been burned and many are now hanging free from the distribution lines, presenting a danger to people and preventing the restoration effort. Many of the system transformers were drained of insulating fluid. These cannot be returned to service until they are refilled.

#### **b. Subsector Management**

38. The power subsector suffers from acute shortage of trained personnel at all levels and poses a severe difficulty to restoring the proper operation of the electrical system. In particular, there is a lack of experienced operators at all power stations, including linemen, diesel mechanics, and technicians. A shell for an operating utility company has been formed in Dili, but does not have experienced management personnel.

39. Under a contract with UNDP funded from the TFET, Electricity of Portugal will develop the power sector institution and provide the related managerial and technical training. Under the Project, support will be provided to develop financial management, i.e., billing and collection systems, financial accounts and recording, audit, financial planning, budgeting, and bookkeeping of the power subsector institution.

40. In light of ADB's lead agency role in the sector, support for preparing a long-term development plan is proposed for funding from ADB's TA program. This would cover generation expansion, transmission and distribution augmentation, and related action over a 20-year time frame. Terms of reference for the study will be sent for the UNTAET endorsement.

#### **D. External Assistance and Donor Coordination**

41. The Project is fully coordinated with donors involved in the overall emergency restoration support for East Timor and in particular with the donors and partners who are assisting emergency programs in the three sectors under the Project. These include UNDP and the Department for International Development, which implement bilateral labor-based road repair work. The Japan International Cooperation Agency (JICA) is currently implementing a study on urgent rehabilitation in East Timor under an agreement with the UNTAET dated 12 January 2000. The estimated cost of the study is \$2.5 million and includes a pilot project for road repair on the Dili-Aileu section. An inception report was prepared in late February and the final report will be completed in August 2000. The objective of the study is to urgently prepare rehabilitation plan for roads, bridges, ports, irrigation, and power in East Timor. The Project is prepared so that it can be adjusted to accommodate works under additional funding from Japan or other donors, and complementary assistance from JICA would address irrigation and bridge rehabilitation.

42. Electricity of Portugal will implement \$1.0 million of TFET funds in the power subsector. This support will focus on developing a power entity, training staff resources, and rehabilitating 1-2 power stations. The Project will continue the works that have been initiated by programs of other donors and are yet to be completed. Appendix 7 lists ongoing projects.

### **IV. THE REHABILITATION ASSISTANCE**

#### **A. Rationale**

43. UNTAET is implementing a program of humanitarian assistance in East Timor. The primary objective of rehabilitating the transport and power infrastructure is to provide the East Timorese with access to this humanitarian relief and to facilitate peace and security.

#### **B. Objectives**

44. The Project will (i) undertake emergency road repair works to facilitate efficient transport of humanitarian aid and security cargo, and to induce revival of economic activity; (ii) expand the capacity of port facilities to reduce congestion as soon as possible; and (iii) reinstate power supply. Despite the apparent emergency nature of the Project, in fact the Project also supports long-term sector development with civil works, strengthening of the local contracting industry, instituting operation and maintenance systems, and capacity building for sector management.

#### **C. Scope**

45. The scope of the Project includes the following components:

- (i) road rehabilitation, including (a) road repair, (b) equipment for road repair works, (c) labor-based road and causeway restoration, and (d) rehabilitation and reinstatement of bridges and depot facilities;
- (ii) port rehabilitation, including (a) wharf extension at Dili Port; (b) restoration of the landing craft slipway at Dili Port; (c) restoration of the container yard at Dili Port; (d) provision of beach matting at Beacu, Betano, and Suai; (e) port repairs; and (f) equipment for landing of goods;
- (iii) power sector rehabilitation, including (a) rehabilitation of 15 power stations, (b) rehabilitation and reinstatement of distribution lines, (c) restoration of communications between Dili and power stations, (d) replacement of destroyed Comoro power station switchgear, and (e) support to financial sector management; and
- (iv) a project management unit.

#### D. Cost Estimates

46. The total cost of the Project is estimated at \$29.8 million. The estimated costs of the components are summarized in Table 1. Detailed cost estimates are in Appendix 8.

**Table 1: Cost Estimates and Financing Plan**

Description	(\$ million)			Total Cost
	15 May-31 Jul	1 Aug-31 Dec	1 Jan 2001-15 Dec 2002	
<b>Base Costs</b>				
1. Emergency Port Rehabilitation	0.66	1.40	0.0	2.06
2. Emergency Road Rehabilitation <sup>a</sup>	2.50	3.24	14.81	20.55
3. Emergency Power Rehabilitation	0.96	1.28	0.53	2.77
4. Project Management Unit	0.32	0.64	2.10	3.05
<b>Subtotal A</b>	<b>4.44</b>	<b>6.55</b>	<b>17.43</b>	<b>28.42</b>
<b>Contingencies<sup>b</sup></b>				
1. Physical Contingency	0.12	0.25	0.81	<b>1.18</b>
2. Price Contingency	0.02	0.03	0.11	<b>0.16</b>
<b>Subtotal B</b>	<b>0.14</b>	<b>0.28</b>	<b>0.92</b>	<b>1.34</b>
<b>Total</b>	<b>4.58</b>	<b>6.83</b>	<b>18.35</b>	<b>29.76</b>

<sup>a</sup> Physical (15 percent) and price (2 percent) contingencies are included

<sup>b</sup> Contingencies exclude physical and price contingencies on the road rehabilitation.

Source: Staff estimates.

#### E. Financing Plan

47. The total cost of the Project will be financed on a grant basis by the TFET. Contributions to the TFET do not include ADB resources. The Project financing needs to be sensitive to the TFET's cash receipts. This has been taken into account in the packaging of contracts.

48. As reported to the Board on 23 March 2000, the provision of funds to TFET by donors has so far been rather slow. At the present time, there are insufficient funds in TFET to finance

the entire Project, although it is anticipated that substantial contributions to TFET will be made over the next few months and that funds will become available for the Project in good time for implementation. The Trustee has also confirmed in writing that \$7 million is available now. The negotiated Grant Agreement therefore refers to this initial amount of \$7 million but also anticipates that the Trustee will confirm from time to time that further amounts may be withdrawn as they become available. The Grant Agreement provides that, as and when the Trustee confirms such availability of further amounts, ADB and UNTAET will enter into supplementary exchanges of letters to record the new amounts. Therefore, although the total project cost is \$29.8 million, the initial amount of \$7 million to be provided from TFET may not be exceeded without a subsequent written confirmation from the Trustee and a supplementary exchange of letters between ADB and UNTAET.

## **F. The Executing Agency**

49. The UNTAET will be the recipient of the Grant. It will establish a project management unit (PMU) that reports to the UNTAET head of infrastructure. The PMU will program, administer, and coordinate daily project activities, and will assume the role of an executing agency. The PMU will be headed by an East Timorese project manager and comprise an East Timorese project accountant and three subsector engineers. The selection of these will be subject to ADB's approval. The project manager will be supported by internationally recruited consultants: a chief technical adviser and a financial manager, and engineers for roads, ports, and electricity, totaling 120 person-months. The chief technical adviser will support the project manager in administering the Project and its contracts in accordance with ADB guidelines, and will be accountable to ADB for the quality and timeliness of project implementation. Engineers will program and coordinate daily project activities, including design, supervision, procurement of goods and services, and management of civil works contracts. Once established, the DTW will absorb the PMU. The international consultants will train East Timorese counterparts in their areas of responsibility. The consultant services will be selected in accordance with ADB's *Guidelines on the Use of Consultants*. However, the term "member countries" under these guidelines for purposes of this Project will include ADB member countries, East Timor, and all donors and members of international organizations that have provided contribution funds to the TFET. The PMU will be funded under the Project. An organization chart and terms of reference of the PMU are in Appendix 9. Under the UNTAET's organization framework, the PMU will become the nucleus of the DTW and be absorbed within it. Both the PMU and DTW will report to the head of infrastructure as its UNTAET ministerial equivalent.

## **G. Implementation Arrangements**

### **1. Technical Approach**

#### **a. Emergency Road Repair**

50. The works under the Project will incorporate labor-intensive employment generating methodologies, where possible. The equipment under the Project will be held at five depots and be hired to East Timorese subcontractors to build their capacity to do urgently needed road repairs. Least-cost methodologies have been adopted for the technical solutions under the Project. These include maximum use of local labor, materials, and contractors, and simple technologies contributing to sustainability of these works.

51. Five short-term contracts for road repair will be tendered to engage local people in road works on an urgent basis. Concurrently, five longer-term international contractors will be selected, one to be based in each regional center: Baucau, Dili, Maliana, Oecusse, and Same. Each contractor will (i) reinstate priority lengths of unstable, collapsed, subsided, or eroded road; (ii) restore functional drainage to priority road lengths; (iii) repair local areas of heavily damaged road pavement; (iv) provide appropriate river crossings where essential to the humanitarian effort; (v) refurbish regional DTW depots, as required; (vi) develop local road repair capacity by mentoring the selected local subcontractors; and (vii) involve communities in the unskilled road repair activities.

52. The Project is designed to ensure maximum coordination with ongoing road works and to facilitate a coordinated approach to any further works funded by resources additional to the TFET. This is possible as each of the five contracts will be responsible for restoring roads in a region, with works focused on prioritized roads. The contractor will switch to other priority road sections, when additional support is mobilized.

#### **b. Emergency Port Restoration**

53. Dili Port suffers from a high level of congestion. To facilitate the delivery of the humanitarian aid and security cargo, Dili Port requires, on an urgent basis, additional wharf and cargo handling capacity, and improved management.

54. Construction of a 48.7 m by 12.1 m extension has been incomplete since 1997 with only the concrete deck and ancillary work needed. The structure comprises steel piles with reinforced steel, and longitudinal and transverse reinforced concrete beams. Completing the extension will avoid a loss of the earlier investment. A landing site at Dili Port serves barge-landing of goods, and is particularly useful for landing military and humanitarian aid. The concrete landing ramp has deteriorated to a very poor state, with uneven surface, deep cavitation, and cracking, and is of limited use. Restoration of the slipway will allow additional landing capacity at all tides at the port. The container storage area at the port is a soft area 225 m long and 40 m wide. Hardening of the area will improve container management by providing additional maneuvering space, and will alleviate space constraints at the Port. The selected engineering solutions represent least-cost actions using local materials to the extent possible and local contractors under supervision of a mentoring contractor.

#### **c. Emergency Power Rehabilitation**

55. Thirty-six generating stations in the rural areas need immediate rehabilitation, ranging from repair of burn damage to total reconstruction. A detailed specification of requirements and design work at each station will be carried out as a component of the Project. Least-cost methodologies will be adopted. The specifications will include portable generating sets to enable rehabilitation. After restoring the original generating units, the portable sets will be moved to other sites and the process repeated.

56. At present there is no communication between the power utility headquarters in Dili and the rest of the system. The Project will install a system of radios and repeater stations to allow for communication from the Dili utility to the outlying stations and vehicles.

57. The power sector also lacks basic tools and equipment for rehabilitation of the distribution system and restoration of the services. No instruments are available to measure voltage or current in the circuits. While most of the network overhead conductors are sound, some spans need replacement. Service connections have also been damaged. Many of these need replacement as customers are reconnected to the system. The Project will include providing multimeters and other basic equipment, and overhead and service conductors; rehabilitating distribution circuits; and providing related training.

58. The Project will support development of financial management capabilities in the future power entity, to ensure that the people involved understand the need for cost recovery. Currently, power supply is mismanaged because it is supplied free to only a very few consumers.

## **2. Steering Committee**

59. The UNTAET will establish, with the support of the TA 3401 (footnote 4), a steering committee for the Project to involve broader stakeholder representation in project implementation. The steering committee will be convened prior to the approval of the Project to inform the stakeholders of the project activities. The steering committee will then meet monthly to discuss and resolve emerging issues in project implementation, procurement, and community employment, and to review and comment on the project reports for submission to ADB.

