

No.

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

UNITED NATIONS
TRANSITIONAL ADMINISTRATION IN EAST TIMOR

**THE STUDY
ON
URGENT REHABILITATION PLAN
IN
EAST TIMOR**

FINAL REPORT

VOLUME 1: SUMMARY

August 2000

**PACIFIC CONSULTANTS INTERNATIONAL
NIPPON KOEI CO., LTD.
YACHIYO ENGINEERING CO., LTD.**

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| 00-145 |

NOTE

The following exchange rate is applied.

US\$ 1.00 = Yen 106 (as of June 2000)

PREFACE

In response to a request from the United Nations Transitional Administration in East Timor (UNTAET), the Government of Japan decided to conduct a Study on Urgent Rehabilitation Plan in East Timor and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA selected and dispatched a study team headed by Mr. Haruo Sakashita of Pacific Consultants International (PCI) and consisting of PCI, Nippon Koei Co., Ltd. and Yachiyo Engineering Co., Ltd. to East Timor between February 2000 and August 2000.

The team held discussions with the officials concerned of the United Nations Transitional Administration in East Timor, and conducted field surveys in the study area. Upon returning to Japan, the team conducted further studies and prepared this final report.

I hope that this report will contribute to the promotion of this project and to the enhancement of friendly relationship between Japan and East Timor.

Finally, I wish to express my sincere appreciation to the officials concerned of the United Nations Transitional Administration in East Timor for their close cooperation extended to the team.

August 2000



Kimio Fujita
President
Japan International Cooperation
Agency

August 2000

Mr. Kimiko Fujita
President
Japan International Cooperation Agency (JICA)
Tokyo, Japan

Letter of Transmittal

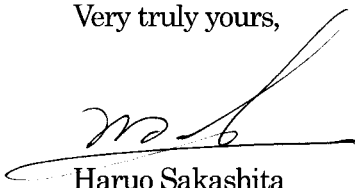
Dear Sir:

We are pleased to submit herewith the Final Report of the Study on Urgent Rehabilitation Plan in East Timor. The report contains the results of the study which was carried out by Pacific Consultants International in association with Nippon Koei Co., Ltd. and Yachiyo Engineering Co. Ltd. between February 2000 and August 2000. The report consists of four (4) volumes of Summary, Main Text, Manual (main) and Manual (Annex).

Three years Urgent Rehabilitation Plan up to June 2003 was formulated and recommended for the projects implementation of roads, bridges, ports, power and irrigation sectors. Also Quick Projects for roads, bridges and irrigation sectors were planned and implemented using a labor intensive method with the main purpose of creating job opportunity for the Timorese during the study period.

We would like to express our sincere gratitude to your agency and the Ministry of Foreign Affairs. We also wish to express our deep gratitude to the officials concerned of United Nations Transitional Administration in East Timor and JICA East Timor office for close cooperation and assistance extended to us during our investigation and study. The Study Team sincerely hopes that the results of the Study will contribute to the urgent rehabilitation and stability in East Timor.

