Ministry of Planning and Strategic Investment Democratic Republic of Timor-Leste

# The Project for Study on Dili Urban Master Plan in the Democratic Republic of Timor-Leste

# Final Report Part III: Appendix

October 2016

Japan International Cooperation Agency (JICA)

Nippon Koei Co., Ltd.

Pacet Corp.

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# CONVERSION RATE (As of September 2016)

1 USD = JPY 102.13, 1 JPY = USD 0.00979

Source: JICA Website



Location Map

# The Project for Dili Urban Master Plan in the Democratic Republic of Timor-Leste

# Final Report Part III: Appendix

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# **ABBREVIATIONS**

AACTL	Autoridade de Aviação Civil de Timor-Leste/Civil Aviation Authority of Timor-Leste								
ACC	Adaptation to Climate Change								
ADB	Asian Development Bank								
ADIGO	Australian Defense Imagery & Geospatial Organization								
ADN	Agencia de Desevolvimentto Nacional (National Development Agency)								
ADSL	Asymmetric Digital Subscriber Line								
AIP	Aeronautical Information Publication								
ALGIS	Agriculture Land GIS Unit; Ministry of Agriculture and Fishery								
ANATL	Administração de Navigação Aérea de Timor-Leste (Air Navigation Administration								
	Timor-Leste)								
ANC	National Communications Authority								
APORTIL	Administração dos Portos de Timor-Leste								
ARCOM	Communications Regulatory Authority								
ASEAN	Association of Southeast Asian Nations								
AusAID	Australian Aid								
BAS	Business Activity Survey								
BOM	Australian Bureau of Meteorology								
BOO	Build-Own-Operate								
ВОТ	Build-Operate-Transfer								
BRT	Bus Rapid Transit								
ВТО	Build-Transfer-Operate								
BTS	base transceiver stations								
C/P	Counterparts								
CIGD	Inter-Ministerial Commission for Disaster Risk Management								
CPS	Country Partner Strategy								
CSTS	Community Sewerage Treatment System								
DDMCs	District Disaster Management Commissions								
DGES	General Directorate of Higher Education, Ministry of Education								
DGS	General Directorate of Statistics, Ministry of Finance								
DMA	Dili Metropolitan Area								
DMC	Disaster Management Center								
DMP	Dili Metropolitan Area Urban Master Plan								
DNCQA	National Directorate for Water Quality Control, Ministry of Public Works (reconstructed to MOPWTC)								
DNE	National Directorate of Environment, Ministry of Commerce, Industry and								
DNE	DN das Edificações (National Directorate of Building), Ministry of Public Works (reconstructed to MOPWTC)								

DNEP CC	DN de Estradas, Pontes e Controlo de Cheias (National Directorate of Road, Bridges								
DNHPU	DN da Habitação e Planeamento Urbano (National Directorate of Housing and								
	Urban Planning), Ministry of Planning and Strategic Investment								
DNRH	DN de Recursos Humanos (National Directorate of Human Resources)								
DNSA	National Directorate Water Supply Services, Ministry of Public Works (reconstructed to MOPWTC)								
DNSB	National Directorate Sanitation Services, Ministry of Public Works (reconstructed to MOPWTC)								
DNTM	National Directorate of Maritime Transport, Ministry of Transportation and Communication (reconstructed to MOPWTC)								
DNTP	National Directorate of Land, Property and Cadastre, Ministry of Justice								
DNTPSC	National Directorate of Land and Property and Cadastral Services, Ministry of Justice								
DOC	Disaster Operation Center								
DRBFC	National Directorate for Road, Bridge and Flood Control, Ministry of Public Works (reconstructed to MOPWTC)								
DRM	Disaster Risk Management								
DRR	Disaster Risk Reduction								
DSDMP	Dili Sanitation and Drainage Master Plan								
EDTL	Electricity of Timor-Leste								
EMIS	Education Management Information System Unit, Ministry of Education								
ETTA	East Timor Transitional Administration								
GDP	Gross Domestic Product								
GIS	Geographic Information System								
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit								
GoTL	Government of Timor-Leste								
GRDP	Gross Regional Domestic Product								
HDPE	High Density Polyethylene								
HOV	High Occupancy Vehicle								
IATA	International Air Transport Association								
ICAO	International Civil Aviation Organization								
IFC	International Finance Corporation								
IGE	Institute of Equipment Management								
INCOIS	Indian National Center for Ocean Information Services								
IPG	Institution of Petroleum and Geology, Ministry of Petroleum and Mineral Resources								
ITS	Intelligent Transportation System								
ITU	International Telecommunication Union								
JICA	Japan International Cooperation Agency								
JICA	JICA System for Traffic Demand Analysis								
STRADA									
JPT	JICA Project Team								
KFW	Kreditanstalt für Wiederaufbau								

LFP	Labor Force Participation									
LiDAR	Light Detection and Ranging									
LRT	Light Rail Transit									
MBKG	Badan Meteorologi, Klimatologi, dan Geofisika									
MCIE	Ministry of Commerce, Industry and Environment									
MLIT	Ministry of Land, Infrastructure, Transport and Tourism in Japan									
MOE	Ministry of Education									
MOF	Ministry of Finance									
МОН	Ministry of Health									
MOI	Ministry of Infrastructure (reconstructed to MOPW)									
МОЈ	Ministry of Justice									
MoPW	Ministry of Public Works (reconstructed to MOPWTC)									
MOSA	Ministry of State Administration									
МОТ	Ministry of Tourism									
MOTC	Ministry of Transportation and Communication (reconstructed to MOPWTC)									
MPMR	Ministry of Petroleum and Mineral Resources									
MPS	Major Projects Secretariat									
MPSI	Ministry of Planning and Strategic Investment									
MSL	Mean Sea Level									
MSS	Ministry of Social Solidarity									
MSW	municipal solid waste									
NDMD	National Disaster Management Directorate									
NESP	National Education Strategic Plan 2011-2030									
NHSSP	National Health Sector Strategic Plan 2011-2030									
NMT	Non-Motorized Transport									
O&M	Operation & Maintenance									
OD	Origin and Destination									
OJT	On-the-Job Training									
PDD	Development Program of Decentralization									
PDID	Integrated District Development Plan									
PET	Polyethylene terephthalate									
PMU	Project Management Unit									
PNDS	National Suco Development Plan									
PNLIA	President Nicolau Lobato International Airport									
PPP	Public Private Partnership									
R/D	Record of Discussion									
R4D	Roads for Developments									
RO	Rehabilitate-Operate									

RTTL	Radio and Television of Timor-Leste								
SC	Steering Committee								
SDP	Timor-Leste Strategic Development Plan 2011-2030								
SEAPRI	Secretariat of State for Support and Promotion of Private Sector								
SEPFOPE	Secretariat of State for Vocational Training and Employment								
SERVE	Registry and Verification of Enterprises Service								
SISCa	Integrated Community Health Services								
SKM	Sinclair Knight Merz								
SNE	National Electricity System								
SPTL	Spatial Planning of Timor-Leste								
SWM	Solid Waste Management								
TDM	Traffic Demand Management								
TFTL	Telecom Fund of Timor-Leste								
THR	Threshold								
TVTL	Television of Timor-Leste								
UASB	Upflow Anaerobic Sludge Blanket (Waste Water Treatment Method)								
UNDP	United Nations Development Programme								
UNTAET	United Nations Transitional Administration in East Timor								
UNTL	National University of Timor Lorosa'e								
USCG	United States Coast Guard								
UTM	Universal Transverse Mercator								
WACS	waste characterization study								
WB	World Bank								
WCP	Water Consumption per Capita								
WG	Working Group								
WHO	World Health Organization								
WTP	Water Treatment Plant (Water Supply)								
WWTD	Wasta Water Treatment Plant (Sewarage)								

# **APPENDIX 1**

# MINUTES OF MEETINGS

## BETWEEN

# JAPAN INTERNATIONAL COOPERATION AGENCY

## AND

# MINISTRY OF PLANNING AND STRATEGIC INVESTMENT MINISTRY OF PUBLIC WORKS

### FOR AMENDMENT OF THE RECORD OF DISCUSSIONS

#### ON

# THE PROJECT FOR STUDY ON DILL URBAN MASTER PLAN

14.2015 Dili, J

Kay Rala Xanana Gusmão Mihister of Planning and Strategic Investment Government of the Democratic Republic of Timor-Leste

Hikoyuki Ukai Chief Representative in Timor-Leste Japan International Cooperation Agency

(witness)

Santina J.R.F. Viegas Cordoro

Ministry of Finance Government of the Democratic Republic of Timor-Leste The Japan International Cooperation Agency (hereinafter referred to as "JICA"), Ministry of Planning and Strategic Investment and Ministry of Public Works hereby agree that the Record of Discussions on The Project for Study on Dili Urban Master Plan (hereinafter referred to as "the Project") signed on October 14<sup>th</sup>, 2013 will be amended as follows;

1. Amendment Contents

(1) Counterpart to JICA	· · · · · · · · · · · · · · · · · · ·						
Before	Amended Version						
National Directorate of Housing and Urban	Ministry of Planning and Strategic						
Planning	Investment						
Ministry of Public Works							
Reason: As a result of reorganization of government ministries, Ministry of Planning							

and Strategic Investment will be in charge of the Project as an alternative to Ministry of Public Works.