## **3. Procurement of Goods and Services**

60. All procurement under the Project will be conducted in accordance with ADB's *Guidelines for Procurement* used for loan financed projects (footnote 3). The proceeds of the Project will finance imports of goods and services, local purchases, and civil works identified under the Project. Under ADB's *Guidelines for Procurement*, these may be procured through direct purchase, or through international shopping, local competitive bidding, or international competitive bidding, as appropriate. Five short-term civil works contracts will be tendered using international shopping procedures to ensure expedited restoration of infrastructure. These will engage local labor. Thereafter, five long-term civil works contracts will be tendered using international competitive bidding procedures.

## **4. Implementation Schedule**

61. The project implementation period is 24 months, commencing in May 2000. Every quarter, the PMU will prepare a detailed implementation schedule for project activities. Project implementation consultants will be selected as soon as the Project is approved and the grant effective. Small labor-intensive works contracts, preparation of designs, prequalification of contractors, and tendering of international competitive bidding contracts will commence upon project approval and grant effectiveness. Port rehabilitation, road works, and rehabilitation of power stations will start from June 2000. The Project activities will be completed by December 2001. A technical review of the Project will be conducted jointly by ADB and the UNTAET one year after project approval. The Project implementation schedule is shown in Appendix 10.

## **5. Rights-of-Way**

62. Most works under the Project are within existing rights-of-way. The UNTAET will, if needed, acquire or obtain rights to any land required on a timely basis in accordance with ADB's *Policy on Resettlement and Compensation* and provide compensation (including for crops), as required, in accordance with ADB's relevant guidelines. Detailed designs will minimize land acquisition.

## **6. Disbursement Procedures**

63. As agreed with IDA, disbursements for eligible expenditures will be made pursuant to ADB's *Disbursement Guidelines* set out in ADB's *Loan Disbursement Handbook, 1996* and may be made as direct payment or reimbursement, or through an imprest account. The imprest account will be replenished in accordance with ADB's *Guidelines on Imprest Fund and Statement of Expenditures Procedures*. The chief technical adviser will be responsible for transactions, replenishments, and use of the imprest account. Payments under these agreements will be made by IDA based on ADB's request.

### **a. Direct Payment**

64. Under the direct purchase procedure, the PMU will request ADB for a direct payment to be made to the supplier of goods and services. ADB will authorize the request and send it to IDA, which will pay the supplier directly. Payment will be requested using ADB's standard withdrawal application. The PMU will indicate in the withdrawal application the date on which payment becomes due to the supplier. A separate application should be filled out for each currency in which the payment is requested. The application should be submitted with supporting documents such as contracts, invoices, receipts, and vouchers. This procedure will be used for payment of (i) consultants' fees, (ii) equipment, and (iii) civil works contracts awarded on the basis of international competitive bidding. Copies of signed contracts will be forwarded to ADB as early as possible to facilitate timely payments.

### **b. Reimbursement Procedures**

65. The reimbursement procedure will be used when eligible expenditures are paid from the UNTAET's budget and reimbursement claimed through ADB from the TFET. Withdrawal applications with supporting documents and summary sheets of expenditures will be prepared by the PMU, and payments will be made to the UNTAET by IDA based on ADB's authorization. The reimbursement procedure will be used for payment of (i) small purchases, and (ii) short-term civil works contracts.

### **c. Imprest Fund**

66. Under the imprest account fund procedure, ADB will request IDA to advance funds to the PMU to meet subproject expenditures to prefinance payments to contractors and suppliers. The imprest account will be used for short-term civil works, small-scale design and supervision services, remuneration of East Timorese project staff, and small purchases under all cost categories eligible for financing. ADB's statement of expenditure procedure will be used for reimbursement of expenditures and for the liquidation of the imprest account for payments with value equal to or below \$50,000 each. The currency of the imprest account

will be the United States dollar and the maximum initial advance will be \$500,000. The chief technical adviser supported by the PMU will be responsible for administrative and accounting tasks under the Project and will establish adequate internal control, accounting, and auditing procedures to ensure efficient use of the imprest account and its operation. The imprest account will be established in Darwin, Australia.

## **7. Reporting**

67. The UNTAET with the support of the PMU will furnish ADB with quarterly progress reports concerning all aspects, including finances, procurement of services, equipment, and all civil works in the Project. The PMU will prepare quarterly expenditure budgets a month prior to the commencement of the following quarter. The UNTAET, with the support of the PMU, will also provide quarterly reports on the use of the recurrent UNTAET road, port, and power budget, including activities and expenditures; and report progress in implementing policy initiatives, transport policy and regulations, and organizational changes. The PMU will also prepare a final project completion report on all aspects of the Project in accordance with ADB's relevant guidelines.

## **8. Accounts**

68. The PMU will establish the necessary accounts in Dili, if possible, and in Darwin, Australia, if required. These bank accounts will be under the control of the chief technical adviser. The PMU will establish and maintain separate accounts for all expenditures under the Project, including its individual contracts and other project components. The PMU will furnish ADB with accounts and related financial statements reflecting the accounts for each project-related contract. These financial statements will be audited using generally accepted accounting principles by auditors acceptable to ADB. The audited financial statements together with the auditor's report will be forwarded to ADB within six months of the end of each related fiscal year. The PMU consultants will keep detailed records on the costing and expenditures of the project components and will assist with reporting.

## **9. Technical Midterm Review**

69. In addition to a schedule of regular reviews to monitor the progress of the Project, a technical review of the Project will be carried out one year after mobilization. The focus of the review is to determine the need for any deviations from the project design or implementation. The review will also assess adequacy of funds, cost overruns, need for reallocations, and other factors, if any, including assumptions and risks, that might constrain the satisfactory implementation of the Project and achievement of development objectives.

## **H. Environmental and Social Measures**

### **1. Environmental Impact of the Project**

70. The Project has been classified as environmental category B. Accordingly, an initial environmental examination is in Appendix 11. The potential environmental impacts of the Project are related to construction activities, and are limited, temporary, and reversible. The medium- and long-term impact of the Project is positive, especially in promoting economic and social development of East Timor and facilitating its reconstruction and development. A detailed environmental impact assessment is not needed.

71. Under the UNTAET's transitional administration, Indonesian environmental laws remain valid. The capacity to review and evaluate environmental impacts of infrastructure projects and to monitor implementation of the mitigating measures needs to be developed within the UNTAET. There is also a need to review the applicability of the prevailing environmental management laws, regulations, and standards to the East Timorese social, legal, and institutional context. In the light of ADB's lead agency role in infrastructure restoration, ADB will assist in development of institutional and human resource capacity to address environmental and natural resources management in infrastructure projects. The Project will be used to train PMU counterparts to become familiar with environmental mitigation activities during construction.

## **2. Social Assessment**

72. The Project will restore the transport and power sector assets and supply. This is expected to have a significant positive social impact. An initial social assessment is in Appendix 12. The Project will not involve any relocation or resettlement. The beneficiary consultations confirm widespread support for the Project. The Project will improve the quality of life. All people will benefit from the more reliable flow of goods, fuel, health care services, food, and access to reviving markets. The Project will generate significant employment among the people, most of whom are returning refugees who have lost their property and livelihoods. Civil works under the Project are designed to maximize the use of labor.

73. In the next 10 months, the road and port rehabilitation will facilitate the movement of food and agricultural supply to poverty-stricken and starvation-threatened areas. And since power is used in a number of labor-intensive industries and services, particularly in Dili and other urban centers, its restoration will facilitate basic services such as water and hospital facilities returning to normal.

## **V. APPROVAL**

74. The President, acting under the authority delegated by the Board, has approved the provision and administration by ADB of a grant to the United Nations Transitional Administration in East Timor, in an amount not exceeding \$29,800,000 and subject to the procedures described in paragraph 48, to be financed by the Trust Fund for East Timor on a grant basis, for the Emergency Infrastructure Rehabilitation Project, and hereby reports such action to the Board.

**TADAO CHINO**  
PRESIDENT

13 April 2000

## APPENDIXES

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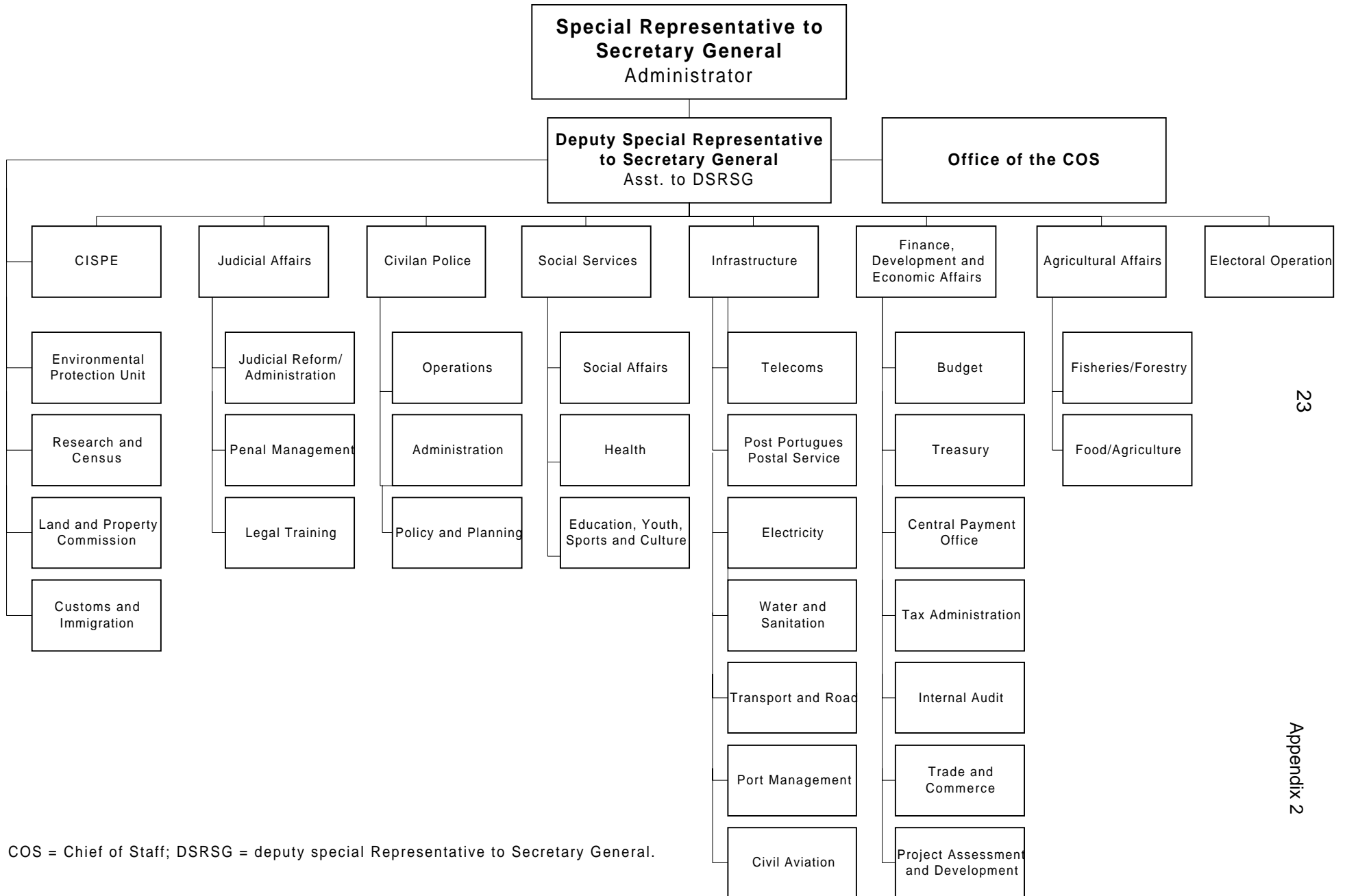
### PROJECT FRAMEWORK