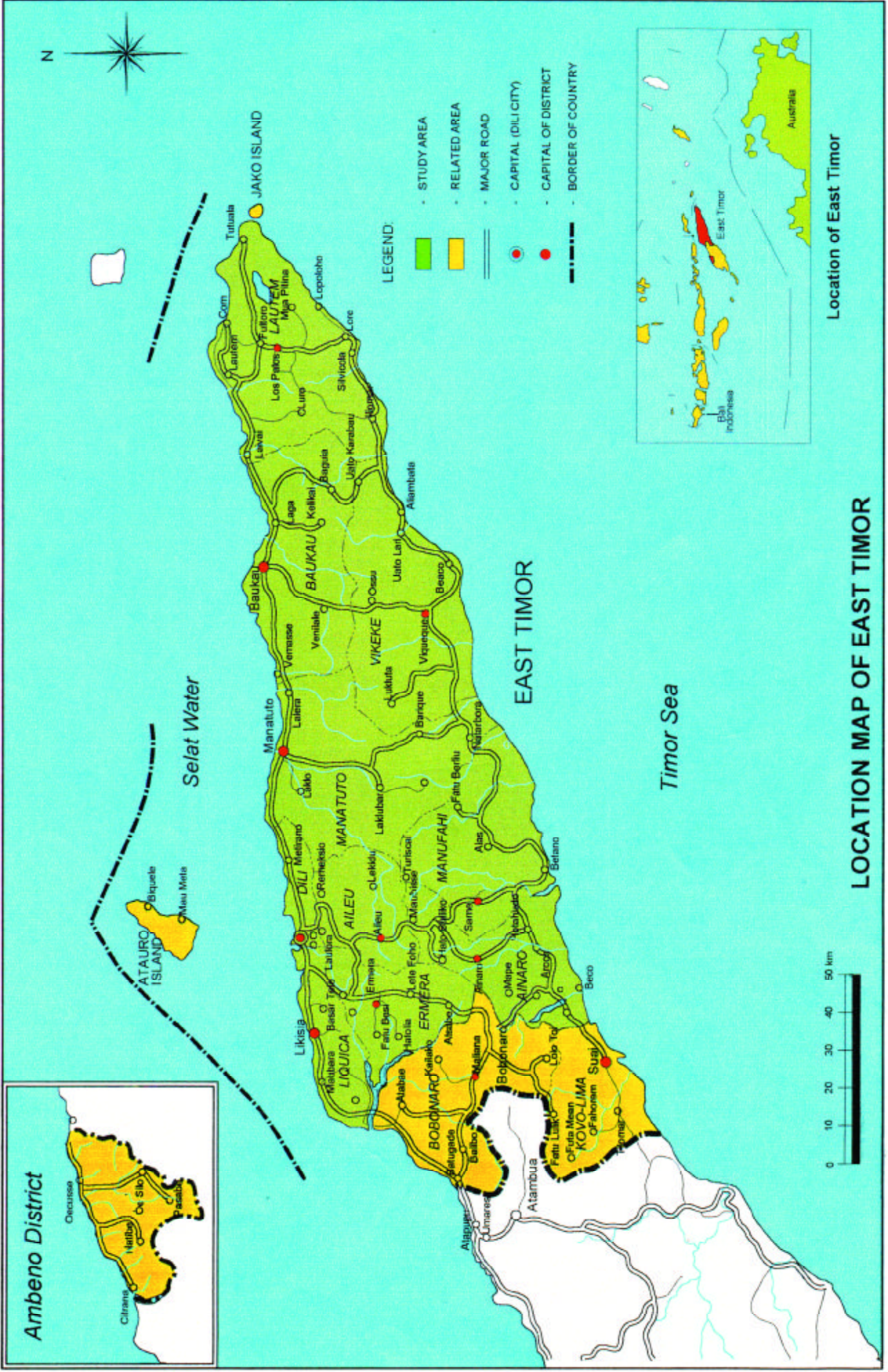
Very truly yours,



Haruo Sakashita

Team Leader

The Study on Urgent Rehabilitation in East Timor

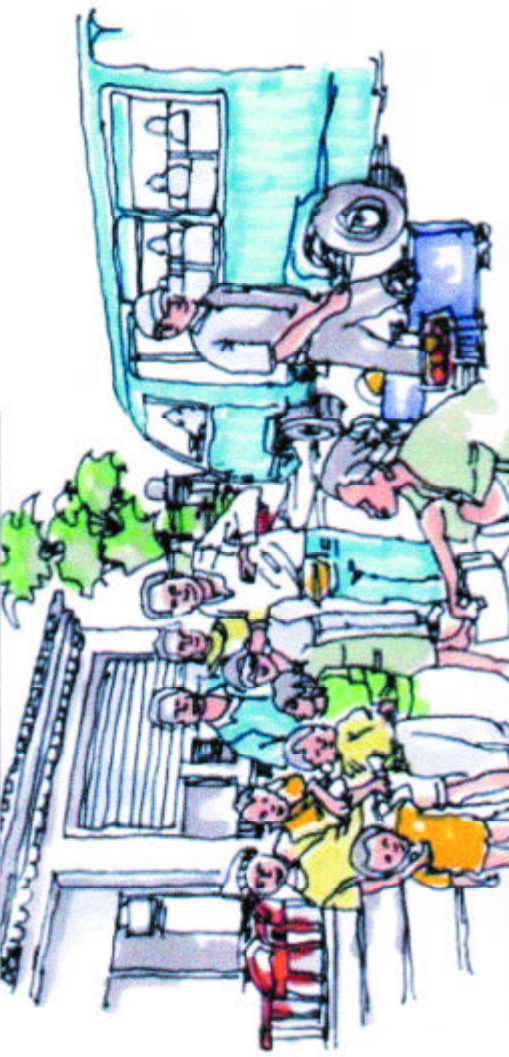


Ambeno District

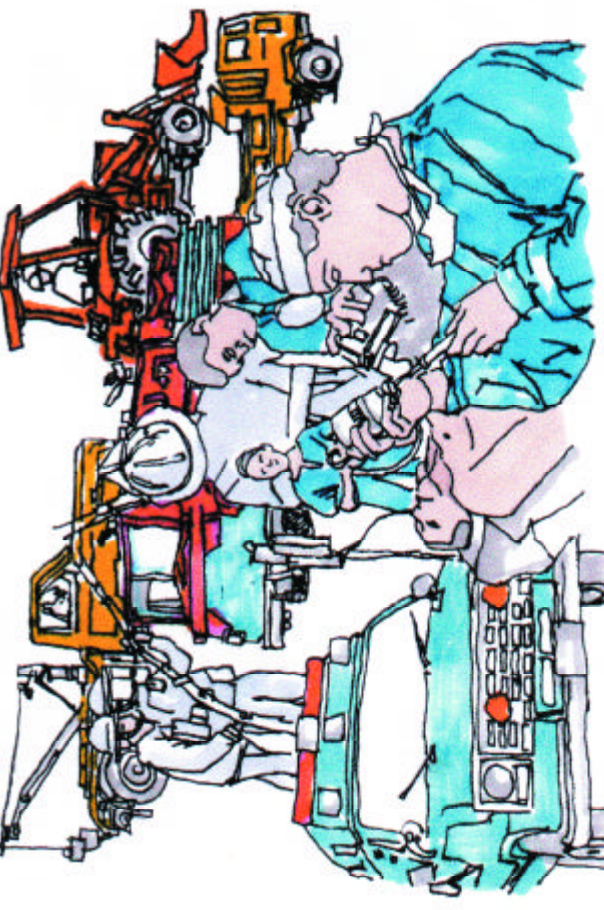
LOCATION MAP OF EAST TIMOR

Location of East Timor

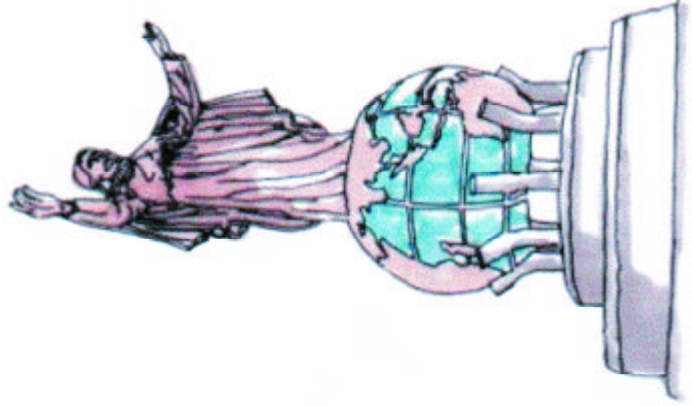
LIFE STANDARD



HOMESTEADS & FAMILY



IMPROVED LIVING STANDARDS

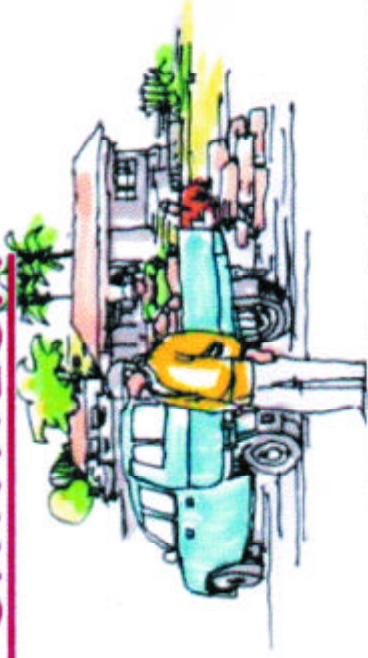


LANDMARK STATUE

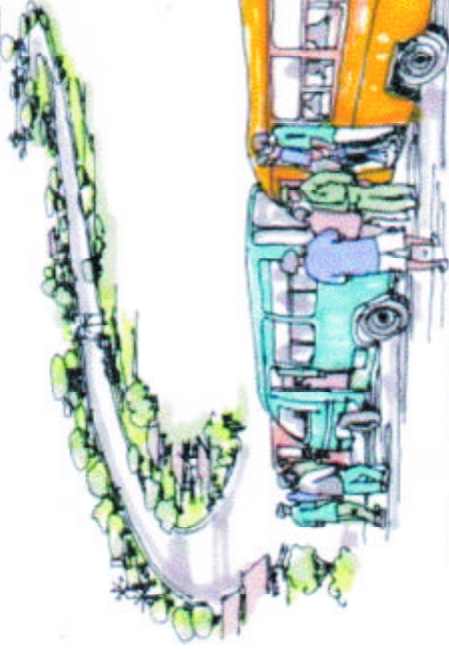


SUNDAY PRAY AND CHURCH

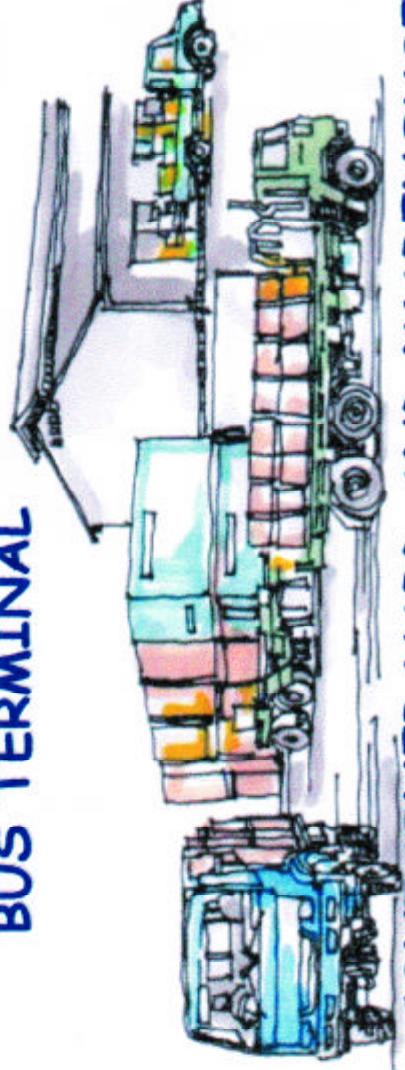
TRANSPORTATION



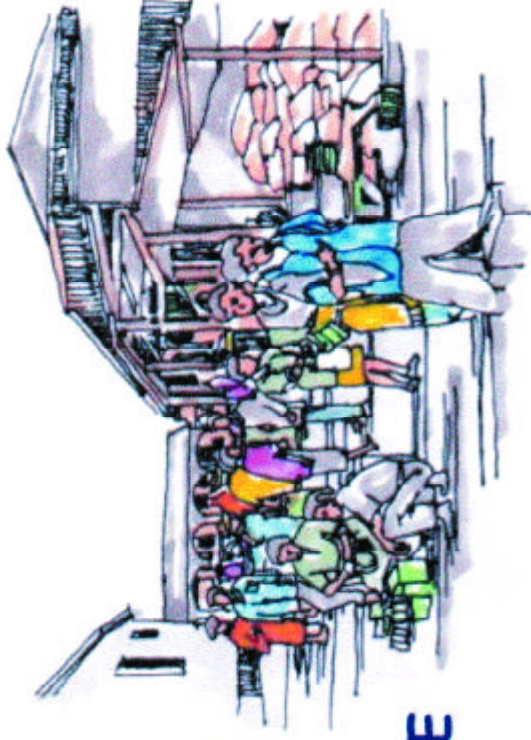
FARM HOUSE



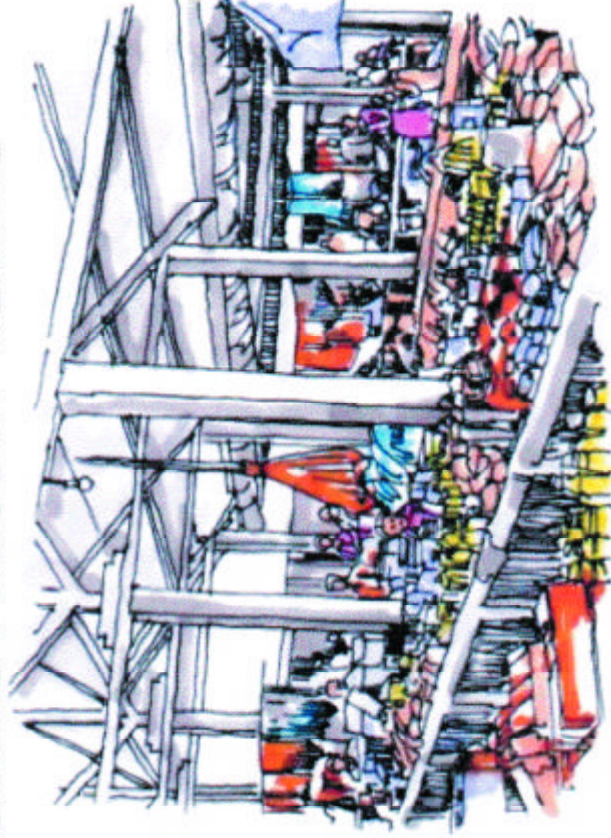
BUS TERMINAL



CONTAINER YARD AND WAREHOUSE

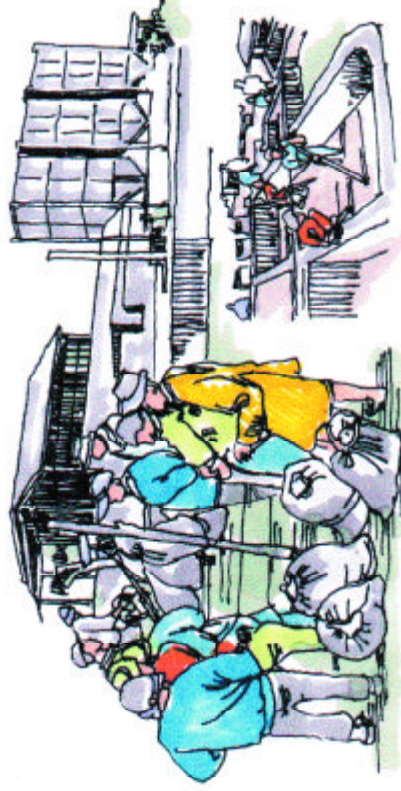


LOCAL PRODUCT CENTRE

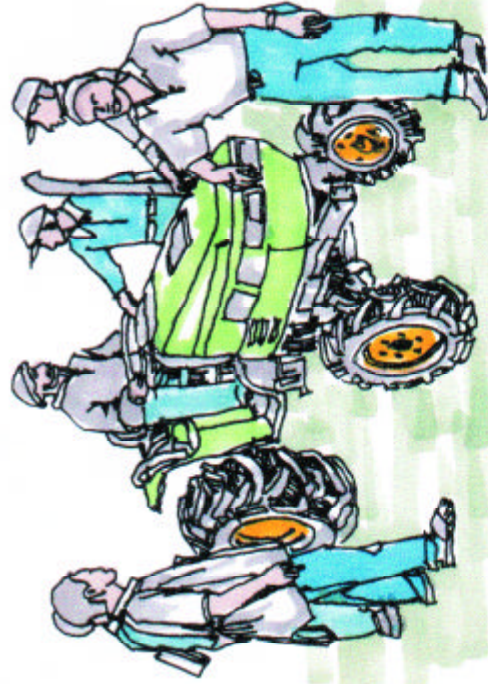


MARKET

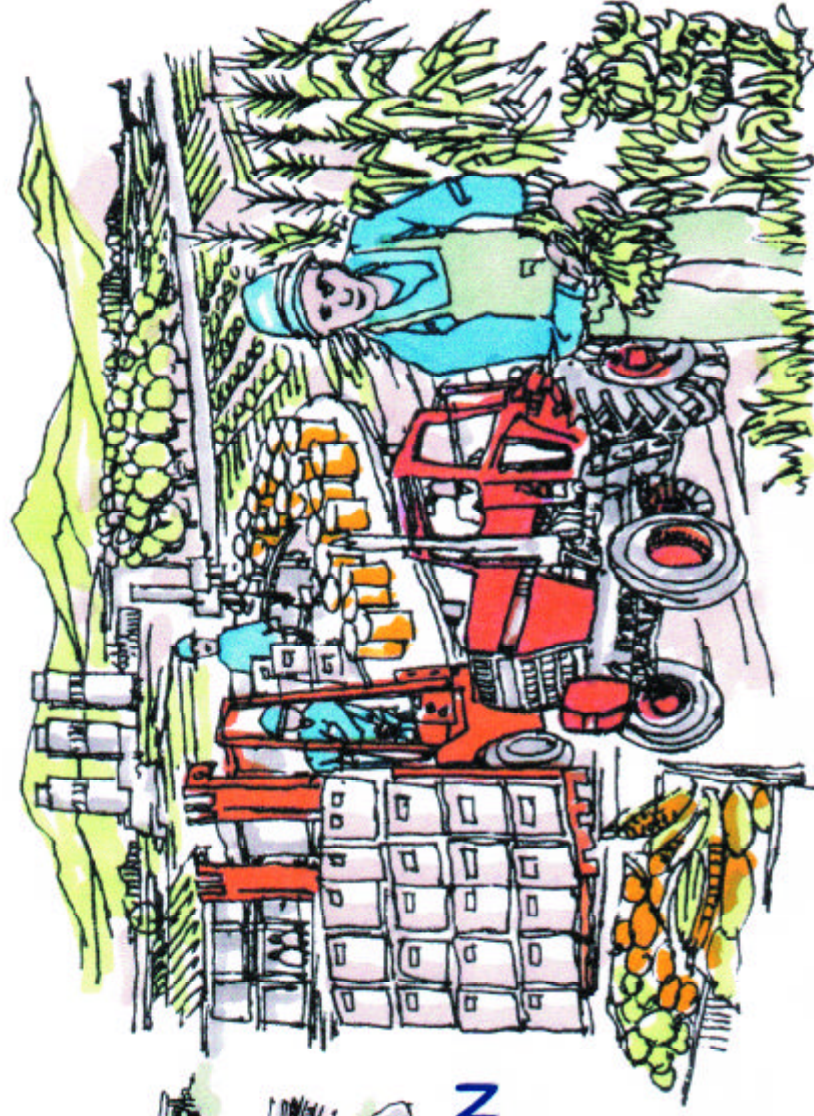
AGRO INDUSTRY



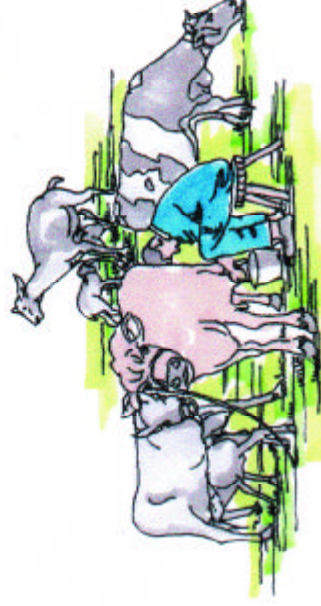
**COFFEE BEANS COLLECTION
AND PROCESSING**



NEW TRACTOR AND TOPICS



AGRO INDUSTRY



LIVE STOCK

PROJECT SUMMARY

| | |
|-----------------------|--|
| 1. Name of Location | East Timor |
| 2. Study Name | Study on Urgent Rehabilitation Plan in East Timor |
| 3. Counterpart Agency | United Nations Transitional Administration in East Timor |
| 4. Study Objectives | <ul style="list-style-type: none"> • To formulate 3years Urgent Rehabilitation Plan • To plan and implement Quick Projects • To contribute to UNTAET's infrastructure rehabilitation plan |

| | |
|---|---|
| 1. Study Area: East Timor except 3 districts of Ambeno, Bobonaro and Covalima | |
| 2. Study Approach | <ol style="list-style-type: none"> 1) Collection of Relevant Data, Inventory Survey, Assessment, Traffic Survey, Survey of Material and Equipment and Survey on Other Funding Agency/Donor's Aid Plan. 2) Formulation of Urgent Rehabilitation Plan for Roads · Bridges, Ports, Power and Irrigation Sections. 3) Plan and implementation of quick projects for Roads · Bridges and Irrigation Sectors 4) Preliminary Environmental Survey and Initial Environmental Examination 5) Conclusion and Recommendations |

| | |
|-----------------------|---|
| 3. Content of project | (1) Formulation of 3 years Urgent Rehabilitation Plan for Roads bridges, ports, power and irrigation sectors. |
|-----------------------|---|