(2) Structure of Steering Committee, Members of Steering Committee and Working Group

Before	Amended Version					
As shown in Annex 2 and 3	As shown in Annex 2 and 3					
Reason: As Ministry of Planning and Strategic Investment will be the counterpart to						
JICA, the members of Steering Committee	and Working Group shall be restructured as					

shown in Annex 2 and 3.

(3) Duration of the Project

Before	Amended Version							
As shown in Annex 4	As shown in Annex 5							
Reason: As a result of reorganization of government ministries, the Project has to								
reconsider the Organization/Institutions/	Human Resources Development and,							
accordingly, the duration of the Project has to be extended.								

2. Effectuation Date

July

This amendment will become effective as of Jane, 14, 2015.

Annex 1 : Record of Discussions (signed on October 14, 2013)

Annex 2 : Existing and New Structure of Steering Committee

Annex 3 : Revised members of SC and Working Group

Annex 4 : Duration of the Project (Before)

Annex 5 : Duration of the Project (Amended)

# RECORD OF DISCUSSIONS ON THE PROJECT FOR STUDY ON DILI URBAN MASTER PLAN IN THE DEMOCRATIC REPUBLIC OF TIMOR-LESTE

## AGREED UPON BETWEEN

# MINISTRY OF PUBLIC WORKS

# AND

# JAPAN INTERNATIONAL COOPERATION AGENCY

Gastier Government of the Democratic Republic of Timor-Leste <u>Dili. 14 - 10 - 2013</u>

per Tapac

Hirohiko Takata

Chief Representative, JICA Timor-Leste Office, Japan International Cooperation Agency

(witness)

Santina J. R. F. Viegas Cardoso Vice Minister Ministry of Finance, Government of the Democratic Republic of Timor-Leste Based on the minutes of meetings on the Detailed Planning Survey on the Project for Study on Dili Urban Master Plan (hereinafter referred to as "the Project") signed on 26<sup>th</sup> February, 2013, between Ministry of Public Works (hereinafter referred to as "MoPW") and the Japan International Cooperation Agency (hereinafter referred to as "JICA"), a series of discussions were made among JICA, MoPW and relevant organizations to develop details of the Project.

Both parties agreed the details of the Project as described in the Appendix 1.

Both parties also agreed that MoPW, the counterpart to JICA, will be responsible for the implementation of the Project in cooperation with JICA, coordinate with other relevant government organizations and ensure that the self-reliant operation of the Project is sustained during and after the implementation period in order to contribute toward social and economic development of Timor-Leste.

The Project will be implemented within the framework of the "Agreement on Technical Cooperation and the Japan Overseas Cooperation Volunteers Program between the Government of the Democratic Republic of Timor-Leste and the Government of Japan;" signed on 25 January 2005 (hereinafter referred to as "the Agreement") and the Note Verbales to be exchanged between the Government of Japan (hereinafter referred to as "GOJ") and the Government of the Democratic Republic of Timor-Leste (hereinafter referred to as "the GoTL")

Appendix 1: Project Description

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### Appendix 1

#### PROJECT DESCRIPTION

Both parties confirmed that there is no change in the Project Description agreed on in the minutes of meetings on the Detailed Planning Survey on the Project signed on 26<sup>th</sup> February, 2013.

#### I. BACKGROUND

Dili is a capital city of Timor-Leste which accommodates approximately 20% of the nation's population. The country is required to resolve the problems such as high unemployment rate, high poverty rate in the rural area, high young population growth, and influx from rural to urban areas. Under this circumstance, annual population growth rate of Dili became 4.9% and it is far higher than the average annual population growth of the country, 2.4 %. Together with the country's high economic growth, this high urban population growth is now causing the problems such as uncontrolled urbanization, rapid increase of vehicles, illegal housing in the government land, etc. Also, government has many large-scale development plans such as new government buildings, expansion plans of airport and seaport. This is exacerbating this urbanization trends.

In July 2011, Timor-Leste's Strategic Development Plan (SDP) was established and its spatial framework is based on major cities of Dili (population of 230,000), Baucau (2<sup>nd</sup> largest city in terms of urban population), Suai and Viqueque (major cities in south coast).

Until these days, development partners have been focusing on "Rehabilitation and Reconstruction" in Timor-Leste, however, under the SDP, the country is shifting "from Fragility to Development" and "from Development Assistance to Development Investment".

In the SDP, one of the National Strategic Zones Dili-Tibar-Hera (hereinafter referred to as "Dili Metropolitan Area") is defined as the center of all sector development with various large-scale development projects such as a new Tibar seaport, industrial parks, high-rise housing, new higher education community, marine tourism, commercial zones, and airport expansion.

In addition, Dili as a capital city needs to be developed and improved as a gate to the international communities.

However, despite the importance of Dili development is elarified by SDP, there is no sub-plan to support the initiatives mentioned in the SDP, yet.

Also at present, Dili is facing urban problems such as increased congestion, increased traffic accidents, malaria and dengue fever caused by wastewater drainage, power

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shortage, water shortage due to aged city pipes, etc. and these have been worsened day by day.

Therefore, it is inevitable to develop a master plan for Dili Metropolitan Area to support rapid growth of the capital city, industrial activities and quality of people's lives.

#### II. OUTLINE OF THE PROJECT

#### 1. Title of the Project

"The Project for Study on Dili Urban Master Plan"

# 2. Expected Goals which will be attained after the Project completion(1) Goals of the Proposed Plan

- Dili Urban Master Plan and Action Plan will be officially approved as Dili Metropolitan Area's urban planning.
- Based on Dili Urban Master Plan and Action Plan, projects of Dili Metropolitan Area will be implemented efficiently.

(2) Goals which will be attained by utilizing the Proposed Plan

- Urban development will be realized by harmonizing with other sectors in Dili Metropolitan Area as a capital city of Timor-Leste to improve quality of people's lives, and accommodate business/industrial activities so as to achieve sustainable economic growth.
- Administrative capabilities as to urban planning in Timor-Leste side will be improved toward sustainable development.
- 3. Outputs
- To formulate an urban master plan with necessary zoning for the period of 2030
- To formulate necessary action plans for each necessary sector for the period of 2020
- To organize proposals and recommendations pertaining to the way in which 1) Dili Urban Master Plan should be approved and 2) laws related to urban planning and land management should be prepared for implementation of Dili Urban Master Plan
- To conduct capacity development of urban planning through the Project

#### 4. Activities

(1) Review and analysis of present conditions of Timor-Leste

(2) Review and analysis of present conditions of Dili Metropolitan Area

 Review and analysis of socio-economic conditions as well as industrial development potentials and constraints

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- > Economic and financial situation
- Agriculture, fishery and forestry
- Manufacturing industry
- > Tourism
- Review and analysis of urban infrastructure
  - > Traffic survey
  - Road and land transport
  - > Seaport and Airport
  - > Flood control and water drainage
  - $\triangleright$  Water supply and waste water
  - > Solid waste management
  - > Power and telecommunication
- Review and analysis of spatial development.
  - Urban development plan in Dili Metropolitan Area
  - Land use
  - > Environment

(3) Urban Master Plan formulation

- Urban development policy and vision toward 2030
  - > Development framework, scenarios, and strategy
  - > Industrial development policy (agriculture, manufacturing industry, tourism etc.)
  - > Investment promotion policy (including SEZ)
- Urban master plan toward 2030
  - > Urban structure plan with zoning
  - > Land use plan
  - > Urban development guideline
  - > GIS database including relevant sectors in Dili Metropolitan Area
  - > Human resources, organizations and institution strengthening plan
- Action plan toward 2020
  - > Urban road network development plan
  - Seaport and Airport development plan
  - > Flood control and water drainage plan
  - > Water supply and waste water plan
  - > Solid waste management plan
  - > Power distribution and telecommunication plan
  - > Public facility development plan
  - Pre-feasibility study on priority project(s) toward 2020

> Pre-feasibility on priority program(s)/project(s), if necessary

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- (4) Technology transfer of urban planning and capacity development of human resources of the counterpart personnel including training in Japan
- (5) Proposal and advice to coordinate other relevant plan and law under ongoing or preparation by Timor-Leste for implementation of urban master plan
- 5 Inputs

(1) Inputs by ЛСА

Dispatch of JICA experts (hereinafter referred to as "JICA Experts")

i. Team Leader/Urban Development

ii. Land Use/ GIS Database

iii. Road Network/Traffic Planning

iv. Seaport and Airport

v. Water supply and Waste Water

- vi. Flood Control and Drainage
- vii. Solid Waste Management

viii. Power and Telecommunication

ix. Socio-Economic Framework/Public services

x. Industry Development

xi. Investment Promotion/Trade/SEZ Policy

xii. Social and Environmental Considerations

xiii. Organization/Institutions/Human Resources Development

Training in Japan

JICA will organize training course on urban planning in Japan, which will be held during the Project period. Counterpart personnel of MoPW will participate in the training course.