Design Summary	Targets	Project Monitoring Mechanism	Risk/Assumptions
<p><b>Sector Goal</b> Enable transport and power infrastructure to allow access to humanitarian assistance, health care, and water supply.</p>	<ol style="list-style-type: none"> <li>1. Repair main roads to facilitate humanitarian assistance to population centers.</li> <li>2. Ensure road sector viability to induce revival of economic activity.</li> <li>3. Urgently reduce port congestion to enable effective and economical logistics for humanitarian goods.</li> <li>4. Reinstate power supply to enable water supply and revival of basic services in communities.</li> <li>5. Employ local labor and skills to initiate income generation for local population.</li> </ol>	<ol style="list-style-type: none"> <li>1. Project management</li> <li>2. Consultations with communities and authorities.</li> </ol>	<ol style="list-style-type: none"> <li>1. Timely implementation of the Project.</li> <li>2. Organization of local employment.</li> <li>3. Identification of adequate number and quality of East Timorese staff for localization programs.</li> </ol>
<p><b>Purpose/Objectives</b></p> <ol style="list-style-type: none"> <li>1. Emergency road repair.</li> <li>2. Expansion and restoration of port facilities.</li> <li>3. Restoration of power supply.</li> </ol>	<ol style="list-style-type: none"> <li>1.a. Restore viable road conditions on all main arteries.</li> <li>1.b. Establish essential equipment for empowering local contracting industry.</li> <li>1.c. Construct essential causeways and bridges where no access is otherwise provided.</li> <li>1.d. Establish contracts.</li> <li>2.a. Expanded port facilities.</li> <li>2.b. Improved cargo handling capacity.</li> <li>3. Power station rehabilitation.</li> </ol>	<ol style="list-style-type: none"> <li>1. Periodic project reports.</li> <li>2. Project review missions.</li> <li>3. Tripartite meetings.</li> </ol>	<ol style="list-style-type: none"> <li>1. Expedite contracting arrangements.</li> <li>2. Availability of funding from the Trust Fund for East Timor (TFET).</li> <li>3. Effective project implementation.</li> </ol>

Design Summary	Targets	Project Monitoring Mechanism	Risk/Assumptions
4. Establish employment programs.	4. Local contracts for unskilled and skilled labor.		
<b>Outputs</b> 1. Emergency road repair.  2. Emergency port rehabilitation.  3. Reinstatement of power supply.	1.a. Emergency road repair of main arteries.  1.b. Equipment for inducing contracting industry.  1.c. Labor-based causeway construction, and bailey bridges  2.a. Wharf extension at the Dili Port.  2.b. Restoration of the landing craft slipway at Dili Port.  2.c. Upgrading of container yard at Dili Port.  2.d. Beach matting at Beacu, Betano, and Suai.  3.a. 15 power stations rehabilitated.  3.b. Distribution line rehabilitated.  3.c. Power station water treatment and cooling system rehabilitated.  3.d. Tools, instruments, equipment, radio and repeater system installed.  3.e. Comoro power station high voltage switchgear replaced.  3.f. Utility financial management developed.	1. Designs.  2. Civil works contracts.  3. Road network performance indicators.  4. Review meetings and missions.  5. Periodic project reports.	1. Availability of TFET funding.

Design Summary	Targets	Project Monitoring Mechanism	Risk/Assumptions
<p><b>Inputs</b></p> <p>1. International and local consultant services.</p> <p>2. Civil works.</p>	<p>1. Selection of international and local consultant services for project management by May 2000 (\$1.4 million).</p> <p>2. Issue and implement civil works road repair contracts by 15 May 2000 (\$2.5 million), by 31 December 2000 (\$3.2 million), and by 15 December 2002 (\$14.8 million).</p> <p>3. Implement port rehabilitation civil works contracts by 15 May 2000 (\$0.7 million) and by 31 December 2000 (\$1.4 million).</p> <p>4. Implement power rehabilitation civil works contracts by 15 May 2000 (\$1.0 million), by 31 December 2000 (\$1.3 million), and by 15 December 2002 (\$0.5 million).</p>	<p>Project reports.</p>	<p>1. Timely deployment of competent consultants.</p> <p>2. Timely tender process.</p>

# UNITED NATIONS TRANSITIONAL ADMINISTRATION IN EAST TIMOR (UNTAET) ORGANIZATION CHART



COS = Chief of Staff; DSRSG = deputy special Representative to Secretary General.

## ROAD LENGTHS, PAVEMENT TYPES AND STANDARD, AND ROAD CONDITIONS, 1999

Road		Km	Pavement			Road Standard		Road Condition		
No.	Road Name		Sealed (km)	Gravel (km)	Dirt (km)	Class 1	Class 2	Good	Poor	Damaged
1	Maliana - Batugade	45.07	45.07	0.00	0.00	45.07	0.00	0.00	45.07	0.00
2	Boronaro - Maliana	16.39	16.39	0.00	0.00	0.00	16.39	0.00	16.39	0.00
3	Junction Ermera - Km100	47.48	0.00	47.48	0.00	0.00	47.48	0.00	47.48	0.00
3	Km 100 - Bobonaro	34.84	2.00	22.84	10.00	0.00	34.84	12.00	22.84	0.00
4	Ermera - Junction	5.24	5.24	0.00	0.00	0.00	5.24	0.00	5.24	0.00
5	Tibar-Junction	40.35	40.35	0.00	0.00	40.35	0.00	0.00	40.35	0.00
6	Dili - Tibar	7.22	7.22	0.00	0.00	7.22	0.00	7.22	0.00	0.00
6	Jln Alves Aldelia (Dili)	0.51	0.51	0.00	0.00	0.51	0.00	0.51	0.00	0.00
6	Jln Thomas Americo (Dili)	0.49	0.49	0.00	0.00	0.49	0.00	0.49	0.00	0.00
6	Jln Raya Comoro (Dili)	3.00	3.00	0.00	0.00	3.00	0.00	3.00	0.00	0.00
6	Jln Arah ke Tibar (Dili)	1.71	1.71	0.00	0.00	1.71	0.00	1.71	0.00	0.00
7	Dili - Manatuto	59.23	59.23	0.00	0.00	59.23	0.00	59.23	0.00	0.00
7	Dili - Manatuto	4.45	4.45	0.00	0.00	4.45	0.00	4.45	0.00	0.00
8	Manatuto - Baucau	59.33	59.33	0.00	0.00	59.33	0.00	59.33	0.00	0.00
9	Baucau - Lautem	59.33	59.33	0.00	0.00	59.33	0.00	59.33	0.00	0.00
10	Lautem - Fuiloro	18.59	18.59	0.00	0.00	0.00	18.59	18.59	0.00	0.00
11	Fuiloro - Los Palos	8.83	0.00	8.83	0.00	0.00	8.83	8.83	0.00	0.00
12	Ainaro - Cassa	22.29	0.00	22.29	0.00	0.00	22.29	0.00	22.29	0.00
13	Cassa - Zumalai	17.51	0.00	17.51	0.00	0.00	17.51	0.00	17.51	0.00
14	Zumalai - Suai	32.00	32.00	0.00	0.00	0.00	32.00	32.00	0.00	0.00
15	Cassa - Hautaudo	8.00	0.00	8.00	0.00	0.00	8.00	0.00	8.00	0.00
16	Hataudo - Junction	16.97	0.00	16.97	0.00	0.00	16.97	0.00	16.97	0.00
17	Aituto - Ainaro	27.83	0.00	27.83	0.00	0.00	27.83	0.00	27.83	0.00
18	Same - Betano	27.19	0.00	27.19	0.00	0.00	27.19	27.19	0.00	0.00
19	Aituto - Same	30.04	0.00	30.04	0.00	0.00	30.04	0.00	30.04	0.00
20	Aileu - Aituto	38.32	38.32	0.00	0.00	0.00	38.32	0.00	38.32	0.00
21	Dili - Aileu	44.37	44.37	0.00	0.00	44.37	-	0.00	0.00	0.00
21	Dili - Aileu	3.02	3.02	0.00	0.00	3.02	-	0.00	0.00	0.00
22	Tibar - Liquica	22.15	22.15	0.00	0.00	22.15	-	0.00	0.00	0.00
23	Liquica - Maubara	14.12	14.12	0.00	0.00	14.12	-	0.00	0.00	0.00
24	Betano - Natarbora	48.54	12.90	35.64	0.00	0.00	48.54	0.00	48.54	0.00
25	Genung Henuk - Natarbora	46.70	0.00	12.00	34.70	0.00	46.70	0.00	46.70	0.00
26	Manatuto - Genung Henuk	37.90	23.90	14.00	0.00	0.00	37.90	0.00	37.90	0.00

Road		Km	Pavement			Road Standard		Road Condition		
No.	Road Name		Sealed (km)	Gravel (km)	Dirt (km)	Class 1	Class 2	Good	Poor	Damaged
27	Natarbora - Viqueque	47.01	3.50	43.51	0.00	0.00	47.01	0.00	47.01	0.00
28	Baucau - KM 167	44.79	44.79	0.00	0.00	0.00	44.79	44.79	0.00	0.00
28	KM 167 - Viqueque	19.36	19.36	0.00	0.00	0.00	19.36	19.36	0.00	0.00
29	Viqueque - Uatulari	45.44	0.00	33.74	11.70	0.00	45.44	0.00	45.44	0.00
30	Sp. Uatulari - Illiomar	36.37	0.00	36.37	0.00	0.00	36.37	0.00	0.00	36.37
33	Lautem - Com	20.97	20.97	0.00	0.00	20.97	0.00	0.00	20.97	0.00
34	Zumalai - Bobonaro	26.88	0.00	26.88	0.00	0.00	26.88	0.00	0.00	26.88
36	Pante Makasar - Batas (Border)	27.62	0.00	12.22	15.40	27.62	0.00	27.62	0.00	0.00
41	Maubara - Atabae	34.98	34.98	0.00	0.00	34.98	0.00	0.00	0.00	0.00
42	Ermera - Hatulia	22.22	0.00	19.27	2.95	0.00	22.22	0.00	0.00	22.22
43	Hatulia - Maliana	40.80	0.00	40.80	0.00	0.00	40.80	0.00	0.00	40.80
44	Batugade - Batas (Border)	3.00	3.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00
44	Atabae - Batugade	27.19	27.19	0.00	0.00	27.19	0.00	0.00	0.00	0.00
45	Los Palos - Iliomar	44.26	0.00	30.26	14.00	0.00	44.26	0.00	0.00	44.26
45	Los Palos - Iliomar	1.06	1.06	0.00	0.00	0.00	1.06	1.06	0.00	0.00
46	Suai - Batas (Border)	28.22	0.00	7.00	21.22	28.22	0.00	28.22	0.00	0.00
47	Com - Trisula	15.12	0.00	15.12	0.00	0.00	15.12	0.00	0.00	15.12
48	Sp. Bobonaro - Sp. Lolotoi	33.00	0.00	19.00	14.00	0.00	33.00	33.00	0.00	0.00
48	(Border)-Bobonaro-Covalima-Fatululik -Fahorem-Tilomar	46.69	0.00	27.00	19.69	0.00	46.69	0.00	0.00	46.69
	Share of Total	100%	47%	43%	10%	36%	64%	32%	41%	16%
	<b>Total</b>	1,414	669	602	144	506	908	448	585	232

km = kilometer.

Original Road Standards:

Class 1 = standard for 10 ton truck

Class 2 = standard for 8-6 ton truck

Road Conditions:

Good: travel speed 60 km/hr

Poor: travel speed 30 km/hr

Damaged: Travel speed <15 km/hr

## PRESENT ROAD CONDITIONS

### 1. Road Inventory

1. The road network is classified according to the Indonesian system as shown in Table A4.1.

**Table A4.1: Road Classification**

Class	Purpose	Design Standard
National	Interprovincial roads connecting cities, agro/industrial centers and centers of tourism.	Carriageway: 5-7.5m, Shoulders: 1-2m depending on traffic volume and terrain. Pavement type: hot-laid asphalt
Provincial	Connecting principal district centers with the provincial capital.	Carriageway: 3.5-4.5m Shoulders: 0.5-1.0m Pavement type: penetration Macadam
District	Connecting major villages with District centers	Carriageway: 3.0–3.5m Shoulders: 0.0–0.5m Naturally-occurring cold mix (Ashburton), or gravel
Feeder	Connecting minor villages	Unspecified geometry with earth or gravel wearing courses.