Urgent Rehabilitation Schedule

| Sector | Investment MLU\$ | 2000 | | | | 2001 | | | | 2002 | | | | 2003 | |
|-----------------|---------------------|------|----|----|----|------|----|----|----|------|----|----|----|------|----|
| | | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 |
| Road and Bridge | 73.04 | | | | | | | | | | | | | | |
| Port | 9.70 | | | | | | | | | | | | | | |
| Power | 29.85 | | | | | | | | | | | | | | |
| Irrigation | 22.00 | | | | | | | | | | | | | | |

(2) Quick projects (Implementing period: April to August 2000)

| Project Name | Length | Working Period | Major Works |
|-------------------------------|--------|-------------------|---|
| Dili - Manatuto - Baucau Road | 123km | 40days | Cleaning of side ditch and cutting of grass |
| Dili - Aileu - Ainaro Road | 110km | 105days | Gabion works for slipped sections and filling gravel for potholes |
| Baucau - Laga - Baguia Road | 42km | 105days | Gabion works for slipped sections , filling gravel for potholes and causeway construction |
| Manatuto Irrigation | 11.3km | 50days | Cleaning of canal and cutting of grass |

| | |
|------------------------|--|
| 4. Project Evaluation: | Each project was formulated to be implemented, considering the limitation of national budget and a tariff. |
|------------------------|--|

| | |
|----------------------------------|--|
| 5. Conclusion and Recommendation | <ol style="list-style-type: none"> (1) The 3 years Urgent Rehabilitation Plan of each sector should be implemented (2) Establishment of Institutional Framework for all sectors; (3) Maintenance and Operations with necessary equipment and staff; (4) Training of staff; (5) Introduction of tariff system for ports and power sectors; including other four (4) recommendations. |
|----------------------------------|--|

Outline of the Study

East Timor, Study on Urgent Rehabilitation Plan

- Study Period : February, 2000 - August 2000
- Counterpart Agency : United Nations Transitional Administration in East Timor

1. Background

The violence following the results of the popular consultation not only caused a sharp drop in economic and social indicators, but also struck a territory which was already one of the poorest in East Asia in both economic and social terms.

The power sector was seriously affected by the violence, and also the roads · bridges, ports and irrigation sectors were damaged by the violence and the lack of maintenance works during a few years before and after the violence.

Due to these damages and insufficiency of the infrastructure in East Timor, it will take time to recover socio-economy in East Timor.

It is, therefore, quite vital to implement the urgent rehabilitation plan in order to ensure salvage the roads, bridges, ports, power and irrigation assets and to induce revival of economic activities, including facilitation of efficient national stability and humanitarian aid.

2. Objectives and Targets

- To plan and implement Quick Projects for roads, bridges and irrigation sectors;
- To formulate Urgent Rehabilitation Plan for roads · bridges, ports, power, irrigation sectors;
- To contribute to UNTAET's infrastructure rehabilitation plan for the period of 3 years up to June 2003.

3. Study Approach

The following approach was undertaken to attain the objectives and conclusion as shown in Figure-1.

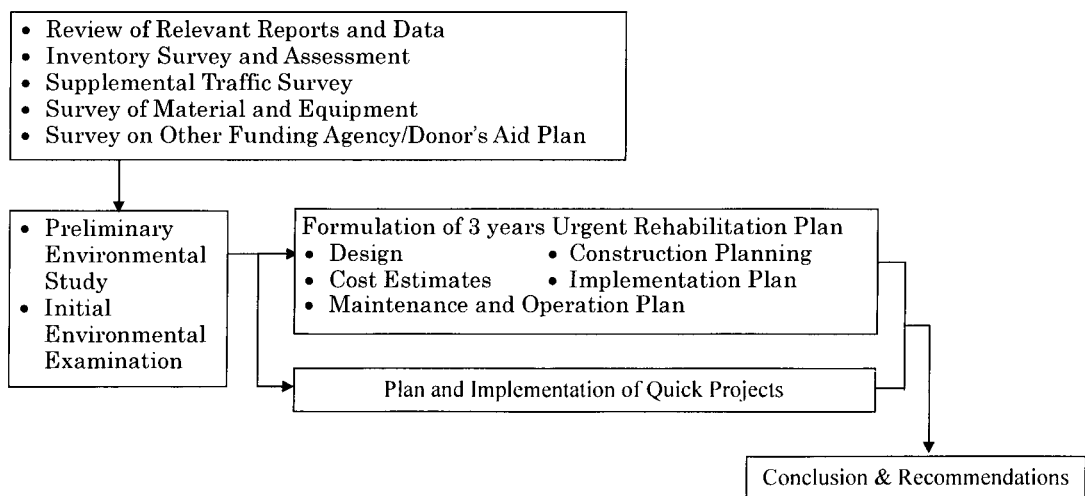


Figure-1 Flow Chart of Study Approach

4. Project Outline

- (1) Quick Projects were planned and implemented as shown in Table-1 from April to August 2000, applying the labor intensive method with the main purpose of creating job opportunity for Timorese.
- (2) 3 years Urgent Rehabilitation Plans (see Figure-2) were formulated for roads · bridges, ports, power and irrigation sectors based on the following concepts;
 - To rehabilitate infrastructure to acceptable level to facilitate efficient national stability and provide humanitarian aid;
 - To consider a limitation of national budget;
 - To target the completion of the plan by June 2003.

Table-1 Quick Project

| Name (Length) | Major Works | Working Period |
|--|---|----------------|
| Dili-Manatuto -Baucau Road (123 km) | Maintenance work for grass cutting and side ditch cleaning along shoulders | 40 days |
| Dili - Aileu - Ainaro Road (110 km) | Rehabilitation of failure / defects by gabion works for slipped fill section and filling gravel to potholes. | 105 days |
| Baucau - Laga - Baguia Road (42 km) | Rehabilitation of failure / defects by installation of causeways, gabion works for slipped fill section and filling gravel to potholes. | 105 days |
| Irrigation in Manatuto (11.3 km) | Maintenance work of grass cutting and sediment removal of canal bed of Lacro irrigation system. | 50 days |

5. Project Evaluation

Each project was formulated to be implemented, considering the limitation of national budget and a tariff.

6. Conclusion and Recommendations

- (1) The 3 years Urgent Rehabilitation Plan of each sector should be implemented as shown in Figure-2;
- (2) Establishment of institutional framework for all sectors;
- (3) Maintenance and operations with necessary equipment and staff;
- (4) Training of staff;
- (5) Introduction of tariff system for ports and power sectors;
- (6) Needs of 1500hp to 2000hp tug boat for ports sector;
- (7) Needs for flood and erosion control projects for Irrigation Sector;
- (8) Necessity of Integrated Agricultural Development Master Plan;
- (9) Consideration to natural (projects along with sustainable natural environment) and social environment (approach of people's participation to infrastructure projects); and
- (10) Data collection and education of environment for preservation.