Input other than indicated above will be determined through mutual consultations between JICA and MoPW during the implementation of the Project, as necessary.

#### (2) Input by MoPW

MoPW will take the following necessary measures by its own expenses.

- i. Services of National Directorate of Housing and Urban Planning's counterpart personnel and administrative personnel as referred to in II-6
- ii. Implementing agency will take an initiative in public consultation

iii. Suitable office space with necessary equipment

iv. Supply or replacement of machinery, equipment, instruments, vehicles, tools, spare parts and any other materials necessary for the implementation of the Project other

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than the equipment prepared by JICA

- v. Information as well as support in obtaining medical service
- vi. Credentials or identification cards
- vii. Available data (including maps and photographs) and information related to the Project

viii. Running expenses necessary for the implementation of the Project

#### 6 Implementation Structure

The Project organization chart is given in the Annex 1. The roles and assignments of relevant organizations are as follows:

#### (1) Responsible Agency

MoPW will supervise the Project.

#### (2) Implementing Agency

National Directorate of Housing and Urban Planning, MoPW will be responsible for smooth implementation of the Project.

#### (3) JICA Experts

The JICA Experts will give necessary technical guidance, advices, and recommendations to National Directorate of Housing and Urban Planning; MoPW on any matters pertaining to the implementation of the Project.

## (4) Steering Committee and Working Group

The Steering Committee (hereinafter referred to as "S/C") and the Working Group (hereinafter referred to as "W/G") will be established in order to facilitate inter-organizational coordination. A list of proposed members and functions of the S/C and the W/G is shown in Annex 2.

#### 7 Project Site and Beneficiaries

# (1) Project Site

Dili Urban Area (Areas of Dom Alexio, Nain Feto, Vera Cruz, Cristio Rei and Tibar Area) as shown in Annex 3. Both sides agreed that the Project Site is defined as Dili Metropolitan Area.

# (2) Beneficiaries

Population of Dili Metropolitan Area (Approx. 220,000) as well as a whole country

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#### 8 Duration

The Project will be carried out for approximately 15 (fifteen) months as shown below.

Month	1	2 3	4	5	6	7	8	9	10	11	12	13	14	15
Project													 	
s/C					≣		: 🔳			•				
Report	∆ IC/R			∆ PR∕R			∆ 'TT/R				∆ DF/R.		∆ F/R	
Legend	S/C IC/R PR/R	Steerin Incepti Progre	ig Com on Rep ss Rep	mittee ort ort	:			1997-94 (1999-94-1-1- 1999-94 (1999-94-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-			; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;			
	TT/R DF/R F/R	Interior Draft H Final F	i Report	t port	·····			· · · · ·		4				

#### 9 Reports

JICA will prepare and submit the following reports to the GoTL in English.

- (1) 30 copies of Inception Report which covers the methodology of the Project at the commencement of the Project
- (2) 30 copies of Progress Report which covers the review and analysis of the current situation and the progress of the Project within six (6) months after the commencement of the Project
- (3) 30 copies of Interim Report which covers vision, policy, development framework and structure plan within eight (8) months after the commencement of the Project
- (4) 30 copies of Draft Final Report together with executive summery and a digital file copy which covers land use plan and action plan within thirteen (13) months after the commencement of the Project
- (5) 50 copies of Final Report together with executive summery and a digital file copy which covers the capacity development plan within one (1) month after the receipt of the written comments on the Draft Final Report

#### 11 Environmental and Social Considerations

MoPW agreed to abide by 'JICA Guidelines for Environmental and Social Considerations' in order to ensure that appropriate considerations will be made for the environmental and social impacts of the Project.

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# III. Undertakings of the Government of Timor-Leste

The GoTL will take necessary measures to:

- (1) ensure that the technologies and knowledge acquired by the Timor-Leste nationals as a result of Japanese technical cooperation contributes to the economic and social development of Timor-Leste, and that the knowledge and experience acquired by the personnel of Timor-Leste from technical training as well as the equipment provided by JICA will be utilized effectively in the implementation of the Project; and
- (2) ensure fulfillment of the undertakings of the Democratic Republic of Timor-Leste, or equivalent results, in accordance with the "Agreement of Technical Cooperation and the Japan International Overseas Volunteers Program between the Government of Japan and the Government of the Democratic Republic of Timor-Leste," signed in Dili on January 25, 2005.

#### IV. Evaluation

JICA will conduct the following evaluations and surveys to mainly verify sustainability and impact of the Project and draw lessons. The MoPW is required to provide necessary support for them.

1. Ex-post evaluation three (3) years after the project completion, in principle 2. Follow-up surveys on necessity basis

#### V. Promotion of Public Support

For the purpose of promoting support for the Project, MoPW will take appropriate measures to make the Project widely known to the people of Timor-Leste.

# VI. Mutual Consultation

JICA and MoPW will consult each other whenever any major issues arise in the course of Project implementation.

## VII. Amendments

The record of discussions may be amended by the minutes of meetings between JICA and MoPW.

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Annex1: Pro

Project Organization Chart A list of Proposed Members and Functions of the Steering Committee and the Working Group

Annex 3: Project Area

Main Points Discussed

Annex 4:

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Annex 2:

for

Annex 1: Project Organization Chart



## Annex 2

A list of Proposed Members and Functions of the Steering Committee and the Working Group

In order to secure a smooth implementation, both sides agreed to establish a steering committee and a working group.

- (1) Steering Committee
- i. Functions
  - 1) To steer and approve the progress and achievement of the Project
  - 2) To exchange views on major issues arising during the implementation of the Project
  - 3) To approve the modification to activities depending on the necessity
- ii. Composition

Chairperson: Minister, Ministry of Public Works Vice-Chairperson: Secretary of State for Public Works, Ministry of Public Works

#### iii. Members:

Timor-LesteSide

- 1) Minister, Ministry of Public Works
- 2) Secretary of State for Public Works, Ministry of Public Works
- 3) Secretary of State for Electricity, Ministry of Public Works
- 4) Secretary of State for Water and Sanitation, Ministry of Public Works
- 5) Director, ADN
- 6) Director of MPS, Ministry of Finance
- 7) Minister, Ministry of Transportation and Communication,
- 8) Minister, Ministry of Commerce, Industry and Environment
- 9) Minister, Ministry of Justice
- 10) Minister, Ministry of State Administration
- 11) Minister, Ministry of Tourism and Culture
- 12) Minister, Ministry of Education
- 13) Minister, Ministry of Health
- 14) Director General of Public Works, Ministry of Public Works (Chairperson of WG)
- 15) Director, National Directorate of Housing and Urban Planning (Vice-Chairperson of WG)

Japanese Side

- 1) Chief Representative, JICA Timor-Leste Office
- 2) Leader, JICA Experts
- 3) Any other persons recommended by the JICA.
- iv. Meeting Schedule

When JICA Experts submitted the reports and when required.

- v. Note
  - 1) The members who cannot attend the Steering Committee shall assign the other personnel who substitutes his/her position.
  - Participation of representative of any other relevant ministries and authorities shall be approved by the Chairperson of the Steering Committee.
  - 3) Officials of the Embassy of Japan may attend the Steering Committee as observers.

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#### (2) Working group

#### i Functions

- 1) To participate in surveys and analysis of the current situation of the Project
- 2) To harmonize Dili Urban Master Plan with the reports and future plans of relevant sectors
- 3) To prepare reports for presentation to the Steering Committee
- 4) To examine and analyze the technical aspects of the Reports
- 5) To monitor and evaluate the Project
- 6) To deal with any issues instructed to consult with the Steering Committee.

#### ii Composition

Chairperson: Director General of Public Works, Ministry of Public Works Vice-Chairperson: Director, National Directorate of Housing and Urban Planning

#### iii Members:

Timor-Leste Side

- 1) Director General of Public Works, Ministry of Public Works
- 2) Director of National Directorate of Housing and Urban Planning, Ministry of Public Works
- 3) Director of National Directorate of Building, Ministry of Public Works
- 4) Director of National Directorate of Roads, Bridges and Flood Control, Ministry of Public Works
- 5) Director General of Electricity, Ministry of Public Works

6) Director General of Water and Sanitation, Ministry of Public Works

- 7) Deputy Director, ADN
- 8) Deputy Director, MPS, Ministry of Finance
- 9) Director General, Ministry of Transportation and Communication
- 10) Director General of Industry Ministry of Commerce, Industry and Environment
- 11) Director General of Environment Ministry of Commerce, Industry and Environment
- 12) National Director of Land Property, Ministry of Justice
- 13) Dill District Administrator, Ministry of State Administration
- 14) Liquica District Administrator, Ministry of State Administration
- 15) Director General, Ministry of State Administration
- 16) Director General, Ministry of Tourism
- 17) Director General, Ministry of Education
- 18) Director General, Ministry of Health
- 19) Head of Tibar suco

Japanese Side

- 1) Leader, JICA Experts
- Any other persons recommended by the JICA
- iv Meeting Schedule

Whenever it deems necessary.