2. The original alignment for most of the national and provincial road network dates from the Portuguese occupation, and was generally winding, narrow, and unpaved. Indonesian policy was to upgrade the networks to the above specifications, but problems with mountain-slope instabilities resulted in many roads being narrower than the specified standard. A road inventory (Appendix 3) indicates that the network consisted of 496 kilometers (km) of national roads, 1,001.5 km of provincial roads, and 4,214.9 km of district roads. A road condition assessment conducted in December 1997 is in Table A4.2.

**Table A4.2: 1997 Road Condition Survey**

Road Class	Assessed Condition		
	Good	Fair	Poor
National	130.67	0	0
Provincial	181.40	211.84	39.11
District	91.85	21.60	8.73
Feeder	0	64.31	27.52

### 2. Types of Road Defects

3. Most of the damage results from a lack of maintenance, particularly from failure of the road drainage system. Table A4.3 provides road conditions characterized by the type of defects.

**Table A4.3: Road Defects**

<b>Defect</b>	<b>Description</b>	<b>Cause</b>	<b>Prevention</b>
Bank Slips	Material breaks away from the bank above the road, and (as a minimum) blocks the road side drain, and in the worst case, completely blocks the road.	Movement of surface water on the hillside. Natural instability of the cut materials.	Cut-off drains where appropriate. Regular routine maintenance.
Bench Slips	Part of the road breaks away on side-cuts and valley crossings.	Erosion at the toe of the fill. A portion of road excised by deep erosion gullies at the road surface.	Adequate protection of fill slopes. Proper maintenance of the road drainage system.
Subsidence	A length of road is displaced downwards and possibly sideways due to the general movement of the ground on which the road is resting.	Saturation of the roadbed material. Instability or erosion at the bottom of the slope.	Subsoil drainage. Adequate management of surface water. Regular maintenance of the road drainage system.
Pavement Failure	Large local displacement of the road pavement resulting in ridges or mounds of broken pavement and depressions filled with soft material.	Pavement and road fill softened by saturation. Excessive axle weights or tyre pressures.	Control of vehicles. Management of the road drainage system.
Surface Failure	Potholes formed.	Damage by road users such as tracked vehicles, plant, and equipment. Wear and tear due to age and usage.	Repair by routine maintenance interventions. Prevention by timely periodic maintenance.
Ineffective Road Drainage	Water flows along the road surface in sufficient volume and at sufficient speed to erode the road surface.	Failure to construct adequate drainage. Failure to clear blocked drains. Failure to control vegetation encroachment.	General routine maintenance.

### 3. Extent of Defects

4. A visual condition assessment that estimates the distance between defects of the same type was conducted on sample roads (Table A4.4). These were augmented with interviews with key road users in Ambino enclave.

**Table A4.4: Visual Road Condition Assessment**

Sample	Route	Name
1	Dili-Aileu-Maubisse-Same-Ainaro-Zumalai	North-south route 2: Combination of provincial and district roads
2	Zumalai-Suai-Zumalai	South coast road
3	Zumalai-Maliana-Balibo	North-south route 1: district road
4	Balibo-Atabae-Maubara-Dili	North coast road
5	Oecusse-Citrana-Oecusse	Ambino enclave coastal road (W)
6	Citrana-Tumin-Pune	Ambino district roads
7	Citrana-Baqui-Nenopen	Ambino district roads
8	Citrana-Passabe	Ambino district roads

5. Drainage-based defects were noted on the north-south (route 1) at about 1 km intervals, and this represented the highest observed level of distress. The south coast road (Route 2) was mostly paved and in good condition, except for major river crossings. The bridge over the Cassa River is a large steel truss with a reinforced in-situ concrete deck over steel beams. The truss for the center span has not been assembled, although the major components are presumably all on site. The deck for another span was under construction when work stopped. At present, vehicles ford the river, but this is a difficult and potentially dangerous, and only made possible by the assistance of local people who indicate the shallowest route.

6. A second river crossing on the south coast road, over the Mota River (Zumalai), was also temporarily impassable due to scour at the back of an abutment. The problem has since been fixed temporarily, but illustrates the risk of using causeways to reduce the length of bridging wide braided rivers. Such a strategy is only sustainable in conjunction with dry season riverbed management to reposition sand banks and boulder reefs. This is necessary every year and is best regarded as a routine maintenance activity.

7. The Oecusse Coastal Road West (Route 5), ends after about 7 km at a wide river ford. The road pavement is constructed from a naturally occurring mix of bitumen and crushed limestone known locally as Ashburton. This material was specified exclusively for district roads and was the lightest form of pavement constructed during the Indonesian administration. It is unsuited to the heavy traffic generated by military and aid vehicles. As a result, although the road is on the flat coastal plain and has therefore suffered little or no damage to the road formation, the pavement is failing and the surface heavily potholed.

8. At present, aid agencies are unable to access the interior of Ambino due to the extremely poor condition of the district and feeder road networks, and all support is provided by air. The military has had to declare the worst of the roads as one-way, due to the loss of road width.

9. Other issues relevant to the strategy for the Ambino interior road network are as follows:

- (i) About 40,000 East Timorese need support because their subsistence agriculture was disrupted and of the rural administration collapsed.
- (ii) The road network has probably always been in relatively poor condition, but the cessation of regular maintenance has dramatically worsened the situation.
- (iii) Much of the work needed on this network will involve reconstruction. However, maintenance is still necessary to preserve even limited road access to the affected areas, pending a formal engineering evaluation to determine the optimum reinstatement strategy.
- (iv) Access to the interior of Ambino is limited during the rainy season by four impassable river crossings. Two of these crossings have wide, braided beds with unstable meandering watercourses that make them unsuitable for low or even medium cost bridging, and pipe causeways are proposed. The riverbeds contain all required aggregates, and the method of construction will be labor-intensive, affording much needed employment to the area around Oecusse. The other two crossings are much narrower and more stable, making both sites suitable for steel truss bridging. Bailey Bridges or similar constructions are proposed, pending a more detailed appraisal of the two sites by the implementation team, once the river levels fall sufficiently to permit safe crossing.
- (v) The results of the interviews and drive-through condition assessments is in Table A4.5.

**Table A4.5: Oecusse-Ambino Enclave Road Conditions**

<b>Sample Road</b>	<b>Bank Slips</b>	<b>Bench Slips</b>	<b>Subsidence</b>	<b>Pavement Failure</b>	<b>Surface Failure</b>	<b>Drainage Failure</b>
1	Poor	Bad	Poor	Poor	Poor	Bad
2	Bad	Bad	Poor	Poor	Poor	Bad
3	Fair	Fair	Poor	Poor	Bad	Bad
4	Poor	Poor	Fair	Poor	Fair	Bad
5	Fair	Fair	Fair	Bad	Bad	Bad
6	Bad	Bad	Bad	Bad	Bad	Bad
7	Bad	Bad	Bad	Bad	Bad	Bad
8	Bad	Bad	Bad	Bad	Bad	Bad

## **PROPOSED STRUCTURE OF THE PLANNED DEPARTMENT OF TRANSPORT AND WORKS**

1. Establishment of a maintenance regime is proposed through a central department of transport and works (DTW). The roads will need to be reclassified, and 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 management and maintenance system that establishes local capacity to manage, and improve the road assets to facilitate transport and economic development and growth. The principles guiding establishment of the DTW will include (i) establishment of a private sector contracting industry, (ii) development of a road maintenance culture in the DTW and the communities, (iii) use of local human resources, and (iv) encouragement of competition. The DTW is to be headquartered in Dili and to have four major divisions: (i) a transport division, to assume regulatory and policy responsibilities for roads; (ii) a planning and design division; (iii) an operations division, and (iv) a finance division. Consultant support to the United Nations Transitional Administration in East Timor (UNTAET) is proposed in detail to initiate establishment of the DTW. In the first year, 115 staff will be required, including 21 foreign staff. The number of foreign 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 in partnership with an East Timorese counterpart. The organizational structure of the DTW is to include four major functions: transport, planning and design, operations, and finance.

- (i) **The transport division** will cover three areas:
  - (a) **Land transport regulation** activities will include
    - (i) reclassifying roads;
    - (ii) reviewing, revising, and adjusting the road sector legal framework, including a road safety program, to directly cater to the needs of East Timor road users;
    - (iii) establishing and implementing road transport regulations in collaboration with the police; and
    - (iv) supporting the 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.
  - (b) **Maritime and port sector regulation** activities will include
    - (i) implementing international conventions, and
    - (ii) managing contracts; and

- (c) **Aviation sector regulation** activities will include
  - (i) implementing international conventions, and
  - (ii) managing contracts.
- (ii) **The planning and design division's** activities will include
  - (a) management of feasibility studies for capital investment projects, and technical evaluation of international tenders;
  - (b) contract management;
  - (c) relations with external financiers; and
  - (d) development of a road asset management system.
- (iii) **The operations division** will have five regional centers: Baucau, Dili, Maliana, Oecusse, and Same. It will carry out routine and periodic maintenance, and manage works through (a) minor labor-based contracts to the communities to maintain community minor roads (district roads), and (b) specific maintenance and periodic maintenance contracts to organized labor.
- (iv) **The finance division** will prepare budget requests, budget allocation, and reports on disbursements and payments to the national administration.