Implementation Schedule of Road Section

| Route No. | Road Section | Capital Cost US\$ Mill | 2000 | | | | 2001 | | | | 2002 | | | | 2003 | | | | Committed Agency |
|-----------|---------------------------------------|---------------------------|--------------|----|----|----|--------------|----|----|----|--------------|----|----|----|------|----|----|----|------------------|
| | | | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | |
| (1) | Dili-Aileu-Aituto-Ainaro-Cassa | 4.82 | | | | | | | | | | | | | | | | | JAPAN |
| (2) | Laga-Baguaia-Afaloicai | 6.54 | | | | | | | | | | | | | | | | | QP by Japan |
| (3) | Tibar-Ermera | 3.12 | | | | | | | | | | | | | | | | | (JICA STUDY)* |
| (3)-1 | Ermera-Hatolia | 1.65 | | | | | | | | | | | | | | | | | (JICA STUDY)* |
| (4) | Ermera-Letefoho-Atsabe | 2.41 | | | | | | | | | | | | | | | | | (JICA STUDY)* |
| (5) | Laga-Lautem-Los Palos | 2.72 | | | | | | | | | | | | | | | | | (JICA STUDY)* |
| (6) | Manatuto-Cribas-Natabora | 1.88 | | | | | | | | | | | | | | | | | ADB-TFET |
| (7) | Dili-Tibar-Liquica-Maubara-Loes | 3.04 | | | | | | | | | | | | | | | | | (JICA STUDY)* |
| (8) | Baucau-Venilale-Viqueque | 4.97 | | | | | | | | | | | | | | | | | ADB-TFET |
| (9) | Aituto-Same-Betano | 2.16 | | | | | | | | | | | | | | | | | ADB-TFET |
| (10) | Cassa-Betano | 0.74 | | | | | | | | | | | | | | | | | (JICA STUDY)* |
| (11) | Betano-Natabora | 0.41 | | | | | | | | | | | | | | | | | (JICA STUDY)* |
| (12) | Natabora-Viqueque | 0.63 | | | | | | | | | | | | | | | | | (JICA STUDY)* |
| (13) | Viqueque-Beacu-Uatolari-Irabinleteria | 1.09 | | | | | | | | | | | | | | | | | (JICA STUDY)* |
| (14) | Irabinleteria-Illiomar-Los Palos | 2.08 | | | | | | | | | | | | | | | | | (JICA STUDY)* |
| (15) | Dili-Manatuto-Baucau-Laga | 4.28 | | | | | | | | | | | | | | | | | (JICA STUDY)* |
| | Dili city | 3.37 | | | | | | | | | | | | | | | | | (JICA STUDY)* |
| | Bobonaro, Suai, Oecusse Districts | 9.13 | | | | | | | | | | | | | | | | | ADB-TFET |
| | road | 18.00 | | | | | | | | | | | | | | | | | ADB/OTHERS |
| | Total | 73.04 | | | | | | | | | | | | | | | | | |
| | | | 24.65 | | | | 31.69 | | | | 16.67 | | | | | | | | |

Note: (JICA STUDY)* does not mean a commitment of funding for D/D and construction works

Implementation Schedule of Port Section

| Task Name of Port Sector | Capital Cost US\$ Mill | 2000 | | | | 2001 | | | | 2002 | | | | 2003 | | | | Committed Agency | |
|--------------------------|---|--------------|----------------------------------|----|----|------|-------------|----|----|------|-------------|----|----|------|-------------|----|----|------------------|---------------|
| | | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | | |
| | | PY1 | | | | PY2 | | | | PY3 | | | | | | | | | |
| Dili Port | Completion of Wharf Extension | 0.40 | | | | | | | | | | | | | | | | | ADB-TFET |
| | Restoration of Landing Craft Slipway | 0.04 | | | | | | | | | | | | | | | | | ADB-TFET |
| | Rehabilitation of East Container Yard | 0.20 | | | | | | | | | | | | | | | | | ADB-TFET |
| | Emergency Repairs and Equipment | 1.33 | | | | | | | | | | | | | | | | | ADB-TFET |
| | Equipment (Assessed budget) | 0.40 | | | | | | | | | | | | | | | | | UNTAET |
| | Restoration of Navigation Aids&Fender | 2.50 | | | | | | | | | | | | | | | | | Gov. of JAPAN |
| | Rehabilitation of West Container Yard | 4.55 | | | | | | | | | | | | | | | | | -- |
| | Restor. of East Container Yard Revetm. | 1.89 | | | | | | | | | | | | | | | | | -- |
| | Interim Port Management Services | N/A | | | | | | | | | | | | | | | | | Portugal |
| | Port/Maritime Institutional Developm. | 0.15 | | | | | | | | | | | | | | | | | ADB |
| | Institutional "Operationaliz."&Training | inc | | | | | | | | | | | | | | | | | ADB-TFET |
| | Port/Maritime Sector Development Plan | 0.15 | | | | | | | | | | | | | | | | | ADB |
| Com Port | Rehabilitat. of Navigation Aids&Fenders | 1.37 | | | | | | | | | | | | | | | | | -- |
| Others | Beach Matting : Suai, Betano, Beacu | 0.09 | | | | | | | | | | | | | | | | | ADB-TFET |
| | Total of Capital Cost | 13.07 | 0.30 | | | | 4.96 | | | | 2.54 | | | | 2.20 | | | | 3.26 |
| | | | Total of Three Years 9.70 | | | | | | | | | | | | | | | | |

Figure-2 Implementation Plan of 3 Years Urgent Rehabilitation (1/2)

Implementation Schedule of Power Sector

| No. | Project Name | Capital Cost (Million US\$) | 2000 | | 2001 | | 2002 | | 2003 | | Committed Agencies |
|--|--|--------------------------------|------|------|-------|-------|------|------|------|------|---|
| | | | 1-6 | 7-12 | 1-6 | 7-12 | 1-6 | 7-12 | 1-6 | 7-12 | |
| 1 | Restoration of rural power stations | 5.18 | | | | | | | | | Rehabilitation Plan - 1 |
| | (1) Two (2) P/S funded by UNTAET | 0.30 | | 0.30 | | | | | | | UNTAET |
| | (2) Fifteen (15) P/S funded by ADB | 2.33 | | 1.33 | 1.00 | | | | | | ADB |
| | (3) Two (2) P/S funded by Portugal | 0.30 | | 0.30 | | | | | | | PORTUGAL |
| | (4) Thirteen (13) P/S funded by Japan | 2.25 | | 1.25 | 1.00 | | | | | | JAPAN |
| 2 | Maintaining of present output capacity of Komoro power station | 2.91 | | 1.50 | 1.41 | | | | | | Rehabilitation Plan - 2 JAPAN |
| 3 | Institutional study for PAET by Portugal Consultant | 1.00 | 0.50 | 0.50 | | | | | | | PORTUGAL |
| 4 | Rehabilitation of Switchgears of Komoro P/S, etc | 0.43 | | 0.43 | | | | | | | ADB |
| 5 | Upgrading of Komoro power station | 7.20 | | 2.40 | 2.40 | 2.40 | | | | | Rehabilitation Plan - 3 (JICA STUDY) * |
| 6 | Upgrading of three(3) major power stations | 7.63 | | 2.63 | 2.50 | 2.50 | | | | | Rehabilitation Plan - 4 (JICA STUDY) * |
| 7 | Reinforcement of 20kV distribution networks | 5.50 | | 2.00 | 2.00 | 1.50 | | | | | Rehabilitation Plan - 5 (JICA STUDY) * |
| Total of Capital Cost | | 29.85 | 0.50 | 5.18 | 6.24 | 5.03 | 6.90 | 4.50 | 1.50 | | |
| note : (JICA STUDY) * does not mean a commitment of funding for D/D and construction works | | | | 5.68 | 11.27 | 11.40 | 1.50 | | | | |

Implementation Schedule of Irrigation Sector

| | Name of Irrigation System | District | Capital Cost US\$ | Stage | First Year | | Second Year | | Third Year | | Committed Agency | | |
|--|---------------------------|----------|-------------------|---------------|------------|------|-------------|------|------------|----|------------------|------|----|
| | | | | | 2000 | | 2001 | | 2002 | | | 2003 | |
| | | | | | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | | Q1 | Q2 |
| Urgent Irrigation | Laclo-I | Manatute | 3.2 | D/D&Tendering | | | | | | | Gov. of JAPAN | | |
| | | | | Construction | | | | | | | | | |
| Rehabilitation Project | Seical | Baucau | 2.2 | D/D&Tendering | | | | | | | (JICA Study) | | |
| | | | | Construction | | | | | | | | | |
| | Uatolari-I | Viqueque | 2.6 | D/D&Tendering | | | | | | | (JICA Study) | | |
| | | | | Construction | | | | | | | | | |
| | Laclo-II | Manatute | 6.4 | D/D&Tendering | | | | | | | (JICA Study) | | |
| | | | | Construction | | | | | | | | | |
| | Laleia-R | Manatute | 2.9 | D/D&Tendering | | | | | | | (JICA Study) | | |
| | | | | Construction | | | | | | | | | |
| 20 Irrigation System Operation & Maintenance Strengthening Project | | | 6.4 | D/D&Tendering | | | | | | | (JICA Study) | | |
| | | | | Construction | | | | | | | | | |
| Total | | | 22.0 | | | 4.55 | 8.10 | 9.33 | | | | | |

Note: (JICA Study) does not mean a commitment of the funding for D/D and construction works

Figure-2 Implementation Plan of 3 Years Urgent Rehabilitation (2/2)

**THE STUDY ON
URGENT REHABILITATION PLAN IN EAST TIMOR**

FINAL REPORT – SUMMARY

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**THE STUDY ON
URGENT REHABILITATION PLAN IN EAST TIMOR
*FINAL REPORT – SUMMARY***