- v Note
  - 1) The members who cannot attend the Working Group shall assign the other personnel who substitutes his/her position.
  - 2) Participation of representative of any other relevant ministries and authorities shall be approved by the Chairperson of Working Group.
  - 3) Officials of the Embassy of Japan may attend the Working Group as observers.

Timor-Leste side shall convene meetings of the above-mentioned Steering Committee and Working Group before the commencement of the Project.

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Annex 3 Project Area

The Project Area is Dili Urban Area (Areas of Dom Alexio, Nain Feto, Vera Cruz, Cristio Rei and Tibar Area), which is surrounded by a red line at the map below.



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Annex 4

#### MAIN POINTS DISCUSSED

- 1. The Government of the Democratic Republic of Timor-Leste shall take necessary measures to provide a financial contribution to the Project of an amount mutually agreed, through the designated authority which, shall be directly applied to address expenses including customs duties, internal taxes and other fiscal levies that may be imposed in the Democratic Republic of Timor-Leste on JICA Experts engaged for the Project and JICA Timor-Leste Office, in relation to the purchase of goods and services, provided that JICA will remain responsible for supplying tax returns and providing relevant information to assist the Government of the Democratic Republic of Timor-Leste in assessing the applicable customs duties, internal taxes and other fiscal levies. This financial contribution is considered as a provisional measure which, will be continued until an alternative measure replace it.
- The amount of the financial contribution is stipulated in the signed Minutes of Meeting dated September 30, 2013 between MoPW and JICA. The amount of financial contribution by the Government of the Democratic Republic of Timor-Leste can be changed when necessary, following changes to the Project.

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A1-17

September <sup>30</sup>, 2013

## Minutes of Meeting

Japan International Cooperation Agency (hereinafter referred to as "JICA") and the Ministry of Public Works (hereinafter referred to as "MoPW") had a series of discussions to develop a detailed plan of the Project for Study on Dili Urban Master Plan (hereinafter referred to as "the Project").

These Minutes of Meeting reflect the common understanding between MoPW and JICA on the financial contribution to be borne by the Government of the Democratic Republic of Timor-Leste (hereinafter referred to as "GoTL") for the Project. The financial contribution in relation to the purchase of goods and services have yet to be assumed at this stage because of the characteristics of this Project. It shall be disbursed during the implementation of the Project.

The amount will be updated based on JICA's detailed assessment and cost estimation, which will be conducted by the time the Project starts. When necessary, due to changes to the Project, the amount may be recalculated and subject to further discussions and agreement between GoTL and JICA. JICA will timely inform MoPW of updated cost estimates in writing and MoPW will timely reply with the updated amount of the financial contribution to be borne by GoTL.

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Hirohiko Takata Chief Representative, JICA Timor-Leste Office, Japan International Cooperation Agency



Gastad Funcised de Sousa Minister Ministry of Public Works, The Democratic Republic of Timor-Leste





**Existing Structure of Steering Committee** 



## New Structure of Steering Committee

#### Steering Committee (Existing)

#### 1. Functions

1) To steer and approve the progress and achievement of the Project

2) To exchange views on major issues arising during the implementation of the Project

3) To approve the modification to activities depending on the necessity

#### 2. Composition

Chairperson: Minister, Ministry of Public Works Vice-Chairperson: Secretary of State for Public Works, Ministry of Public Works

#### 3. Members:

#### Timor-Leste Side

1) Minister, Ministry of Public Works

2) Secretary of State for Public Works, Ministry of Public Works

3) Secretary of State for Electricity, Ministry of Public Works

4) Secretary of State for Water and Sanitation, Ministry of Public Works

5) Director, ADN

6) Director of MPS, Ministry of Finance

7) Minister, Ministry of Transportation and Communication

8) Minister, Ministry of Commerce, Industry and Environment

9) Minister, Ministry of Justice

10) Minister, Ministry of State Administration

11) Minister, Ministry of Tourism and Culture

12) Minister, Ministry of Education

13) Minister, Ministry of Health

14) Director General of Public Works, Ministry of Public Works (Chairperson of WG)

15) Director, National Directorate of Housing and Urban Planning (Vice-Chairperson of WG)

#### Japanese Side

1) Chief Representative, JICA Timor-Leste Office

2) Leader, JICA Experts

3) Any other persons recommended by the JICA

#### Steering Committee (New)

#### 1. Functions

1) To steer and approve the progress and achievement of the Project

2) To exchange views on major issues arising during the implementation of the Project

3) To approve the modification to activities depending on the necessity

#### 2. Composition

Chairperson: Minister, Ministry of Planning and Strategic Investment Vice-Chairperson: Minister, Ministry of Public Works, Transport and Communications

#### 3. Members:

#### Timor-Leste Side

1) Minister, Ministry of Planning and Strategic Investment

2) Minister, Ministry of Public Works, Transport and Communications

3) Vice Minister, Ministry of Public Works, Transport and Communications (I)

4) Vice Minister, Ministry of Public Works, Transport and Communications (II)

5) Director, ADN

6) Director of MPS

7) Minister of State, Coordinator of Economic Affairs

8) Director of National Directorate of Economic Policies, Ministry of Finance

9) Minister, Ministry of Commerce, Industry and Environment

10) Minister, Ministry of Justice

11) Minister, Ministry of State Administration

12) Minister, Ministry of Tourism and Culture, Arts and Culture

13) Minister, Ministry of Education

14) Minister, Ministry of Health

15) Director General of Public Works, Ministry of Public Works, Transport and Communications

16) Director, National Directorate of Housing and Urban Planning (Chairperson of WG)

#### Japanese Side

1) Chief Representative, JICA Timor-Leste Office

2) Leader, JICA Experts

3) Any other persons recommended hy the JICA

#### Working Group (Existing)

#### 1. Functions

1) To participate in surveys and analysis of the current situation of the Project

2) To harmonize Dili Urban Master Plan with the reports and future plans of relevant sectors

3) To prepare reports for presentation to the Steering Committee

4) To examine and analyze technical aspects of the Reports

5) To monitor and evaluate the Project

6) To deal with any issues instructed to consult with the Steering Committee

#### 2. Composition

Chairperson: Director General of Public Works, Ministry of Public Works Vice-Chairperson: Director, National Directorate of Housing and Urban Planning

#### 3. Members

Timor-Leste Side

1) Director General of Public Works, Ministry of Public Works

2) Director of National Directorate of Housing and Urban Planning, Ministry of Public Works

3) Director of National of Building, Ministry of Public Works

4) Director of National Directorate of Roads Bridges and Flood Control, Ministry of Public Works

5) Director General of Electricity, Ministry of Public Works

6) Director General of Water and Sanitation, Ministry of Public Works

7) Deputy Director of ADN

8) Deputy Director, MPS, Ministry of Finance

9) Director General, Ministry of Transportation and Communication

10) Director General of Industry, Ministry of Commerce, Industry and Environment

11) Director General of Environment, Ministry of Commerce, Industry and Environment

12) National Director of Land Property, Ministry of Justice

13) Dili District Administrator, Ministry of State Administration

14) Liquica District Administrator, Ministry of State Administration

15) Director General, Ministry of State Administration

16) Director General, Ministry of Tourism

17) Director General, Ministry of Education

18) Director General, Ministry of Health

19) Head of Tibar Suco

#### Japanese Side

1) Leader, JICA Experts

2) Any other persons recommended by the JICA

#### Working Group (New)

#### 1. Functions

1) To participate in surveys and analysis of the current situation of the Project

2) To harmonize Dili Urban Master Plan with the reports and future plans of relevant sectors

3) To prepare reports for presentation to the Steering Committee

4) To examine and analyze technical aspects of the Reports

5) To monitor and evaluate the Project

6) To deal with any issues instructed to consult with the Steering Committee

#### 2. Composition

Chairperson: Director, National Directorate of Housing and Urban Planning, Ministry of Planning and Strategic Investment

Vice-Chairperson: Director, National Directorate of Building, Ministry of Public Works, Transport and Communications

#### 3. Members

Timor-Leste Side

1) Director of National Directorate of Housing and Urban Planning, Ministry of Planning and Strategic Investment