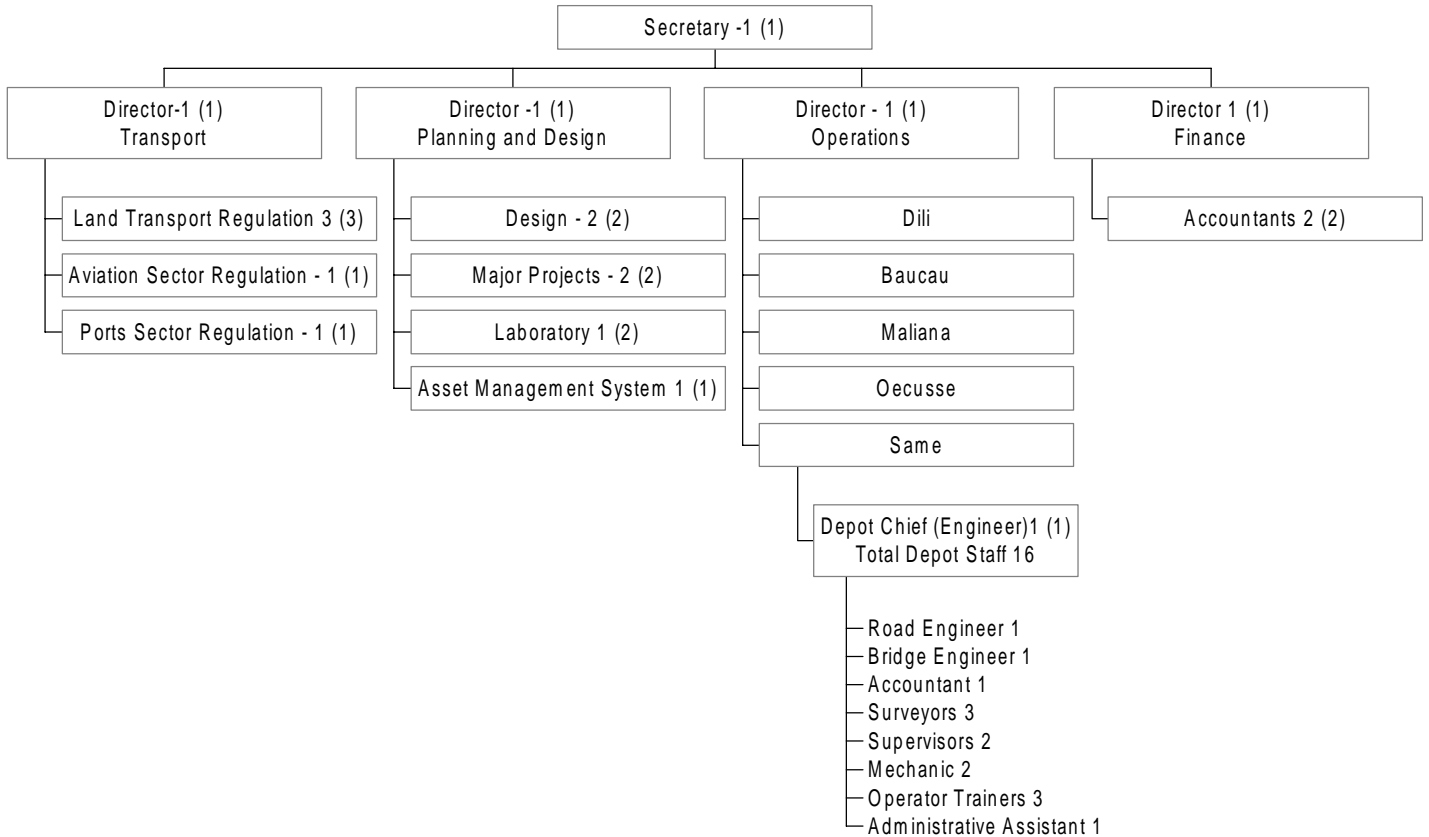
2. The DTW's regional centers will be staffed by an international chief road and bridge engineer, the chief engineer, an accountant, and a few clerical staff. To the extent possible, the positions will be filled with East Timorese who have the appropriate skills. The DTW structure includes no labor contingent. Small labor groups are expected to be provided through contractors that were operational during the previous administration in the sector and have received some experience during the first months' emergency works proposed under the United Nations Development Programme's 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 to build a local contracting industry. Private sector practices will be encouraged by, for example, leasing the plant pool to local groups organized for undertaking the works.

3. The regional centers will monitor and record road conditions, establishing, in collaboration with the headquarters, a road asset management system. This will provide the basis for prioritizing road rehabilitation requirements and maintenance works schedules. Through the asset management system, the 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 continued monitoring of the road conditions.

4. A minimum road maintenance plant is proposed to establish a maintenance function and carry out routine and periodic maintenance activities. These activities will be transferred to the private sector as soon as the private sector operators have achieved the necessary

capacity. This capacity building will be supported by the DTW's operational centers through training, small contracts, monitoring of the works' standards, and leasing of equipment. Staff in the centers will determine, case by case, the requirements for such a support program.

**Figure A5: Organization of the Department of Transport and Works**



Note: 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.

**CARGO VOLUMES IN 1990 AND  
CURRENT MAIN MOVEMENTS IN DILI PORT**

**Table A6.1: Major Imports and Exports to East Timor, 1990**

<b>Commodity</b>	<b>Imports</b>	<b>Exports</b>
Canned Food	3,425 cartons	
Canned Beverages	96,180 cartons	
Flour	13,296 tons	
Sugar	475 tons	
Asphalt	2,224 drums	
Rice	12,300 tons	
Foreign Chicken	5,540 tons	
Eggs	146 tons	
Coffee		6,731 tons
Copra		456 tons
Green peas		435 tons

Source: East Timor in Figures: 1991.

**Table A6.2: Current Traffic Through Dili Port** (excludes warships and patrol)

Vessel or Vessel Type	Frequency	Length	Tonnage	Cargo	Time at berth	Comments
CEC Dream	Weekly	100m	4110	80-120 TEU	14-16 hour	Mix of military and nonmilitary cargo. About 2/3 military.
Arktis Atlantic	Weekly	100m	4110	80-100 teu	12-14 hours	Commercial and aid cargo
Aya 3	Weekly	110m	4000	70-80 TEU also c. 50 ton petrol	24 hours	Petrol discharged direct to road tankers.
Jervis Bay	3 per week	86m	1500t	In 500 pax 300 ton cargo Out 700/800 pax	6 hours	Military personnel, personal effects, and small volumes of military cargo.
Foreign Navy Ship	Av. 1 per week	135m	6000t	300t	12-20 hours	This movement will probably cease by end of March.
Patricia Ann Houtun	2 per week	105m	2500	500 pax in, 50t cargo		Returnees; movement will decrease as number of returnees dwindles.
UNHCR vessel	1 per week	90m	3000	1500 t	4 days	Mainly construction materials.
WFP Vessel	1 per week	80m	2700	2000 -3000 t	5 days	Rice and other foods.
ETC	2 per week	70m	2000	250t	12 hrs	
Bosavi Sat	1 per week	80m	2000	1000t	2/3 hours	Vehicles etc. returning from provinces for cleaning.
Small landing craft	2 per week	42m	400	150	2/3 hours	Military cargo.
Military supply vessels	1.5 per week	80-100m	3000-5000	90-100 veh plus 30/40 TEU	2 days	Military cargo outbound - mainly returning to Australia. Short term only (finish March?).
Baltimar Sat	1 per week	80m	3500	50-60 lifts (boxes or equipment)		Civilian cargo.
Red Cross Vessels	0.5 per week	60m	1000-1500	300-500 tons	5-7 days	
Bulk fuel vessel	0.7 per week	?	?	400 m <sup>3</sup>		Delivered to Pertamina tank farm.
Miscellaneous other	2 per week	Av. 90m	Av. 2500	Av. 300-400t		

TEU = twenty-foot equivalent unit; UNHCR = United Nations High Commissioner for Refugees; WFP = World Food Programme.

## ONGOING ASSISTANCE TO ROADS, PORTS, AND POWER SECTORS

Sector/Donor	Project Title	Duration	Budget	Objective	Coordination
<b>Roads</b>					
JICA	Urgent Rehabilitation Plan	Feb- July, 2000 Final Report: Aug 2000	\$2.5 million	1. TA for a feasibility study for roads, ports, power, and irrigation sectors. 2. Urgent road repair on Dili-Aileu section	1. Close coordination with ADB TA for Transport Sector Restoration and with Emergency Infrastructure Rehabilitation Project.
UNDP/Norway Contractor: Tasman Company	Ermera Labor-Based Road Repair	- 2000	\$0.5 million	Labor-based road works on Ermera section inclusive of slip and culvert repair, drainage clearance	Commenced works will be continued under Emergency Infrastructure Rehabilitation Project
DFID Contractor: JJ. McDonald, East Timor Aid	Labor-Based Road Repair	7 Feb-Apr 2000	\$1.6 million	Labor-based road works on Bacau and Same-Ainaro sections	Commenced works will be continued under Emergency Infrastructure Rehabilitation Project
Interfet	Suai-Zumalai Road Maintenance			Road maintenance	
<b>Ports</b>					
Portugal	Harbor Master	11 Feb-31 May 2000	not available	Short-term harbor master	Harbor master task will be assumed under the port management contract to be prepared under ADB TA for Transport Sector Restoration
Portugal	Port Engineer	11 Feb-31 May	not available	Short-term engineering services	
Interfet bid tender	Hera Port Improvement (in connection with shipment of military vehicles)		not available	Port improvement allowing for loading Interfet vehicles	Improvement will serve import of construction materials for civil works under Project
<b>Power</b>					
DFID Contractor: Power and Water Authority, N.T. Government	Comoro and Baucau Power Stations	Oct-Mar 2000	not available	Restoration of minimal power supply	Restore the two most important power supplies

DFID = Department for International Development; JICA = Japan International Cooperation Agency; UNDP = United National Development Programme.

**DETAILED COST ESTIMATES**  
(million)

Description	Foreign Cost
1. Emergency Port Rehabilitation	2.06
a. Completion of Third Berth at Dili Port	0.40
b. Restoration of the Landing Craft Slipway at Dili Port	0.04
c. Restoration of Container Yard at Dili Port	0.20
d. Beach Matting at Beacu, Betano, Suai	0.09
e. Emergency Repairs	0.60
f. Emergency Equipment	0.73
2. Emergency Road Rehabilitation <sup>a</sup>	20.55
a. Emergency Road Repair	16.04
b. Causeways	0.86
c. Bailey Bridging	0.36
d. Depot Refurbishment	0.75
e. Emergency Plant	2.54
3. Emergency Power Rehabilitation	2.77
a. Emergency Rehabilitation of 15 Power Stations	1.28
b. Restoration of Distribution Lines	0.46
c. Comorro Power Station H.V. Switchgear Replacement	0.15
d. Restoration of Emergency Radio Communications	0.08
e. Utility Financial Management Development	0.80
4. Project Management Unit	3.05
<b>Subtotal A</b>	<b>28.42</b>
5. Contingencies	
a. Physical Contingency	1.18
b. Price Contingency	0.16
<b>Subtotal B</b>	<b>1.34</b>
<b>Total</b>	<b>29.76</b>

<sup>a</sup> Physical (15 percent) and price (2 percent) contingencies are included  
Source: Staff estimates.

## OUTLINE TERMS OF REFERENCE FOR SUPPORT TO THE EAST TIMOR EMERGENCY INFRASTRUCTURE REHABILITATION

### A. Project Management Unit

1. Specialists engaged under this consultancy will guide the management of a project to assist East Timor's recuperation by addressing emergency needs for repairing road, port, and energy facilities. The United Nations Transitional Administration in East Timor (UNTAET) will award road repair contracts with funding arranged by the Asian Development Bank (ADB) from the Trust Fund for East Timor (TFET) and the consultants will administer the contracts to facilitate the establishment of regional road maintenance organizations. Specific responsibilities are as follows:

- (i) The UNTAET infrastructure section will open appropriate trust accounts to receive project funds.
- (ii) The UNTAET has awarded a number of short-term emergency road contracts that effectively divide the road network into five operational areas. These areas are generally based on the regional centers proposed by the joint assessment mission (main text, para. 5). The works under the Project have been organized to coincide with this regional arrangement and the recommended regional centers will be used to administer project road works.
- (iii) The UNTAET, in collaboration with ADB, will engage appropriately-qualified domestic staff for the Project as follows: (a) a project manager who will be counterpart to the chief roads engineer; (b) a project accountant, as counterpart to a financial adviser (international consultant); and (c) three engineers as counterparts to international road, port, and power engineers.
- (iv) International contractors will be engaged to undertake priority maintenance works in each region.
- (v) Once the international contractors have established their regional centers, the UNTAET, in collaboration with ADB's technical assistance (TA) for transport restoration<sup>1</sup> and the Project, will identify and engage the following appropriately qualified field staff for the Project: (a) 5 regional engineers to be assigned to the regional centers as road administrators; (b) 10 road supervisors, 2 assigned to each regional administration; (c) 10 clerical staff, 2 assigned to each regional administration; and (d) 15 camp watchmen/cleaners, 3 assigned to each regional administration. These will be funded from the UNTAET's trust fund.
- (vi) The international contractors will work to budgets set by network managers for road repairs and emergency power rehabilitation. ADB funds will be disbursed to the international contractors on the production of appropriate measurement certificates.

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<sup>1</sup> TA 3401-ETM: *Transport Sector Restoration*, for \$1,000,000, approved on 10 February 2000.