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List of Acronyms

| | |
|--------|---|
| ADB | Asian Development Bank |
| AusAID | Australian Agency for International Development |
| CAP | UN Consolidated Inter Agency Appeal for the East Timor Crisis |
| CEP | Community Empowerment and Local Governance Project |
| CFA | Central Fiscal Authority |
| CNRT | Conselho Nacional da Resistencia Timorese (National Council of the Timorese Resistance) |
| D/D | Detail Design |
| DFID | Department for International Development (UK) |
| DPU | Public Works Department in Indonesia |
| DSRSG | Deputy Special Representative of Secretary General |
| DTW | Department of Transport and Works |
| DWT | Dead Weight Tonnage |
| ECHO | European Commission Humanitarian Office |
| EIA | Environmental Impact Assessment |
| EPU | Environmental Protection Unit |
| FAO | Food and Agricultural Organization |
| FY | Fiscal Year |
| GOJ | Government of Japan |
| GWT | Gross Weight Tonnage |
| IDA | International Development Agency |
| ILO | International Labor Organization |
| IMF | International Monetary Fund |
| IOM | International Organization for Migration |
| JAM | Joint Assessment Mission |
| JICA | Japan International Cooperation Agency |
| MOU | Memorandum of Understanding |
| NCC | National Consultative Council |
| NGOs | Non-Governmental Organization |
| NTG | Northern Territory Government |
| OCHA | Office of the Coordination of Humanitarian Affairs |
| O/M | Operation and maintenance |
| PAET | Power Authority of East Timor |
| PKF | Peace Keeping Force |
| PQ | Per-Qualification |
| QIPs | Quick Impact Projects |
| QP | Quick Project |
| ROW | Right of Way |
| SRSRSG | Special Representative of Secretary General |
| S/W | Scope of Work |
| TFET | World Bank-Administered Trust Fund for East Timor |
| UNDP | United Nations Development Programmed |
| UNFPA | United Nations Population Fund |

| | |
|--------|--|
| UNHCR | United Nations High Commissioner for Refugees |
| UNICEF | United Nations International Children's Fund |
| UNOPS | United Nations Office for Project Services |
| UNPKF | United Peacekeeping Force |
| UNTAET | United Nations Transitional Administration in East Timor |
| USAID | United States Agency for International Development |
| WFP | World Food Programmed |
| WHO | World Health Organization |
| WUA | Water User Association |

CHAPTER 1
INTRODUCTION

CHAPTER 1 INTRODUCTION

1.1 Background of the Study

In response to the request of the United Nations Transitional Administration in East Timor (hereinafter referred to as “UNTAET”), the Government of Japan decided to conduct “The Study on Urgent Rehabilitation Plan in East Timor”(hereinafter referred to as “the Study”) in accordance with the relevant laws and regulations in force in Japan.

The Japan International Cooperation Agency(hereinafter referred to as “JICA”), the official agency responsible for technical cooperation programs of the Government of Japan, was assigned to undertake the Study in close cooperation with authorities connected with UNTAET.

In January 2000, JICA dispatched a Economic Cooperation mission headed by Mr. Katsuro Nagai to East Timor for the preparatory work as well as discussion on the Scope of the Study, and the Scope of Work(hereinafter referred to as “S/W”), attached herewith in Appendix for TOR, was agreed and signed by Special Representative of the Secretary General of UNTAET and JICA mission on January 12, 2000.

1.2 Objectives of the Study

The objectives of the study are (a) to plan and undertake Quick Project (so called Quick Impact Projects in UNTAET) in road, bridge and agriculture sectors and (b) to formulate Urgent Rehabilitation Plan for roads, bridges, ports, power and irrigation sectors of East Timor in order to contribute to UNTAET’s infrastructure rehabilitation plan for the period of three (3) years up to June 2003. The Study was carried out in close coordination with the other international organizations and bilateral donors.

1.3 Study Area

The Study area covers all the area of East Timor except the Districts of Ambeno, Bobonaro and Cova Lima(See location map).

1.4 Scope of works

UNTAET is implementing a program of humanitarian assistance in East Timor. Taking into account the present situation in East Timor and UNTAET’s program, the Study covers the following main items, for the study such as site survey, inventory survey, preliminary design and cost estimates, etc., in order to achieve the objectives mentioned in Clause 1.2.

(1) Urgent Rehabilitation Plans

The urgent rehabilitation plans for each infrastructure sector of roads, bridges, ports, power and irrigation are formulated with the purposes of facilitating efficient transport of humanitarian aid and security, ensuring salvage of the infrastructure assets and inducing revival of economic activity, considering that the plans are materialized by June 2003.

(2) Quick Project.

Taking into account keeping the roads and bridges open as a highest priority together with irrigation in UNTAET's program, the Quick Project, which is called Quick Impact Project (QIP) in UNTAET, has been formulated for only road, bridge and irrigation sectors in the course of the Study and implemented during the months of April, May, June, July and August by labor intensive method with the main purpose of creating job opportunity to the East Timorese.

A work flow chart was proposed as shown in Figure 1.1.

1.5 Final Report

This Final Report contains summarized findings and recommendations following the descriptions of all the works carried out in the Study.

This Final Report consists of the volumes as listed below;

| | |
|-----------|----------------|
| Volume 1: | Summary |
| Volume 2: | Main Text |
| Volume 3: | Manual (Main) |
| Volume 4: | Manual (Annex) |

1.6 The Study Members and Counterparts

The study members and counterparts were as follows;

UNTAET Counterparts

- INFRASTRUCTURE

1. Mr. Bob Churcher Director of Infrastructure Dpt. (Feb.-Jun.2000)
2. Mr. Diego Zorrilla Deputy Director of Infrastructure Dpt. (Feb.-Jun.2000)
3. Mr. Phil Piper Manager, Road Authority, Infra. Dpt. (Feb.-May 2000)
4. Mr. John Bertram Head of Roads, Transportation Dpt. (May-Jul.2000)
5. Mr. Yogesh Saksena Director of Transportation Dpt. (Jun-Jul.2000)
6. Mr. Chandra Perera Staff of Transportation Dpt. (Jun-Jul.2000)
7. Mr. Owen Peake Director, Public Utilities Dpt. (Jun.-Jul.2000)
Adviser, Power Authority (Feb.-Jun.2000)
8. Mr. Trevor Fry Head of Power, Public Utilities Dpt. (Jun-Jul.2000)
9. Mr. Gunnar Hansen Head of Port, Transportation Dpt. (Jun-Jul.2000)
10. Mr. Mohd Ahmed Manager of Port, Transportation Dpt. (Jun-Jul.2000)
Manager of Port Authority, Infra. Dpt. (Feb.-Jun.2000)
11. Mr. Edgar Pacheco Staff of Port, Transportation Dpt. (Jun-Jul.2000)
Staff of Port Authority, Infra. Dpt. (Feb.-Jun.2000)