2) Director of National of Building, Ministry of Public Works. Transport and Communications

3) Director of National Directorate of Roads Bridges and Flood Control, Ministry of Public Works, Transport and Communications

4) Director General of Electricity, Ministry of Public Works, Transport and Communications

5) Director General of Water and Sanitation, Ministry of Public Works, Transport and Communications

6) Deputy Director of ADN

7) Deputy Director, MPS

8) Director General of Transport, Ministry of Public Works, Transport and Communications

9) Director General of Industry, Ministry of Commerce, Industry and Environment

10) Director General of Environment, Ministry of Commerce, Industry and Environment

11) National Director of Land Property, Ministry of Justice

12) Dili Municipality Administrator, Ministry of State Administration

13) Liquica Municipality Administrator, Ministry of State Administration

14) Ailieu Municipality Administrator, Ministry of State Administration

15) Ermera Municipality Administrator, Ministry of State Administration

16) Director General, Ministry of State Administration

17) Director General, Ministry of Tourism, Arts and Culture

18) Director General, Ministry of Education

19) Director General, Ministry of Health

20) Head of Tibar Suco

21) Head of Hera Suco

#### Japanese Side

1) Leader, JICA Experts

2) Any other persons recommended by the JICA

Duration The Project will be carried out for approximately 15 (fifteen) months as shown below



#### Annex5

F/R Final Report

Duration ` The Project will be carried out for approximately 20 (twenty) months as shown below



A1-26

# **APPENDIX 2**

# MINUTES OF MEETING

# OF

# STEERING COMMITTEE

# ON

# THE PROJECT FOR STUDY ON DILI URBAN MASTER

# PLAN IN THE DEMOCRATIC REPUBLIC OF

TIMOR-LESTE

June 11, 2014

Hikoyuki Ukai Chief Representative Japan International Cooperation Agency, Timor-Leste Office

Gastao Frâncisco de Sousa Minister Ministry of Public Works

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Shinichi Fukasawa / Team Leader, The Project Team for Study on Dili Urban Master Plan in the Democratic Republic of Timor-Leste

Dris Vaz Rodrigues Secretary of State for Public Works, Ministry of Public Works as Vice-Chairperson of Steering Committee

1. 28.00
Minutes of Meeting for the 1<sup>st</sup> Steering Committee on 11<sup>th</sup> June 2014 in the Conference Room of Ministry of Public Works.

#### 1 Members present (see Appendix-1)

#### 2 Agenda (see Appendix-2)

#### **3** Contents of 1<sup>st</sup> Steering Committee Meeting

Meeting started with the opening remark by H.E. Gastao Francisco de Sousa and Mr. Jose G.R.C. Piedade, followed by presentation of Inception Report by the JICA Project Team for Study on Dili Urban Master Plan.

#### (1) **Remarks by the members of Steering Committee**

#### Chief Representative, JICA Timor-Leste Office

- The JICA has supported urban master plan formulation for more than 20 years in different countries like in Afghanistan, Laos, Philippines, China, etc. In those projects, there were many stakeholders involved and shared their vision.
- There were also many unexpected changes happened before the target year of the Master Plan. These changes have affected the realization of the Master Plan, however, we must anticipate that these changes happen. The only way to cope with them is the well-organized steering committee, so we hope that the Steering Committee members work together very well to share the concept ideas of the Master Plan.
- Master Plan will not be formulated and implemented if the Steering Committee is not working actively. The role of the Steering Committee and leadership of Minister for Public Works is very important in this project.

#### Secretary of State for Public Works

- We should consider the systematic approach for both technical aspects and political aspects, in order to ensure successful formulation and implementation of Dili Urban Master Plan.
- The area of Dili district is about 360km<sup>2</sup>, but urban area in Dili is only 40km<sup>2</sup>. In future, population of the project area may reach to one million. This future growth should be carefully considered in Spatial Planning Law and National Spatial Plan, which are now under study by Portuguese consultants.
- For technical aspects, Dili Urban Master Plan should be consistent with the Spatial

Planning Law and National Spatial Plan.

• For political aspects, it is important for Steering Committee to have the function of the project coordination. In this regard, two projects, Dili Urban Master Plan Project by JICA and Spatial Plan Project by Portuguese consultant should be well coordinated in the Steering Committee. The results of the committee can be deliberated in the Council of Ministers.

#### Chairman of Infrastructure, Transportation, and Communication Committee

• Timor-Leste needs Dili Urban Master Plan to make the country be better and more beautiful country in future, so he looks forward to the successful formulation of the master plan. In addition, it is also expected to ensure good coordination with Ministry of Justice, which administers land issue and prepares the Land Law in this project.

#### (2) Main Comments and Response on the Project implementation

Main comments after explanation of the Inception report and reactions by the Project Team are as follows.

# Secretary of State for Industry and Cooperatives, Ministry of Commerce, Industry, and Environment

He expected the project team to share of experiences on how to deal with technical aspects and political aspects. The project team responded as follows.

- It is important to find out the workable mechanism to get approval in politics. Sharing outputs with decision makers such as infrastructure committee in the parliament, the Prime Minister, and President should be ensured. It is worth learning lessons from the successful experience such as Strategic Development Plan, which the Government of Timor-Leste already approved.
- For the technical aspects, providing options to politicians and decision makers is critical. For example, technical officials provide a couple of options on land use and transport to the decision makers in order for the decision makers to choose which option is the best. Each option has its advantages and disadvantages.

#### Advisor for Ministry of Education

He commented on possibility of relocation of administration function, how the Project addresses the resettlement issue, if or not school mapping is prepared, and links among the technical approaches in the presentation by the project team. The project team responded as follow. More detail will be discussed in the  $2^{nd}$  Steering Committee meeting.

- For relocation of administration function, it depends on the policy of the Timor-Leste government. Some ministry such as Ministry of Finance has constructed their own building. Since there are the state-own lands in Dili, it might be possible to utilize the unused state-own land and gather the ministries which have not built their own buildings.
- The project team is planning to address resettlement issues and school mapping. About the linkage among the technical approaches, the project team understands the technical approaches are linked and should ensure consistency among one another.

#### (3) In conclusion

- Steering Committee has approved the Inception Report and start implementation of the Project.
- For smooth implementation of the Project, the Government of Timor-Leste makes an effort to coordinate among the concerned organizations in terms of sharing information and participation to Working Group meetings.
- The 2<sup>nd</sup> Steering Committee will be held on October 2014, to discuss the study output of situation analysis, vision, and urban structure plan, to be compiled in the Interim Report.

End of Document

#### ATTENDANCE LIST

Appendix-1

The Project for Study on Dili Urban Master Plan in the Democratic Republic of Timor Leste

Meeting Theme:		Organization		Date/Time:	2014/6/11
No	Name	Organization	Position	Phone	From AM-PM Email
1	Eric Vitale	World Bank	Country Officer	POSTOR IN.	-
2	Jaime Valle	Intersismet/guaternaire	Consultant		
3	Cladio Monteiro	Intersismet/quaternaire	Consultant		
4	Paulo Pinho	Intersismet/quaternaire	Consultant		
5	Elisa Perez Babo	Intersismet/quaternaire	Consultant		
6	Josue Caldeira	Intersismet/quaternaire	Team Leader Consultant		
7	Joso P. Jeronimo	Ministry of Public Works	General Director (DG)		_
8	Agostinho Menezes	MAP/DNIGA (Direcao Nacional do Irrigação e Gestao de Asua)	Chief of Department		
9	Romao Guterres	DNTPSC/SETP/Ministry of Justice	National Director		
10	Gabriel C. de A	DNTPSC/Secretario de Estado da Terras e Propriedade/Ministry of Justice	Chief of Department		
11	Elderico Fecundo	Secretario do Estado de Defesa (SED/F- FDTL/Infrastructure)	1st Sergeant		
12	Alfredo O.S. das Neves	Secretario do Estado de Defesa (SED)	Tec. Infrastructure		
13	Celestina Da Costa	JICA Project Team	Legal Ast.		
14	Gina A. Milarion	JICA Project Team	GIS Datbase Expert		
15	Jose dos Reis Magno	Ministry of Health TC	Director General	i i i i i i i i i i i i i i i i i i i	
16	Rui Manuel Hanjam	Ministry of Education	Advisor		
17	Manuel Castro Pereira	National Parliament	Member		
100	Allina M. Freitas	National Parliament	Member		
18	Herminio Monis	Ministry of State Administration	Director	10 Contraction	
19	Antinio Lelo Taci	State Secretary of Environment	Director		
20	Roser Amal Vg	Diretor Nacional do Edificação	Director		
21	Hikoyuki Ukai	JICA	Chief of Representative		
22	Jose Piedade	Ministry of Public Works	Director General		
23	Virgilio Guterres	Electricity of Timor-Leste (EDTL), Ministry of Public Works	Direcor General		
24	Lucio da Costa	JICA	Program Officer	- Carl	
25	Carlos C	National Directorate of Environment, MCIE			
26	Filomeno Martins da Silva	Ministry of Public Works			
27	Antonio V.N.Silu1	Ministry of Public Works	Technic		
28	Jorge Moura	Ministry of Public Works	Assessor		