- (vii) Repair works and power station rehabilitation will focus on priorities determined by network managers.
- (viii) During months 1-12 of the contract, international contractors will take specific responsibility for emergency maintenance repairs, most notably the road bench and drainage systems, and construction of specified river crossings. At the same time they will engage and train domestic subcontractors to undertake skilled routine and emergency maintenance, and will engage rural community labor to carry out unskilled maintenance on their local road sections.
- (ix) During months 13-18, the international contractors will carry out limited emergency periodic maintenance, while continuing to guide and train their domestic subcontractors.
- (x) During months 18-24, the international contractors will progressively demobilize, leaving the domestic contractors to continue routine maintenance under the supervision of the local road administration. The key function of the international contractors in this phase is to serve as a conduit for the disbursement of funds for the ongoing routine and emergency maintenance.
- (xi) Where a single domestic contractor has the potential capacity to carry out all the tasks listed in para. 1(xiii), one such subcontractor may suffice. Alternatively, where prospective subcontractors have little or no relevant equipment or experience, it may be preferable to engage several subcontractors to specialize in one or more of the various repair skills. The Project will procure specialist equipment to assist such contractors.
- (xii) After training, the local subcontractors are expected to be capable of carrying out all normal maintenance repairs, including (a) selecting and preparing suitable materials for the repair activities, including small crusher operations; (b) patching with hot and cold asphalt, including the use of small spot mixers; (c) completing concrete works; (d) laying culverts; (e) installing drainage; (f) completing stone pitching; (g) constructing gabion retaining walls; and (h) engaging, organizing, and supervising local community labor to carry out unskilled and labor-intensive routine maintenance.

2. A project management unit (PMU) will implement the Project by assuming the responsibilities of an executing agency. The PMU will be led by an East Timorese project manager, and comprise an East Timorese accountant and three East Timorese engineers (one each for roads, ports, and power subsectors). International consultant services are required to support project implementation and to strengthen the PMU. Five individually appointed international consultants will provide these services through the positions of (a) a chief technical adviser, (b) a financial adviser, and (c) three engineers for the three subsectors under the Project. The chief technical adviser will assume responsibility for the project implementation and reporting to ADB, the project funds, and the Project's imprest account.

3. The PMU will report to the head of infrastructure within the UNTAET. Project monitoring will be strengthened by a steering committee comprising senior representatives of project stakeholder organizations in both the public and private sectors. The steering committee will be established by the TA for transport restoration (footnote 1). The PMU will fully coordinate its activities with the recommendations and activities of the TA. The PMU will implement the sector management recommendations of the TA using the Project as a training opportunity to streamline new functions of the department of transport and works (DTW), which is to be organized through the TA.

4. The UNTAET will appoint staff needed to provide a minimum monitoring and supervision capacity at each of five regional works centers as proposed under the Project. The centers will be funded from UNTAET's trust fund. UNTAET will identify and engage, in collaboration with the Project, personnel with previous relevant experience in the road maintenance, power, and ports administrations.

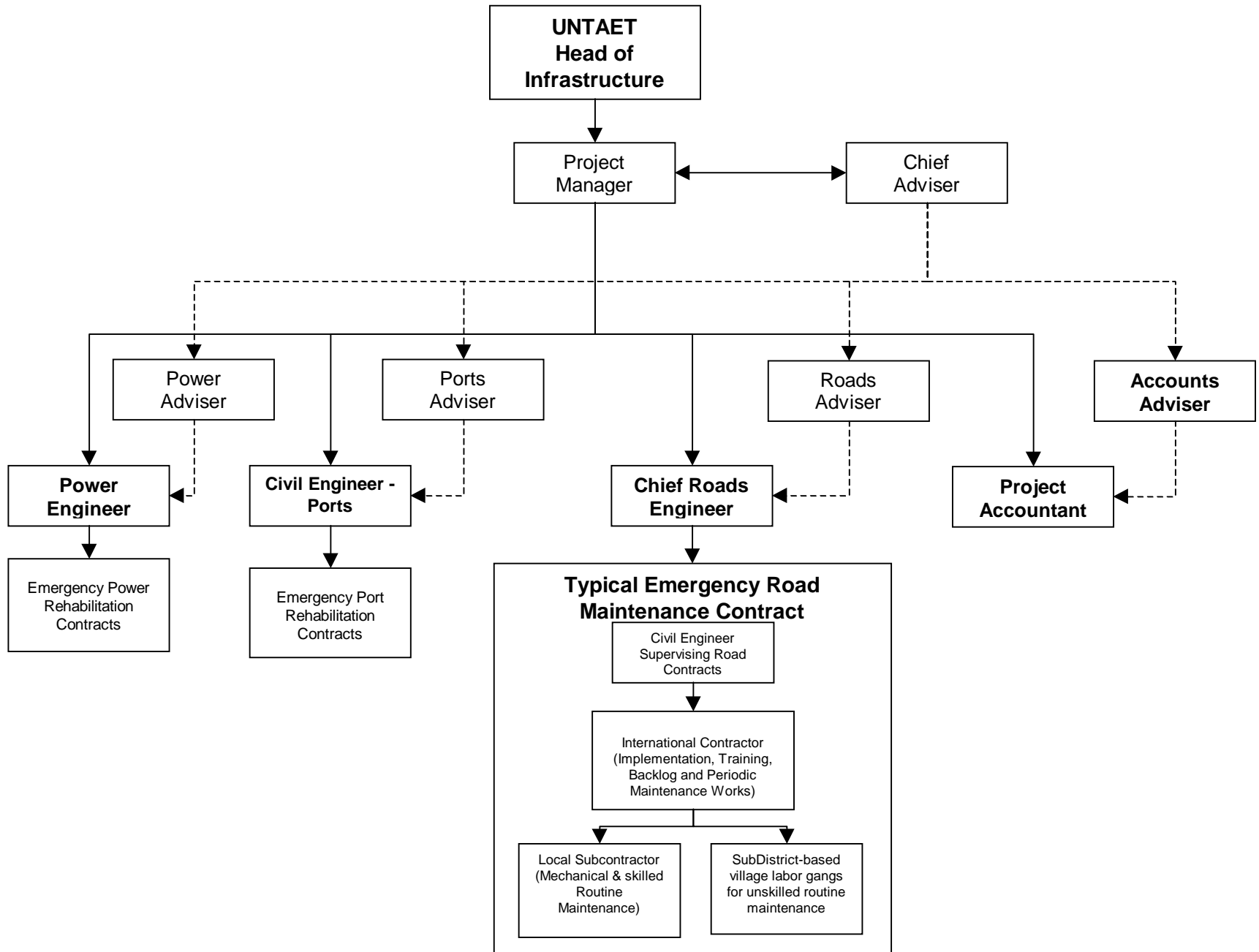
5. The PMU will prepare terms of reference for, engage, and manage the East Timorese staff under the PMU, provide terms of reference for supervision contracts, prepare designs, conduct tender process, manage project disbursements, report on the all the project activities to ADB and UNTAET, and specifically be responsible (albeit not exclusively) for the following:

- (i) Ensure that the Project is implemented in accordance with ADB's guidelines, these terms of reference, and the laws of East Timor and UNTAET regulations, excercising efficient, effective, and economic implementation methodologies.
- (ii) In the road subsector, assure the serviceability of key sections of the road network by quickly implementing road repairs and establishing a sustainable and systematic road maintenance operation in the project areas.
- (iii) In the port subsector, improve and maintain port facilities so that the value of the existing assets is preserved and congestion reduced particularly in areas critical to the delivery of humanitarian assistance and other goods.
- (iv) In the power subsector, rehabilitate power supply facilities, ensure safe power distribution, and thereby enable restoration of power supply in the service areas of the 15 power stations selected for the Project.
- (v) Open a project imprest account to facilitate disbursement of project funds in accordance with ADB's guidelines on disbursement
- (vi) Identify and engage appropriately qualified local staff for the Project. The staff are described in para. 1(iii).
- (vii) Administer the preparation of tender documents and conduct the tender process for all contracts for civil works, equipment, and consultant services under the Project, in accordance with ADB's *Guidelines for Procurement*. Administer, implement, and monitor international and local contracts for civil works, equipment, and consultant services under the Project.

- (viii) Engage, manage, and train appropriately-qualified staff of the DTW under UNTAET recurrent funding. Staff are described in para 1(v).
- (ix) Monitor and administer the work under international contractors in accordance with budgets set by the PMU. Account for the cash receipts available from the Trust Fund for East Timor. Manage disbursement application process with ADB in accordance with ADB's guidelines for disbursement.

6. The PMU will implement the Project in accordance with ADB's guidelines. It will coordinate with ADB's TA for transport restoration, restore essential services in the three subsectors, and initiate establishment of sustainable sector management operations. The PMU's organization chart is shown in Figure A9.

**Figure A9: Project Management Unit Organization Chart**



## **B. Project Implementation and Advisory Consulting Services**

7. International consulting services are required to support Project implementation and to strengthen the PMU. Five individually appointed consultants (para. 2) will provide these services. The international consultants will (i) assume overall responsibility for Project implementation in accordance with ADB's guidelines and reporting requirements; (ii) facilitate procurement of equipment and works as specified under the Project and evaluate, select, and award any contracts for remedial works; (iii) undertake design and documentation as needed to prepare contracts; (iv) supervise implementation of works under these contracts; (v) train, advise, and assist the East Timorese PMU staff and the DTW in their tasks; and (vi) facilitate implementation of operational issues and establishment of effective sector management and operations.

8. These services include on-the-job training for counterpart staff, training in basic asset management including network inventory, maintenance scheduling, contract management including the tender process, bid evaluation, contract administration, formulation of community employment and support programs, contract supervision and quality control, performance monitoring, and financial management. The consultant will, in collaboration with ADB's TA for transport restoration, review the proposed national operational procedures including sector regulations and codes, financial management, administration, and procurement, and will contribute to the institutional development.

9. About 120-person months of consulting services are required in power engineering, road maintenance, works and project management, accounting, cost estimation, contract documentation and management, quality control, work measurement and reporting, and inventory and condition assessments. The terms of reference and the activities of the PMU will be fully coordinated with those of the TA for transport restoration, and maximum complementarity and linkages will be developed between the two interventions. The PMU will implement the adopted recommendations of the TA to establish sustainable sector management systems and operations.

## **C. Scope of Work**

10. Support to the office of the project manager will include
- (i) assisting and advising on establishing the PMU and implementing its operating procedures;
  - (ii) ensuring that the Project and its components are at all times implemented by the PMU in accordance with the relevant ADB guidelines;
  - (iii) assisting and advising on the preparation of project design and documentation for local competitive bidding contracts and the preparation of international competitive bidding documentation;
  - (iv) assisting and advising on civil works tender evaluation and contract award and monitoring the application of ADB's *Guidelines on Procurement*, including drafting appropriate and timely advertisements for the appointment

of contractors and the procurement of plant and equipment, technical evaluations, contract negotiations and awards;

- (v) supervising and ensuring proper supervision of all contracts awarded under the Project;
- (vi) assuming responsibility for transactions and activities under, and providing advise on the administration of, the project trust accounts;
- (vii) in conjunction with the finance and administration adviser, overseeing and monitoring the ports, power, and road maintenance staff, including consultants and counterpart staff;
- (viii) assisting and advising on establishing maintenance planning and implementation procedures;
- (ix) together with the head of infrastructure, liaising with the project steering committee;
- (x) assisting the project manager and staff to carry out the designs and tender and administer the contracts necessary to implement the project's emergency recovery program in the port and power engineering sectors;
- (xi) assisting the project manager and staff to prepare and implement annual road and bridge maintenance programs for the five regional road networks;
- (xii) developing road and bridge maintenance procedures plans based on Government and ADB requirements; and
- (xiii) keeping records on all expenditures under the Project, with the support of the financial and administration adviser and project implementation advisers.