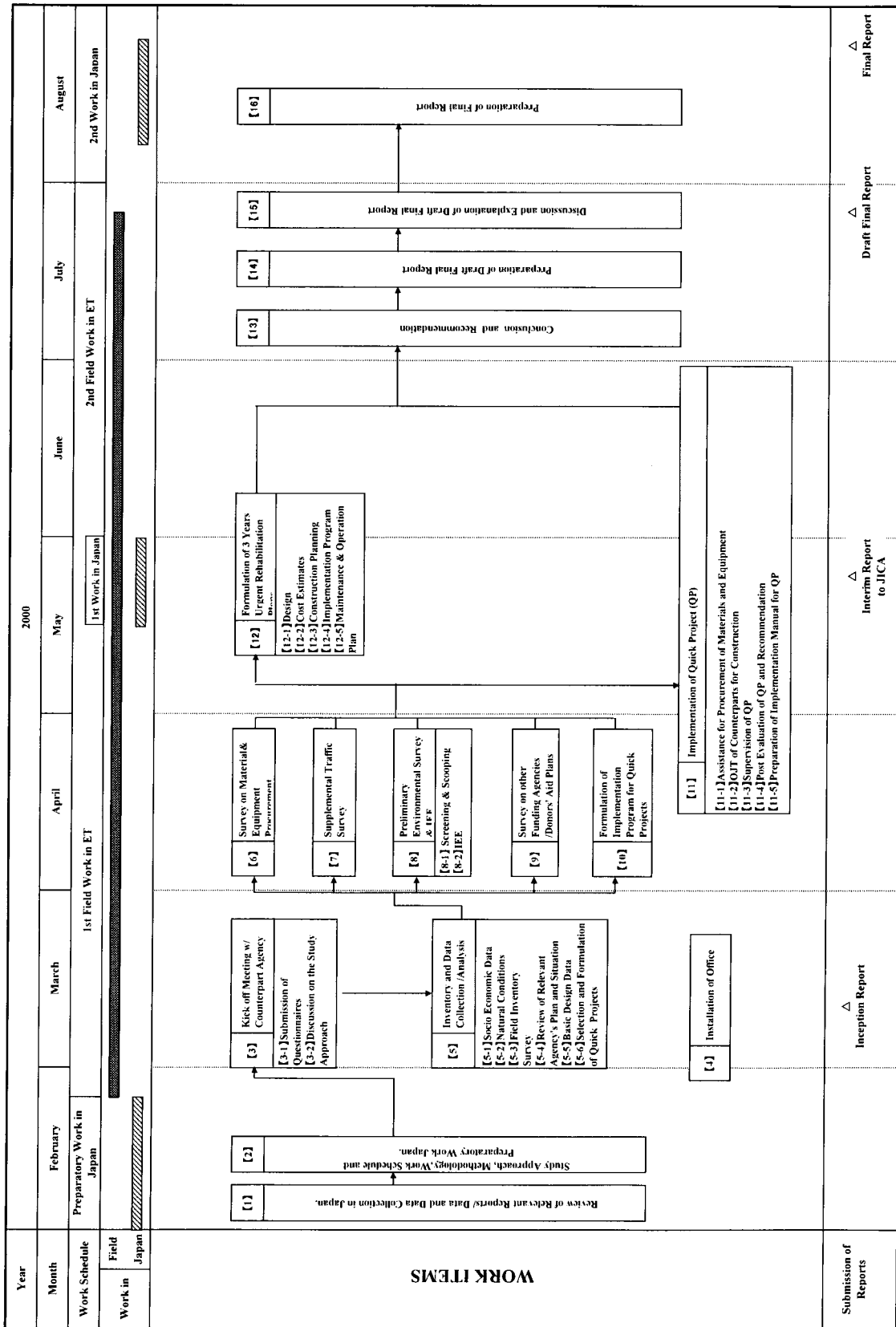


Figure 1.1 Work Flow Chart

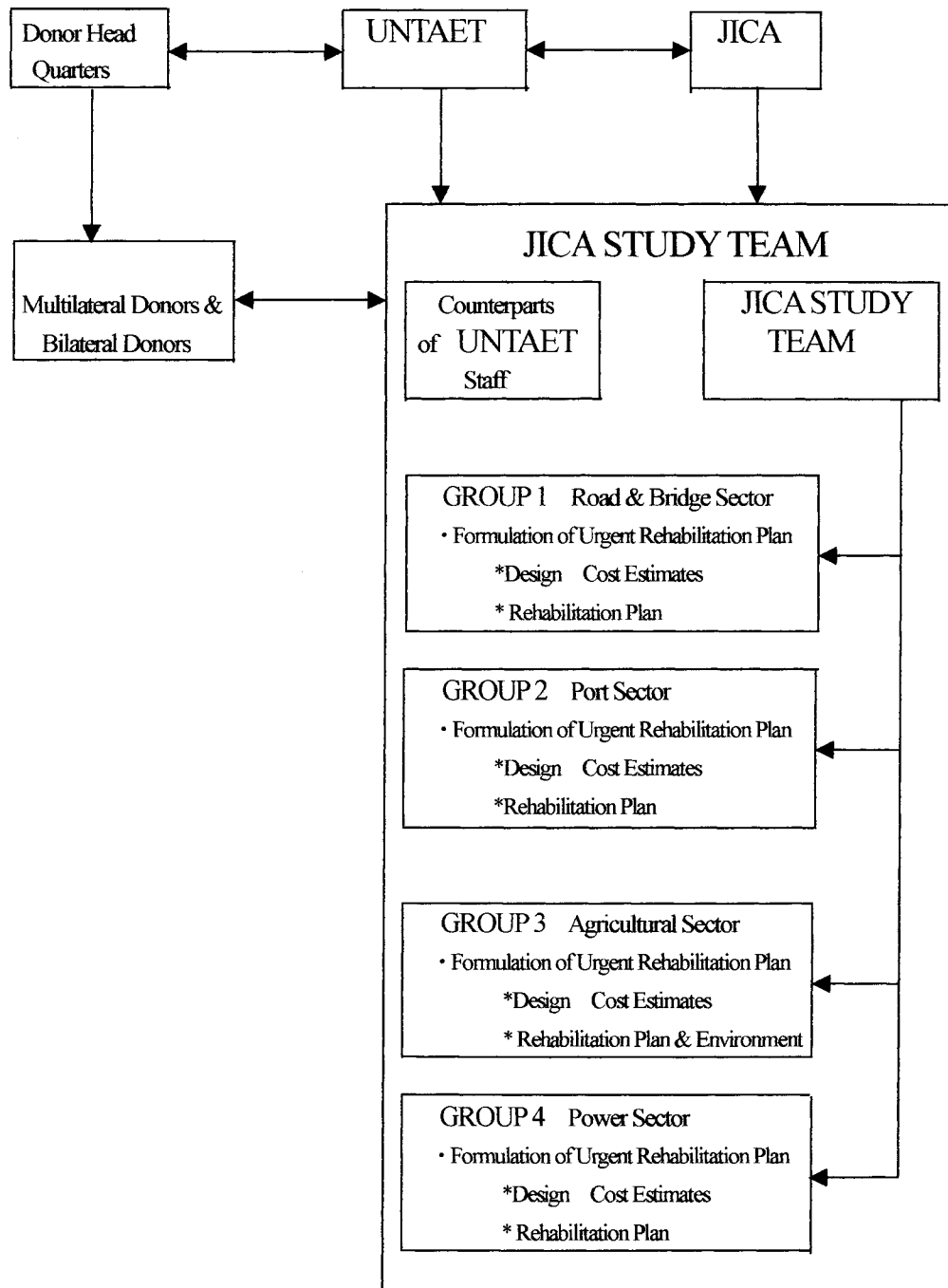


Figure 1.2 Study Organization

- AGRICULTURE

- | | |
|--------------------------------|---|
| 12. Mr.Serge Veruniau | Acting Head of Agriculture Dpt. (Feb.-Jun.2000) Director of Agriculture Dpt. (Jun.-Jul.2000) |
| 13. Mr. Jose Abel | Staff of Agriculture Dpt. (Feb.-Jul.2000) |
| 14. Mr. M. Auzib | Staff of Agriculture Dpt. (Feb.-Jul.2000) |
| 15. Mr. Chen Zhijun | Staff of Agriculture Dpt. (Feb.-Jul.2000) |
| 16. Mr.Sindayigaya Livingstone | Staff of Agriculture Dpt. (Feb.-Jul.2000) |
| 17. Ms. Maria Reginal Ismail | Staff of Agriculture Dpt. (Feb.-Jul.2000) |
| 18. Mr. Jurmi Wangeluk | Staff of Agriculture Dpt. (Feb.-Jul.2000) |

JICA

- | | |
|------------------------|---|
| 1. Mr. Junsaku Koizumi | Special Technical Adviser (Feb.-Mar.2000) |
| 2. Mr. Nobuo Iwai | Staff of JICA Headquater (Feb.-Mar.2000) |
| 3. Mr. Susumu Yuzurio | Staff of JICA Headquater (Apr.-Aug.2000) |