Appendix -2



## AGENDA OF STEERING COMMITTEES

Date:June 11, 2014Venue:Conference Room of Ministry of Public Works<br/>Ave. Martires da Patria, Mandarin-Dili

Agenda:

09:00-09:10 Opening Remark by the Minister For Public Works

#### 09:10-10:50 <u>Session I: 1st Steering Committee for "the Project for Study on Dili</u> <u>Urban Master Plan"</u>

(1) Opening Remark by Chief Representative of JICA Timor-Leste (9:10-9:15)

- (2) Presentation (9:15-9:45)
- (3) Discussion (9:45-10:45)
- (4) Closing Remark by Minister For Public Works (10:45-10:50)

10:50-11:00 Coffee Break

#### 11:00-12:45 Session II: Steering Committee for Spatial Planning of Timor-Leste

- (1) General Presentation of the Project (11:00-11:15)
- (2) Presentation of Initial Reports (11:15-11:40)
- (3) Discussion (11:40-12:40)
- (4) Closing Remark by Minister For Public Works (12:40-12:45)

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### MINUTES OF MEETING

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## 2<sup>ND</sup> STEERING COMMITTEE

#### ON

### THE PROJECT FOR STUDY ON DILI URBAN MASTER

#### PLAN IN THE DEMOCRATIC REPUBLIC OF

### TIMOR-LESTE

January 20, 2015

Hikoyuki Ukai Chief Representative Japan International Cooperation Agency, Timor-Leste Office

Gastao Francisco de Sousa Minister Ministry of Public Works

Timisto

Shinichi Fukasawa Team Leader, The Project Team for Study on Dili Urban Master Plan in the Democratic Republic of Timor-Leste

Jose G.R.C. Piedade Director General for Public Works. Ministry of Public Works as Chairperson of Working Group

Minutes of Meeting for the 2<sup>nd</sup> Steering Committee on 20th January 2015 in the Conference Room of Ministry of Public Works.

#### 1 Members present (see Appendix-1)

#### 2 Agenda (see Appendix-2)

#### **3** Contents of 2<sup>nd</sup> Steering Committee Meeting

Meeting started with the opening remark by H.E. Gastao Francisco de Sousa of Minister of Public Works and Mr. Hikoyuki Ukai of Chief Representative of JICA Timor Leste Office, followed by presentation of Interim Report by the JICA Project Team for Study on Dili Urban Master Plan.

#### (1) **Remarks by the members of Steering Committee**

#### Minister of Public Works

- This is the 2nd Steering Committee meeting and hopefully during this meeting we can see some points to be decided to support the working group to continue their tasks.
- Through this meeting we try to contribute something to resolve whatever problems and issues happened here in Dili.
- We will hear all the opinions, put them together so that we can make a decision.

#### Chief Representative, JICA Timor-Leste Office

I respected the leadership of Minister for Public Works at the inter-ministerial coordination meeting in relation to the JICA project of Upper Comoro River Bridge construction. All members actively participated in the discussion of the compensation unit price for the affected people, so I understood the seriousness and sincerity of the meeting even in Tetun.

- If the purpose of the project is clearly designed, the government of Timor-Leste can handle it among all and the different ministries. The meeting was a very good example to prove it. I would expect exactly same coordination to this Steering Committee of this Master Plan with the participation by the members of the National Parliament. I understand that members' commitments to the Master Plan are very solid.
- Understanding of the presentation by the Project Team is crucial to move to next stage where future land use plan and infrastructure plan will be discussed. I hope this Steering Committee will facilitate inter-ministerial coordination in the future.

#### (2) Main Comments and Response on the Project implementation

Main comments after explanation of the Interim report by the Project Team and summary of the main points by Director General of Public Works are as follows.

#### 1) Development Vision

#### Minister of Commerce, Industry, and Environment

- We need to look at the visions from the environmental perspectives.
- We have to talk also about the connectivity functions in the future between each area, such as Hera-Metinaro and Dili-Tibar. Currently the IFC World Bank is conducting the survey on industrial sector in Tibar which will be Tibar port whether it will be a commercial industry or different kind of industry. We need to look at the types of industry carefully if Dili is going to be the city for Public Administration or industrial city.

#### 2) Urban Structure

#### ADN Advisor

There were three scenarios based on the population density. The 2<sup>nd</sup> scenario is the best among the three scenarios as it is balanced with the development speed in other neighboring countries and as it includes Tibar and Hera.

#### 3) Urban Management

#### Member of National Parliament

- We do not have the Land Law yet or the parliament commission had prepared for discussions but still pending and the schedule for discussion will be on March 2015.
- We should think of something to prevent people from this kind of situation and maybe through the government to create a Decree Law to anticipate and prevent people from building houses everywhere in Dili.
- Regarding the public building, the office of the Ministry of Finance is the only high building here. We do not know how the other public buildings will be constructed although we have confirmed to the Ministry of Public Works who should control.
- People who have lived around that area are to be moved. The problem is where to move those people or where they are going to live. After this master plan is formulated, the government needs to have a plan to construct resettlement houses, and to move those people to other areas.

# Chairman of Infrastructure, Transportation, and Communication Committee, National Parliament

The challenging issue is to set the protected areas in Dili urban areas. Building houses on the hills are not good, so he suggested that land use for those hills should be examined in the Dili Urban Master Plan and to be considered as protected area.

#### Minister of Public Works

Now we are preparing the Spatial Planning Law and the National Spatial Plan. We are still accelerating the process. National Parliament will not approve the Land law while the two laws are not approving yet.

4) Infrastructure Development

i) Sanitation and Environment

Vice Minister of Health

- In the planning process, we should give importance to drainage and sanitation. We also need to look at environment measures such as solid waste management, air pollution control.
- We need to look at the spaces where people can use for physical exercises because people with overweight without exercises tend to have disease such heart problems and diabetes.

#### Member of National Parliament

- Another point regarding the waste master / solid waste management where people are throwing and burying wastes everywhere in Dili and the work team to see how to manage those solid wastes was suggested.
- JICA had dispatched professionals who conducted the study on hydro-engineering. I suggested the JICA consultants to check the study results.

#### ii) Airport

#### ADN Advisor

The current airport capacity is small compared to the international standard. If the airport capacity still remain the same, it will be difficult to deal with the traffic congestions. A question was raised where the airport will be moved in the year of 2030.

#### Member of National Parliament

The current airport will remain, and we will just develop it at the same location because there is no other place to move where ever here in Dili even in Metinaro, Hera and Tibar. Therefore, we have to start thinking and look for a way to organize them.

#### 5) Cross-boundary issue in Liquica Municipality

Liquica Municipality Administrator

Based on the policy law no. 11/2009 regarding the administrative territory, the Liquica area is up to Comoro area. We are worried if the development expansion to the Liquica area will give negative impact on the economic sector and income generation for Liquica municipality as we are now implementing the municipality system where we should have our investment from our own municipality.

#### Member of National Parliament

We should not worry about Liquica issue because everything will be based on the receipts and so the income from the multi function of Tibar port will go to Liquica municipality, of course.

#### 6) Project Operation

#### State Secretary for Public Works

I request to define clearly the composition of Steering Committee and Working Group. The technical working groups should identify the technical issues and then present to the Steering Committee.

#### Member of National Parliament

In relation to the planning issues, we need to involve all the relevant ministries to discuss it together.

#### (3) Conclusion

- No objections have been made to the draft vision and the most recommendable draft scenario proposed by JICA Project Team, however, the chair person asked Master Plan Team to hold additional working groups to have further technical discussions on how to reflect the comments and suggestions raised in the 2<sup>nd</sup> Steering Committee to the following study.
- The 3<sup>rd</sup> Steering Committee Meeting will be held on late March 2015 to adopt development vision and urban structure. The study outputs of land use plan, infrastructure plan, and urban management plan to be compiled in the Progress Report are to be discussed in the meeting.