#### **D. Individual Terms of Reference**

##### **1. Chief Project Adviser**

11. The duties of the chief project adviser will include, but not be limited to, the following tasks:

- (i) taking responsibility for project implementation and reporting to ADB in accordance with the relevant ADB guidelines;
- (ii) supporting the project manager and the UNTAET head of infrastructure in all matters relating to the Project;
- (iii) providing management and leadership to the PMU and the team of specialist advisers and counterparts, and preparing terms of reference of the PMU staff including the counterpart qualifications and tasks, and reviewing the terms of reference for the international consultants;

- (iv) facilitating coordination and cooperation between the Project and all other bilateral and multilateral agencies that wish to contribute to the infrastructure recovery program and roads, ports, and power subsector development;
- (v) supporting and advising teams under ADB's TA for transport restoration and implementing recommendations provided by this TA;
- (vi) helping to identify and implement subprojects in the roads, ports, and power subsectors;
- (vii) assisting with the management and superintendence of all subprojects executed by local competitive bidding;
- (viii) helping to evaluate and making recommendations for the award of all contracts carried out under this Project;
- (ix) approving and certifying all payments due to contractors appointed under this Project;
- (x) preparing all documentation required by ADB for the Project; training the project manager in this task; preparing project budget, implementation schedules, and their periodic updates; and preparing quarterly payment and disbursement requirement forecasts;
- (xi) assisting the project manager in all his or her duties and responsibilities, which will include, but not be limited to, monitoring, advising, and assisting the road, ports, and power engineers and the project accountant in all their duties; and
- (xii) ensuring preparation and implementation of environmental mitigation action plans, and training counterparts accordingly.

## **2. Road Maintenance Engineer**

12. The duties of the road engineer will include, but not be limited to, the following:
- (i) assisting and advising the chief technical adviser in all road-related issues under the road component of the project, including reporting, budgeting, preparing forecasts, training and supervising counterparts, managing contractors, coordinating with ADB's TA for transport restoration, and establishing sector management;
  - (ii) procuring small items of plant and equipment in accordance with ADB's procurement guidelines;
  - (iii) preparing designs and local competitive bidding documents, as required;
  - (iv) assisting with the appointment and subsequent management of the regional repair and backlog maintenance contracts;

- (v) liaising with the UNTAET infrastructure section to prioritize road sections that need repair and maintenance, according to the activity of other donors and agencies in the sector, and the changing pattern of demand;
- (vi) monitoring and promoting the development of the local contracting industry through mentor training programs to be devised and implemented by international maintenance contractors;
- (vii) devising and introducing appropriate computer systems for the management of the road network;
- (viii) monitoring and reporting on expenditure and work quality;
- (ix) monitoring and reporting on the training and development of local subcontractors;
- (x) monitoring and reporting on the use of labor-based construction methods and the provision of work opportunities for local communities within the scope of the Project;
- (xi) assisting the chief technical adviser to identify and appoint maintenance engineers to the DWT;
- (xii) assisting the chief technical adviser to assist and train the five regional maintenance engineers and overseers in all their duties;
- (xiii) supervising short-term repairs from the points where current UNTAET emergency contracts end;
- (xiv) supervising and administering the regional road repair and maintenance contracts, ensuring in particular that the contractor uses local subcontractors for all routine maintenance works;
- (xv) monitoring the training programs by road repair contractors to ensure that the local contractors are competent to carry out skilled routine maintenance activities;
- (xvi) within the context of the road contracts, establishing basic administrative facilities and road management capacity in each regional center;
- (xvii) within the context of the regional road contracts, instituting routine maintenance operations on all maintainable roads;
- (xviii) within the context of the regional road contracts and the established maintenance management methods and procedures, preparing prioritized periodic maintenance programs to (a) supervise the installation of Bailey bridging (or the equivalent) as needed; (b) supervise the construction of low-level causeways to be built by the regional maintenance contractors using

labor-based methods, as needed; (c) monitor and manage the regional pool of small plant and equipment items procured under this Project; and (d) facilitate the involvement of local communities in routine maintenance; and

- (xix) preparing environmental mitigation action plans for construction activities for contractors to carry out; supervising implementation of these action plans; and familiarizing counterpart engineers and the project manager with these action plans, their preparation, implementation, monitoring, and importance.

### **3. Port Civil Engineer**

13. The duties of the port engineer will include, but not be limited to
  - (i) assisting the chief technical adviser with all activities related to port sector components under the Project, including reporting, budgeting, preparing forecasts, training and supervising counterparts, managing contractors, coordinating with ADB's TA for transport restoration, and establishing subsector management;
  - (ii) preparing designs and documentation needed to advertise and award tenders for the wharf extension at Dili Port;
  - (iii) advertising, evaluating bids, and preparing tender award recommendations for the wharf extension contract;
  - (iv) monitoring and certifying the execution of the wharf extension contract;
  - (v) preparing designs and documentation needed to advertise, and awarding tenders for the restoration of the landing craft slipway at Dili Port;
  - (vi) advertising, evaluating bids, and preparing tender award recommendations for the contract for restoring the landing craft slipway at Dili Port;
  - (vii) monitoring and certifying the execution of the landing craft slipway contract;
  - (viii) preparing designs and documentation to advertise and award tenders for installing all-weather pavement for the container yard at Dili Port;
  - (ix) advertising, evaluating bids, and preparing tender award recommendations for the all-weather pavement for the container yard at Dili Port;
  - (x) monitoring and certifying the execution of a contract for installing the all-weather pavement;
  - (xi) procuring and siting beach matting at Beacu, Betano, and Suai;
  - (xii) assessing the needs for general repairs and maintenance, and procuring the services of local contactors accordingly, as funds permit;

- (xiii) procuring cargo handling equipment, and preparing use and upkeep procedures and agreements as appropriate; and
- (xiv) preparing environmental mitigation action plans for construction activities for contractors to carry out, supervise implementation of these action plans, and familiarize counterpart engineers and the project manager with these action plans, their preparation, implementation, monitoring, and importance.

#### **4. Power Engineering Adviser**

14. The duties of the port engineer will include, but not be limited to

- (i) assisting the chief technical adviser with all activities related to port sector components under the Project including reporting, budgeting, preparing forecasts, training and supervising counterparts, managing contractors, coordinating with ADB's TA for transport restoration, and establishing sector management;
- (ii) preparing designs for the power station rehabilitation and distribution network restoration;
- (iii) advertising, evaluating bids, and preparing tender award recommendations for all power contracts under the Project and in accordance with ADB's procurement guidelines;
- (iv) monitoring and certifying the execution of the contracts;
- (v) preparing specifications for equipment for the power component and supporting their procurement, installation, recurrent use, and financing;
- (vi) monitoring and certifying the execution of the contracts;
- (vii) assessing the needs for general repairs and maintenance, line inspection and repair, training of local people as required, and procurement of the services of local contractors; and
- (viii) preparing environmental mitigation action plans for construction activities, supervising implementation of the action plans; and familiarizing counterpart engineers and the project manager with the action plans and their preparation, implementation, monitoring, and importance.

#### **5. Financial and Administration Adviser**

15. The financial and administration adviser will train and assist the project accountant in all duties. In particular, the scope of tasks will include, but not be limited to

- (i) assisting the chief technical adviser with all financial and administrative tasks related to project administration and implementation, including financial and

administrative management of project accounts, consultant and counterpart contracts, and civil works and equipment supply contracts;

- (ii) helping to develop and implement cost accounting systems and bookkeeping to facilitate preparation of the required project reports;
- (iii) ensuring that all project-related financial records are accurate, complete, and up-to-date at all times;
- (iv) assisting to prepare regular cost, commitment, and forecast reports in accordance with UNTAET and ADB requirements;
- (v) assisting to evaluate contract tenders, and preparing tender evaluation reports;
- (vi) assisting and advising on processes for obtaining all necessary approvals for submission of contracts and payments to contracts from ADB;
- (vii) assisting with consulting and civil works tendering processes, ensuring that ADB's *Guidelines on Procurement* are implemented; and
- (viii) processing payments on all components under the Project as required under the disbursement guidelines of ADB.

#### **E. Reporting**

16. The consultants will support the UNTAET with reporting requirements that include the following:

- (i) Within four weeks of the start of the Project, submit a brief inception report. 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 Project.
- (ii) Through brief quarterly progress reports, will inform the Government and ADB of achievements under the Project, and identify any emerging difficulties in project implementation outlining proposed solutions. The reports will provide, in clear graphical presentations, Project's progress; accomplishments of the terms of reference; plans for the next quarter's work, including budgets; and quarterly disbursement and payment forecasts. The progress reports will be submitted a month prior to the commencement of the following quarter. The report will include UNTAET's recurrent resources for road, port, and power subsectors. The reports will also include activities and expenditures; implementation of donor support; and progress in implementing policy initiatives, transport policy and regulations, and organizational changes. The reports will adopt a uniform format that facilitates Project monitoring.

- (iii) The draft final report will be submitted on completion of the Project. It will summarize all project activities and recommendations. It will outline continuing training programs, and programs for establishment, implementation, and strengthening of the relevant institutions, including the road condition survey and recommendations for future support.
- (iv) The consultants will submit final report one month after receiving the comments on the draft final report from ADB and UNTAET.

### PROJECT IMPLEMENTATION SCHEDULE

Task Name	2000												2001												2002					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Appraisal Mission	■	■																												
Grant Agreement Negotiations			■	■																										
ADB-Multidonor Trust Fund Approved				■	■																									
Selection of Project Management Staff				■	■																									
Short Road Maintenance Contracts					■	■	■	■	■	■																				
Ongoing Project Supervision					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Procurement of Equipment					■	■	■	■	■	■																				
<b>Full Road Maintenance Contracts</b>				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Prequalification of Contractors				■	■	■	■																							
Tender and Bid Selection				■	■	■	■	■																						
Tender and Bid Selection								■	■																					
Backlog Reinstatement Works								■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Periodic Maintenance Works																		■	■	■	■	■	■	■	■	■	■	■	■	
Skilled Routine Maintenance Works																														
Unskilled Routine Maintenance Works																														
Design for Port Extension				■	■	■																								
Design for Power Rehabilitation				■	■	■																								
<b>Construction Works - Port and Power</b>				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Prequalification of Contractors				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Tender and Bid Selection				■	■	■	■	■																						
Mobilization								■	■																					
Port Rehabilitation																														
Power Rehabilitation																														
Power Sector Master Plan																														
Financial Management to Power Sector																														
Support to Environmental Assessment																														
Inception Mission				■	■																									
Technical Review mission																														
Six-Monthly Reviews																														

## SUMMARY INITIAL ENVIRONMENTAL EXAMINATION

### A. Introduction

1. The project's environmental impact is classified as category B by the Asian Development Bank (ADB), a project whose potential impacts could be mitigated using established procedures. An ADB environment specialist visited the project sites. Although the Indonesian environmental laws and regulations remain in effect in West Timor, the enforcement and implementation capacity does not exist. The environmental management authorities were managed primarily by Indonesian civil servants, who are unlikely to return.

### B. Description of the Project

2. The United Nations Transitional Administration in East Timor (UNTAET) is executing a program of humanitarian assistance in East Timor. The primary objective of the transport and power infrastructure is to provide access to this humanitarian relief. In its current significantly deteriorated state, the transport sectors are not able to facilitate humanitarian efforts or help ensure the security of the country. The roads have become interrupted in many locations and can carry only very small loads. Humanitarian supply and military vehicles have been lost in the river crossings and a life was lost on steep and weak embankment. Humanitarian food deliveries are made by flight at the cost of \$1,000 per ton. Dili Port has become a bottleneck. Its capacity is extremely limited, evidenced by long queues, at their extreme exceeding a month.

3. Transport and power infrastructure are essential to the revival of economic activity in East Timor. Only through revival of the economy and employment can social security and food stability be achieved. The Project aims to ensure that the infrastructure can meet these goals. It will incorporate employment-generating methodologies that contribute to poverty reduction and normalization of conditions in East Timor. The Project will (i) undertake emergency road repair works to facilitate efficient transport of humanitarian aid and security cargo, and to induce revival of economic activity; (ii) expand the capacity of port facilities to reduce congestion; and (iii) reinstate power supply. The scope of the Project includes (i) road rehabilitation, (ii) port rehabilitation, (iii) power sector rehabilitation, and (iv) establishment of a project management unit.