JICA STUDY TEAM

- | | |
|-----------------------------|---|
| 1. Mr. Haruo Sakashita | Team Leader |
| 2. Mr. Toshio Hotta | Deputy Team Leader, Road Rehabilitat. Planner |
| 3. Mr. Tetu Nakagawa | Deputy Team Leader, Bridge Rehabilit. Planner |
| 4. Mr. Masaaki Ehara | Road Design Engineer |
| 5. Mr. Nobuyuki Suzuki | Bridge Design Engineer |
| 6. Mr. Takakazu Kajima | Port Rehabilitation Engineer |
| 7. Mr. Hideya Sakurai | Port Design Engineer |
| 8. Mr. Sumio Shindou | Irrigation Rehabilitation Planner |
| 9. Mr. Shinichiro Matsumoto | Irrigation Rehabilitation Engineer |
| 10. Mr. Mitsuhsa Nishikawa | Power Rehabilitation Planner |
| 11. Mr. Kazuhiro Nakamura | Power Rehabilitation Engineer |
| 12. Mr. Katsuaki Nishikatsu | Road Engineer for Quick Project |
| 13. Mr. Hiroaki Kobayashi | Bridge/Irrigation Engineer for Quick Project |
| 14. Mr. Takayuki Ohno | Irrigation Engineer for Quick Project |
| 15. Mr. Kazushi Honma | Construction Plan/Cost Estimate Engineer (1) |
| 16. Mr. Katsuyoshi Maeda | Construction Plan/Cost Estimate Engineer (2) |
| 17. Mr. Yoshiteru Yamamura | Construction Plan/Cost Estimate Engineer (3) |
| 18. Mr. Tetsuya Maeda | Assistant |
| 19. Mr. Sang Gyoon Lee | Assistant |
| 20. Mr. Hiroyasu Kato | Assistant |

CHAPTER 2
GENERAL BACKGROUND

CHAPTER 2 GENERAL BACKGROUND

2.1 Topography and Geology

The island of Timor located at the edge of the Sunda Islands is mountainous and much of the island is characterized by rugged terrain and small narrow valleys. East Timor with a total land area of 14,862 square kilometers is the eastern half of the elongated island with an approximate East- West orientation, extending 265 km in length and 92 km in width. Tata Mailau (2,950m) is the highest mountain in East Timor. Geologically, the East Timor has young mountain systems (about 8-10 million years) and is still in the process of rising from the seabed. Slopes, therefore, are very steep and largely covered with basalt-rich colluvial talus.

2.2 Meteorology

The climate of Timor is determined by the seasonal winds, dry southeast trade winds that blow from June to November from the Australian continent and a northwest monsoon that brings humid air and heavy rain from December to May from the South China sea. The annual precipitation of Timor Island ranges roughly from 1000 to 2000 mm except for a mountainous region where the rainfall is much heavier. Annual rainfall in 1989 is approximately 1,200mm in Dili, 85% of which is concentrated during December and May.

The annual mean temperature ranges from 31.5 °C to 22.5 °C in Dili. The highest temperatures are usually recorded from November to December, before the start of the monsoon, while the lowest temperatures are normally recorded in July and August.

2.3 Socio- Economic Conditions

Prior to the recent crisis, East Timor was primarily an agriculture economy, with a single significant export (coffee) and about 90 % of population living in rural areas. Food self-sufficiency was not assured and foodstuffs such as rice, flour, maize and sugar had to be imported. The island was one of the poorest areas in Southeast Asia, with severe problems of illiteracy, malnutrition, malaria and tuberculosis. An estimated 30 % of households – or double the ratio for Indonesia – were below the poverty line. GDP per capita in East Timor amounted to the equivalent of \$ 431 in 1996, while the national average was \$ 1,153.

The violence following the results of the popular consultation not only caused a sharp drop in economic and social indicators, but struck a territory in both economic and social terms. With GDP per capita of \$ US 424 in 1998, East Timor had little economic buffer with which face the destruction of assets and livelihoods. Whilst GDP growth in 2000 and 2001 are predicted at 15 percent, it will take sustained growth rates over at least 5-6 years to regain pre-crisis income levels.

Total population in East Timor was 884,000 in 1998. After the popular consultation of 30 August 1999, more than 50 % of the total population were dislocated by the violence. Although, by the end of April 2000, 162,000 refugees had returned to their villages from

West Timor, it is reported that some 90,000- 120,000 refugees still live in precarious conditions in West Timor.

Table 2.1 Major Economic Indicators in East Timor

| | 97 | 98 | Est.99 | Proj.00 |
|---------------------------------|-----|-----|--------|---------|
| GDP per capita (in US dollars) | 374 | 424 | 304 | - |
| Population (in thousands) | 843 | 884 | 750 | - |
| Real GDP growth(in percentage) | 4 | -2 | -38 | 15 |
| Inflation rate (in percentage) | 10 | 80 | 140 | 20 |

2.4 Institutional Organization

2.4.1 General

In accordance with Security Council Resolution 1272(1999) of 25 October 1999, United Nations Transitional Administration in East Timor (UNTAET) had established with overall responsibility for the administration of East Timor and is empowered to exercise all legislative and executive authority, including the administration of justice.

UNTAET was headed by a Special Representative of Secretary General (SRSG) and comprised three pillars for humanitarian assistance, public administration and governance and United Peacekeeping Force (UNPKF), each headed by a Deputy Special Representative of Secretary General (DSRSG) until the end of June, 2000.

2.4.2 Present Organization of UNTAET

In order to achieve UNTAET's final goal for establishment of an independent East Timorese public administration and governance capability, and the organization of elections for a constitution and democratic Government, UNTAET has established a transitional Cabinet on 7 July 2000 to exercise governmental responsibility in East Timor. The transitional Cabinet consists of eight portfolios, four of which are held by East Timorese and four by international UNTAET staff as shown in Figure 2.4.1.

2.5 Coordination with International Funding Agencies and Bilateral Donors

International Funding Agencies and bilateral donors are presently working to assist the East Timorese people and UNTAET in the reconstruction and economic and social development of East Timor. The Study has therefore conducted in close coordination with such International Funding Agencies and bilateral donors in order to formulate and implement an effective and efficient program.

UNDP (Norway Fund 0.5 M\$), DFID (1.6 M\$) and US Aid (0.03 M\$) participated on a short term basis for QIPs of Road sector, while ADB (20 M\$) and GOJ(JICA 7.6 M\$) are major contributors in Road and Bridge sector to date and this situation will continue in the future assistance.

In Port Sector, ADB and GOJ (JICA) only are contributors for Port sector, while the Government of Portugal only dispatches two Port management experts.

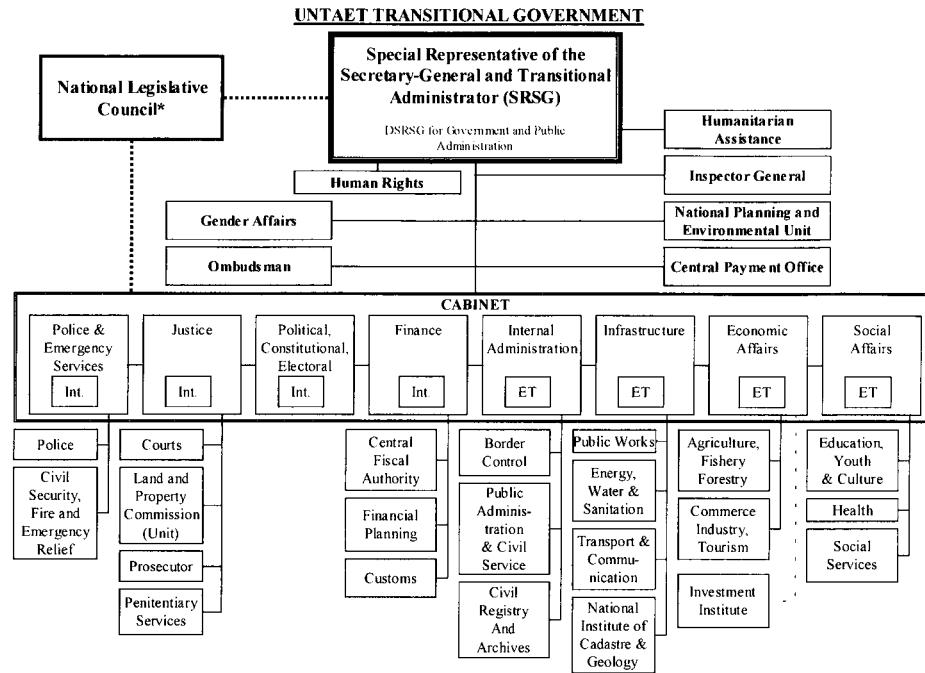


Figure 2.1 UNTAET Transitional Government

DFID, UNDP (Portugal Fund), Northern Territory Government (NTG), ADB and GOJ (JICA) participate in assistance for Power sector. DFID undertakes mainly oil supply, and UNDP (Portugal Fund) provides institutional and capacity building. ADB and JICA are also major contributors to rehabilitation of power station and emergency repair in power sector.

In agriculture sector, UNDP and FAO undertake emergency food and seeds supply, while WB provides technical assistance for master plan study, and GOJ (JICA) engages formulation of emergency rehabilitation plan and implementation of rehabilitation of irrigation facilities at Manatuto.