End of Document



## **REPÚBLICA DEMOCRÁTICA DE TIMOR-LESTE**

#### MINISTERIO DAS OBRAS PUBLICAS SECRETARIO DE ESTADO DAS OBRAS PUBLICAS Direcção Nacional de Habitação e Planeamento Urbano Rua Mártires da Pátria, Mandarin-Díli, Tlf. 3310354

	Attendance List	2 <sup>nd</sup> Steeri	ng	Date, 20 January 2015 Time : From 09.00 Until Finished	
No	Name	Position	Organization	Phone No.	Email
1	Mr. Hikoyuki Ukai	Chief Representative	ЛСА		
2	Mr. Masahiro Suzuki	Representative	JICA		
3	Mr. Inacio F. Moreira	Major Project Secretariat	Nacional Parliament		
4	Mr. Lucio da Costa	Staff	ЛСА		
5	Mr. Numinlo	Staff	ЛСА		
6	Mr. Carlos Ximenes	Director of Coordination Politic and Economy	Ministry of Commerce, Industry and Environment		
7	Mr. João A de Jesus	Director of SAIM, Liquica District	Ministry of State Administration		
8	Ms. Olivia da Conceicão	Office Secretary SAIM, Liquica District	Ministry of State Administration -SAIM		
9	Mr. Candido Santos	Staff	Ministry of Education		
10	Mr.Francisco Soares	Departement Chief	Ministry of State Administration		
11	Ms.Shane Rosenthal	County Director	ADB		
12	Mr. Allison Woodruff	Urban Development Spesialist	ADB		
13	Mr. Dominggos D C dos Santos	Administrator of Liquica District	Ministry of State Administration		
14	HE. Mr. Antonio da Conceicão	Minister	MinistryofCommerce,IndustryIndustryandEnvironmentIndustry		
15	HE. Mr. Elias Pereira Moniz	Secretary State of Water and Sanitation	Ministry of Public Works		
16	HE. Mr. Albino da Silva	Secretary State of Electricity	Ministry of Public Works		
17	Mr. Antonio Ramos	Advisor for Media and Communication	Ministry of Public Works		
18	Mr. Pedro M. Costa	Member of Parliament	Nacional Parliament		

19	Mrs. Fatima Maria	Journalist	Television of Timor Leste	
20	Mr. I putu Ari Sanjaya	Advisor for Ministry of Public Work	Ministry of Public Works	
21	Mr. Paulino Monteiro	Member of Parliament	Nacional Parliament	
22	Mr. Jose Mendes	National Directorate of Water	Ministry of Public Works	
23	HE. Mr. Luis Rodrigues	Secretary State of Public Works	Ministry of Public Works	
24	Mr. Jacob Leite	Advisor of Local Development	Ministry of State Administration	
25	Mr. FX Totok P	Advisor	National Development Agency (ADN)	
26	Mr. Francisco X.D.P.J	Technical	National Development Agency (ADN)	
27	Ms.Josefa dos Santos	Journalist	STL Media	
28	Mr. Marcos da Silva A.	Journalist	Timor Post	
29	HE. Mrs. Natalia de Araujo	Deputy of Minister	Ministry of Health	
30	HE. Mr. Gastao F. de Sousa	Minister	Ministry of Public work	
31	Mr. Jose G. R. C. Piedade	Director General	Ministry of Public Work	
32	Mr. Roger T. F. B. Belo	Director of Housing and Urban Planning	Ministry of Public Work	
33	Mr. Filomeno M. da Silva	Coordinator of Urban Master Plan (UMP)	Ministry of Public Work	
34	Mrs. Luzia Maria D. F. Pereira	Infrastructure Of UMP	Ministry of Public Work	
35	Ms. Ana Blandina D. S. Ximenes	Environment of UMP	Ministry of Public Work	
36	Ms. Grace Natalia L. D. Carvailho	Institution of UMP	Ministry of Public Work	
37	Mr. Micael da Costa	Road and Transportation Of UMP	Ministry of Public Work	
38	Mr. Joao Ximenes	Socio Economy of UMP	Ministry of Public Work	
39	Mr. Helder E. Gusmao	Socio Economy of UMP	Ministry of Public Work	
40	Mr. Carlos Manuel H. Pinto	Infrastructure of UMP	Ministry of Public Work	
41	Mrs. Margarida M. d. G. L. Soares	Land Use of UMP	Ministry of Public Work	
42	Mrs. Sonia Gusmao	Secretary of UMP	Ministry of Public Work	
43	Mrs. Celstina D. Costa	Legal Assistant of UMP	Ministry of Public Work	

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## Appendix-2

## AGENDA OF 2nd STEERING COMMITTEES

## for "the Project for Study on Dili Urban Master Plan"

Date:	20 January, 2014
Venue:	Conference Room of Ministry of Public Works
	Ave. Martires da Patria, Mandarin-Dili

## Agenda:

09:00-09:10 09:10-09:15	Opening Remark by the Minister of Public Works Opening Remark by Chief Representative of JICA Timor - Leste
09:15-09:55	<ul> <li>Presentation by JICA Project Team (JPT)</li> <li>Planning Issues</li> <li>Development Vision (Preliminary Idea)</li> <li>Urban Structure Options (Preliminary Idea)</li> <li>Current Work Progress</li> <li>Activities for the next Steering Committee</li> </ul>
10:00-10:30 10:30-11:30 11:30-11:35	Coffee Break Discussion Closing Remark by Minister of Public Works

## MINUTES OF MEETING

### OF THE

## 3RD STEERING COMMITTEE

### ON THE

## PROJECT FOR STUDY ON THE

## DILI URBAN MASTER PLAN

March 17, 2016

Conference Room of the Ministry of Planning and Strategic Investment

Hikoyuki Ukai Chief Representative Japan International Cooperation Agency, Timor-Leste Office

Gastao Francisco de Sousa Interim Minister Ministry of Planning and Strategic Investment and Minister of Public Works, Transports and Communications

#### 1. Members present (see Appendix-1)

#### 2. Agenda (see Appendix-2)

#### 3. Contents of 3<sup>rd</sup> Steering Committee Meeting

Meeting started with the opening remark by H.E. Gastão Francisco de Sousa of Minister of Public Works, Transport and Communications and Mr. Hikoyuki Ukai of Chief Representative of JICA Timor-Leste Office. It was followed by presentation of Draft Final Report by the JICA Project Team for the Study on the Dili Urban Master Plan and National Directorate of Housing and Urban Planning (NDHUP) of the Ministry of Planning and Strategic Investment (MPSI).

#### (1) **Opening remarks**

#### Minister of Public Works, Transport and Communications

- On behalf of the Minister of Planning and Strategic Investment, welcomed the participants and thanked the Chief Representative of JICA, the Ministers and Directors for their participation in the Steering Committee meeting.
- Requested the Steering Committee Members to provide ideas and opinions to improve the Draft Final Report of the Project for Study on the Dili Urban Master Plan for final decision by the Government .
- Expressed his deep appreciation for the support from JICA for the project.

#### Chief Representative, JICA Timor-Leste Office

• Thanked the chance given for delivering his message on the 3<sup>rd</sup> Steering Committee meeting. Greeted all participants in the meeting, which he has been awaiting for more than one year, following the 2<sup>nd</sup> Steering Committee meeting, which was held in January 2015. Mentioned that the consultant member team had had enough time to prepare all the documents and welcomed the Project Team in presenting the outline of the Draft Final Report of the Project.

#### (2) Main Comments and Response on Project implementation

Main comments after presentation of the promotion video and the explanation of the Draft Final Report by the Project Team and the NDHUP are as follows:

#### (2.1) Land Use

#### Minister of Health

Will this Plan affect the foreseen construction (by 2030) of the new referral hospital in

#### the Bidau Toko Baru area?

#### National Director for Economic Policies, Ministry of Finance

• As industries, commercial centers, housing, port and airport are developed in Dili, population, tourism and traffic volume will increase. We need a national development plan that ensures the connection between them.

#### Coordinating Minister for Economic Affairs

- Wondered whether the project area is specified in Terms of Reference of the Project. In order to design a Dili Metropolitan Area, we should extend the project area not only to Hera but also to Metinaro, as the Dili area is too narrow and has a very limited flat area with many hills which are not very strong or stable. We should address the relocation of people living near hilly area where disaster risks are high.
- Suggested that the project team review the new Decree Law on Protected Areas (Tasi Tolu and Cristo Rei, including Mr. Eugénio Campos' project and the recently approved Pelican Paradise project), as well as the coastal areas.

#### Coordinating Minister for Social Affairs

- The plan only addresses present issues, not future ones. It must address issues such as population concentration and flooding areas. It must also clearly define which areas serve which purposes.
- It is important to read and understand the reports and research for Hera and Tibar, as these cities will become, respectively, education and industry hubs. Therefore, the plan must define what type of cities these should become.

#### Chief Representative, JICA Timor-Leste

- Regarding the project area issue raised by the Coordinating Minister for Economic Affairs, NDHUP has developed the capacity to formulate a land use plan for surrounding areas of Dili, including Metinaro, by utilizing the knowledge and skills acquired in the JICA Project.
- Proposed land use plan 2030 is the most important part of the master plan, and it does not show drastic change, but it shows the best possible uses.
- The general census conducted July 2015 showed the growth of Dili Population. It said that Dili's annual average exponential growth rate for the period was 1.55%, which is for below than "No Migration Scenario". This is very good news for us we have time for the preparation.