### C. Description of the Environment

#### 1. Physical Environment

4. East Timor is eastern half of Timor Island. East Timor has a contiguous area of 19,000 square kilometers (km<sup>2</sup>), with additional 2,461 km<sup>2</sup> in the Oecusse-Ambino enclave inside West Timor. East Timor is the largest and eastern most of the Lesser Sunda Archipelago. The climate is tropical. The rainy season starts in December and ends in April although the dry and wet seasons are not well defined.

5. The island is along the junction of the Australian and the Asian geological plates. Thus, it is subject to frequent earthquakes. The rock formations are primarily sedimentary karst uplifted by the collision of the two plates. As the formation is quite recent, the karst is highly fractured and crumbles easily. Metamorphic rock from past volcanic activity is limited to northern and central sections of the island. The high erosion rates from the crumbling karst layers have resulted in the formation of alluvial plains and isolated fertile valleys. The river systems are short, running almost perpendicular to the coastline. The rivers cut deep ravines into the unstable rock, forming deep canyons in the highlands and abruptly widening as they reach the

flat alluvial plains. Often the rivers narrow as they approach the sea because of obstruction by sandbars and intertidal deposits.

## **2. Biological Environment**

6. Timor is on the western side of the Wallacea line. The flora and fauna are similar to that of the tropical Australia-Pacific group. Timor has no large animals, but many small mammals, such as deer, and brightly colored birds. Timor was one of the first islands settled by Europeans because of its proximity to the Spice Islands. A number of domesticated and feral animals have been introduced to the islands, such as horses, cattle, chicken, and pigs. During the last 10 years, the deforestation was officially estimated at 70,000 hectares, with the unofficial estimate double this level. The central highlands are cultivated with coffee, mainly the robusta variety. East Timor coffee commands a high price in the world market because of its higher-than-normal alkaline properties. Rice, corn, sorghum, beans, and root crops are grown in the lowlands. Slash-and-burn agriculture is common even on the steep hillsides.

## **3. Sociocultural Environment**

7. Most of the population is concentrated in the northern coastal towns and in fertile river valleys in the interior. The coastal flat lands in the south are sparsely populated because of the harsh mountain terrain that divides the island. Sea travel from the north to the south is constrained by strong waves most of the year. The economy is based on agriculture, with coffee the major export crop. Surplus rice, corn, and other agricultural produce are consumed within the island. The poor road and port facilities discourage exporting although the potential is high, especially from the flat plains in the south. There is little industry or manufacturing. A number of mineral deposits have been identified, but their commercial potential has not been explored. The service industry was, during the Indonesian period, limited to the civil service and state-owned corporations, such as telecommunications, power, and oil and gas distribution. Trading and other commercial activities were limited to traditional market places in small settlements. Banks, restaurants, hotels, and other businesses were mostly found in the two large urban centers: Dili and Baucau. Most of the formal businesses were burned down during the postconsultation destruction.

8. Almost 70 percent of the schools were destroyed during the postconsultation violence. At present, classes are conducted in open yards and roofless buildings.

9. Tetum is the local language, with Bhasa Indonesia and Portuguese spoken by sizeable portions of the population. Almost 95 percent of the population are Roman Catholics, with a small Muslim and Protestant population.

## **D. Screening of Potential Environmental Impacts and Mitigating Measures**

### **1. Physical Environment**

10. **Road Works.** The main impact of the emergency road project is quarrying for rock and sand. However, the quarry sites are small and scattered along the road with alignments close to river systems. In most instances, less than a 100 cubic meters of sand and rock will be required from a particular quarry site. Most of the road erosion is caused by poor drainage design, lack of maintenance, and impact of heavy loads. Silt from drainage cleaning will be used to fill quarry sites, especially those beyond rivers. Farmers who want some landfill will be allowed access to the silt. When constructing the drainage lines, careful attention will be paid to directing the flow

of the water as close as possible to the normal drainage channel and away from farmlands and other road sections that could be eroded.

11. **Port Works:** The impact of the emergency port project is limited to normal noise and increases in seawater turbidity related to the construction activity. Those effects are temporary and reversible. Oil pollution from ballast discharge and maintenance of ship engines may have longer term impacts on the environment. Oil slicks were noted in the harbor. Effective surveillance of the berthed ships is an important component of the environmental monitoring capacity of the port authorities, and will be developed under the ADB-funded technical assistance (TA) 3401, the Transport Sector Restoration Project. Improved port environmental management is expected to improve the environmental conditions even with an increase in ship traffic.

12. **Power Subproject.** The main concern with rehabilitation of the power generation and distribution capacity is the proper collection of unusable transformers that could be contaminated with polychlorinated biphenyl (PCB). PCB has been known to cause serious health problem in birds, fish, and reptiles, although its impact on mammals (including humans) is low. Transformers and electrical devices that may be contaminated with PCB will be collected and stored in a secured area. The area will be fenced to prevent accidental recovery of contaminated materials, and bound to prevent contamination through surface runoff. Ultimate disposal of PCB and PCB-contaminated materials is expensive. In some developed countries, high temperature incinerators are used to destroy PCB, but are reluctant to accept contaminated materials from foreign sources for processing. Thus, secured storage for future processing is the most logical procedure for East Timor

## 2. Biological Environment

13. **Road Works.** The emergency road works will have limited impact on the biological environment. The most serious impact would result from erosion if the drainage channels are not properly designed, as some trees maybe washed out if the water flows away from the normal drainage pattern. The civil works will be sensitive to these potential impacts.

14. **Port Works.** The emergency port works will have a minimal impact on the biological environment because they merely involve concreting. Dili Port will not involve any dredging, backfilling, or piling operations.

15. **Power Subproject.** The emergency power subproject will have no impact on the biological environment as it will be implemented within the existing power plant structure and the distribution lines along the existing rights-of-way. Improved handling of PCB-contaminated transformers, spent oil, and sludge will remove those potential pollutants from the environment.

## 3. Sociocultural Environment

16. **Road Works.** The works will use the existing road rights-of-way. No land acquisition or resettlement will be required. The sociocultural impact will be mostly positive. During the next 12 months, the works are expected to assist in the flow of food and agricultural supplies to famine stricken areas, resettlement of displaced persons, and enforcement of peace and order. In the medium term, the Project will help reconstruct East Timor. Improved road conditions are expected to facilitate commerce, communication, and cultural interaction among the different parts of East Timor.

17. **Port Works.** The port works will not require land acquisition or resettlement. The impacts and benefits of the project on the sociocultural environment are similar to those of the road works.

18. **Power Subproject.** The subproject will restore the power supply to vital services such as water supply, hospital, schools, markets, communication, and cottage industries. The project will not require any land or resettlement. Thus, the impacts on the sociocultural environment are mostly positive, similar to those of the road and port works.

#### **E. Institutional Requirement and Environmental Monitoring Program**

19. Indonesian environmental laws and regulations remain in effect in East Timor. The personnel implementing and enforcing the environmental laws and regulations were mostly Indonesian nationals and are not expected to return to East Timor. The UNTAET needs support in reviewing these regulations and developing capacity to undertake environmental assessments. ADB's TA is proposed to assist in these areas.

20. The project will also establish capacity in the port sector to analyze oil in water and monitor oil pollution in the sea and in discharges from ships. In the power subsector, capacity to analyze for oil pollution, noise, and smoke will be provided. In the road subsector, capacity to monitor noise, suspended solids, and sediment load will be included in the project. The personnel trained in the project will report directly to the project manager.

#### **F. Findings and Recommendations**

21. Human resources and institutions need to be trained for environmental and natural resources management. A database and monitoring programs need to be developed

#### **G. Conclusions**

22. The potential environmental impacts are limited to construction activities that are temporary and reversible. The medium- and long-term impacts of the proposed Project are positive, especially in promoting the economic and social development of East Timor, facilitating reconstruction and redevelopment. A detailed environmental impact assessment is not needed.

## INITIAL SOCIAL ASSESSMENT

### A. Benefits and Beneficiaries

1. On 4 September 1999 when the referendum results were announced in favor of independence, violence broke out in East Timor. More than 80 percent of the population was displaced. Their houses, workplaces, schools, hospitals, and places of worship were destroyed, and farmlands were abandoned. Massive relief efforts by the international community were needed to avert famine and restore peace and order, basic services, and infrastructure. Details of the damage and its impact on the population are given in paragraphs 3 and 5-7 of the main report on the project grant.

2. The immediate benefits of the emergency port and road projects are facilitating the (i) movement of food supplies to famine-stricken areas; (ii) movement of agricultural supplies, specifically seeds for farmers to start growing food; (iii) resettlement of internally displaced persons and refugees; and (iv) movement of the United Nations peacekeeping forces. These projects will utilize labor, especially in rural areas where heavy equipment is difficult to transfer and the required road standards are low. The use of local labor will stimulate the local economy and help in the reconstruction of the communities. The immediate beneficiaries of the Project are the famine stricken areas of East Timor and the semi- and unemployed rural workers.

3. Beneficiaries of the emergency power subproject will primarily be the urban and semi-urban population. The power project will assist in the operation of essential services such as water supply, hospitals, schools, commercial establishments, and industries.

### B. Needs, Demands, and Absorptive Capacity

4. The emergency Project will restore the roads and power supply to levels equal to those that existed prior to the conflict. The demands are slightly lower from the local population because of the economic dislocation, but demand from the international community relief and rehabilitation efforts more than accounts for the slack in domestic demand. The relief efforts are congesting the ports and straining the road network as food is rushed to famine stricken areas, displaced people return to their homes, and support services are provided. These include medicines, seeds and agricultural inputs, temporary shelters, and reconstruction materials. The project will also stimulate employment in the rural areas and assist in the long-term reconstruction of East Timor.

5. The Project will have a direct positive impact on the estimated 80 percent of the East Timorese displaced by the conflict. As the Project will restore road conditions and power supply to the level available before the conflict, its outputs are within the absorptive capacity of East Timor. The completion of the unfinished section of the port facilities and repair of the landing facilities are also within the absorptive capacity of the local economy and the international community currently operating in the country.

### C. Adverse Effects on Vulnerable Groups

6. The Project will not involve any land acquisition or resettlement. Project works will use the existing rights-of-way. The Project will not have negative impacts on any vulnerable group.

#### **D. Social Dimensions in Project Design**

7. **Poverty.** The conflict has reduced a large portion of East Timor to poverty, and in a number of instances potentially to starvation. The Project will have a positive impact in generating employment especially for unskilled and semiskilled labor, under the road repair and power restoration components. Most of the industries and services in East Timor are using low technology that easily accommodates low skilled workers. The Project is expected to hire directly 10,000 semiskilled workers throughout East Timor for short durations during the next 12 months.

8. **Gender.** Women, especially the pregnant and those with infant children, are the most vulnerable group to insufficient food intake. The impact of the Project on the group is most positive, as it will help transport food and agricultural inputs to rebuild farms. The emergency power project will help restore water supply and health care facilities, and reestablish schools.

9. **Minorities.** East Timor has no identified minority groups. Rural communities are the main beneficiaries of the road works, specifically areas that were not able to plant in late 1999 and early 2000 because of the conflict and are currently facing possible famine. The project will also help rural communities rebuild the agriculture sector, which will help them buy needed construction materials to rebuild houses and buildings destroyed during the conflict.

10. **Land Acquisition and Resettlement.** The project will not involve any land acquisition or resettlement, as described (para. 6).

#### **E. Monitoring and Evaluation**

11. The project management unit will supervise, monitor, and review with the road and port contractors, the recruitment and hiring of local residents during implementation. The emergency road repair program will be coordinated with various relief and assistance activities, especially the World Food Program and the United Nations High Commission for Refugees. The program will focus on sections that need high priority maintenance and repair. The Asian Development Bank is currently doing a tariff study for the power sector and a socioeconomic profile of the users will be made. The tariffs established will include mechanisms to allow the poor access to the electricity.