#### Coordinator of Urban Master Plan - NDHUP/MPSI

• This project is a collaborative study between the JICA Expert Team and the Timorese people. It included the collaboration of all relevant stakeholders from line ministries and civil society, including the Youth Parliament. Three working group discussions were held per sector.

#### (2.2) Detailed Plan for Land Use

Secretary of State for Land and Property

- This plan does not encompass changes for the future. The slum areas are not addressed in the plan (e.g. Kintal Boot, Mascarenhas).
- What is the land use based on? What land will be necessary for the airport? How were the residential areas defined? For example, would Caikoli be suitable as a residential area? The Land and Properties Secretariat must be able to ensure future availability of land.
- The data collected on Dili is scattered/not well organized in the plan.
- We need a solid standard before we develop each area, so that we can avoid constructing and demolishing buildings which will be regarded as undesirable in the future.
- We should have a regulation that determines in detail each area (e.g. residential, offices), in order to issue land certificates and avoid land related problems on land in the future. For example, Tasi-Tolu and the area behind Cristo Rei are considered to be protected areas but what exactly should be protected?; in Quintal Boot, there are access difficulties should we open a new road in that area?; the Mascarenhas area has bad road conditions and pipes must be constructed to improve the water supply system.

#### Director General of Public Works, MOPWTC

- The Master Plan should clarify what kind of construction can be built and what kind of development will be implemented. The policy/regulation for building height, floor area ratio, building coverage area, etc. should be defined. NDHUP should process licenses/permissions based on applicable policies and regulations.
- Until 2030, Dili's population is expected to be of 400.000 to 500.000 people, but the plan does not propose measures to prevent and address migration to the city.

#### Team Leader of JICA Project Team

• Explained that master plan generally shows the direction of land use and land use policy, and does not detail Building Coverage Ratio (BCR), Floor Area Ratio (FAR),

building height, etc. A more detailed plan should be adopted after the general outline of land use and the land use plan are determined through this master plan.

#### (2.3) Road Network

#### Minister of Health

The Dili Urban Master Plan should be extended to Hera and Tibar. In Hera, there will be an increase in residences, institutions and commerce, which will cause difficulties, such as road congestions, as there are only two Dili-Hera access roads. Are there any other considerations to be had in order to address this issue?

#### Coordinating Minister for Economic Affairs

• The future land use map should show by-pass roads from east to west.

#### Director General of Public Works, MOPWTC

• No new dispositions on the road network. No alternative roads are suggested to improve West-East travel without passing through the center of Dili. The 'Comoro 3' alternative from Tibar leads to Banana Road only. This has a negative impact on the population of this area, therefore an alternative road should be proposed.

#### Team Leader of JICA Project Team

• Explained that the A-3 size future land use map, one of the handouts for the meeting, shows new by-pass roads between Dili and Tibar, and between Dili and Hera.

#### (2.4) Urban Environment

#### Coordinating Minister for Economic Affairs

• Need to rebuild Dili in order for it to become a beautiful city.

#### Minister of Health

• The Dili Urban Master Plan should consider the master plan for water supply.

#### National Director for Economic Policies, Ministry of Finance

- The Dili Urban Master Plan should address the waste water issue, which is polluting the sea and the coastal areas,.
- What will be the impact for tourism?

#### Vice Minister of Public Works, Transport and Communications

• We need to have a good plan for the water system in Dili since we do not have proper water sources in this metropolitan area. We should consider conveying water from Aileu/Metinaro.

#### Director General of Corporate Services, MOPWTC

- There is a master plan for the water supply, with which this plan should be consistent. The sewerage system needs attention. Overlapping drainage should be avoided. This issue should be coordinated with the National Directorate for Water and Sanitation. Solid waste management in Dili should be addressed, since the Liquica municipality has closed the Tibar dump site for Dili. Need to find a solution in order to avoid controversy in the future.
- Need to consider how to deal with old cars wastage (scraps), which create a great level of contaminating pollution, especially due to waste water from car workshops, which is loaded with oil.
- Port areas should not be located next to residential areas of medium intensity, as they result in great noise pollution.

#### Director General of Public Works, MOPWTC

• The project should address flooding-prone areas and explain the viability of the Caicoli area.

#### (2.5) Industry

#### Coordinating Minister for Economic Affairs

• The Dili Urban Master Plan should mention what types of industry are allowed in Dili, as well as suitable locations for industrial areas. For example, we should check whether Heineken's industrial park is included in the industrial area and consider the possible development of an industrial park in Tibar.

#### Team Leader of JICA Project Team

• The Dili Urban Master Plan should be consistent with industrial policy and the industrial master plan. When we prepared the land use plan, the policy and the plan did not mention specific types of industry to be introduced in Dili, so we did not mention the specific type of industry in the plan.

#### (2.6) Budgeting

#### Coordinating Minister for Economic Affairs

• Estimates of expenditure on phase by phase development is also needed, as public

budget must be considered.

#### (2.7) Institutional Arrangements

Coordinating Minister for Economic Affairs and Director General of Public Works

• Suggested that further discussions are had on the institutional arrangements issue.

#### (2.8) Implementation of the Plan

Director General of Public Works

• JICA should continue supporting this project, by supporting the implementation of this plan.

#### (3) Conclusion

- The Steering Committee Members were requested to deliver additional comments on the Draft Final Report to NDHUP and the JICA Project Team by April 1, 2016.
- MPWTC requested NDHUP and the JICA Project Team to examine and respond all comments and questions raised in this meeting, so that they can be reflected in the Final Report.

End of Document

## Appendix-1

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### Appendix-2



## 3<sup>rd</sup> STEERING COMMITTEE "Project for Study on Dili Urban Master Plan"

Date: 17 March 2016

Venue: Conference Room, Ministry of Planning and Strategic Investment (Fatuhada)

Agenda:

09:00-09:05 Opening Remarks by the Minister of Planning and Strategic Investment

09:05-09:10 Opening Remark by the Chief Representative of JICA Timor-Leste

09:10-09:15 Presentation of Promotion Video

09:15-09:45 Presentation by JICA Project Team

- Planning Issues
- Development Vision
- Urban Structure
- Infrastructure Plan
- Urban Management Plan
- Priority Projects and Action Plan
- Way Forward

09:45-10:50 Discussion

10:50-11:00 Closing Remarks by the Minister of Planning and Strategic Investment

## APPENDIX 3 POPULATION PROJECTION FROM ECONOMIC GROWTH PERSPECTIVE

#### A3.1 Background and Objective

Population projection for the project area has been conducted based on the demographic and social dynamics. The results for the five cases are presented in Table A3.1 and possible population sizes are projected to range from 400 to 700 thousand in 2030 for Case-1 – Case-4; while Case-5 is presented as a minimum scenario without internal migration.

Case	2010	2015	2020	2025	2030	Annual Average Growth Rate (Exponential)
Case-1	223,793	305,425	407,479	529,291	708,948	5.77%
Case-2	223,793	293,605	376,174	467,045	562,697	4.61%
Case-3	223,793	283,034	351,137	422,524	492,251	3.94%
Case-4	223,793	260,398	302,991	352,550	410,215	3.03%
Case-5	223,793	253,285	286,664	324,442	367,198	2.48%

 Table A3.1 Population Projection by Five Scenarios for the Project Area 2010-2030

Source: JICA Project Team

The JICA Project Team has conducted a verification study to assess the appropriate population size in the project area from an economic growth perspective. In other words, the objective of this verification study is to provide support evidence with the projected population in terms of future economic growth.

The estimation of the gross regional domestic product (GRDP) of Dili Municipality is a prerequisite for this assessment since the national account of Timor-Leste has not yet provided regional data in terms of income, expenditure, and production. Therefore, the approach undertaken includes the following steps: (1) estimation of GRDP of Dili Municipality in the past, (2) estimation of correlation between population and GRDP growth trends, and (3) population projection based on the obtained correlation according to economic growth scenarios.

#### A3.2 Estimation of GRDP

The basic assumption of GRDP estimation is based on the population data of Dili Municipality including Metinaro and Atauro Administrative Posts but excluding Suco Tibar which is included in the project area. This is duly because of readiness of estimation and data availability. Therefore, in this verification study, GRDP of Dili Municipality is regarded as that of the project area.

The Business Activity Survey (BAS) in Timor-Leste for 2011 and 2012 concludes that Dili continued to employ over 80% of all persons employed (58,200 in 2011 and 63,200 in 2012) and generated 94% and 96% of the total income in 2011 and 2012 respectively. However, particular interest is on the 39% income growth of Dili compared with the 25% income growth of other municipalities outside of Dili. Based on this finding, the GDP contribution by Dili Municipality can be estimated at the following rates by sector as presented in Table A3.2.

Sector	Sub-sector Included	2004	2005	2006	2007	2008	2009	2010
Primary	Agriculture, forestry, and fishery	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05 %
Secondary	Manufacturing, mining, and construction	90%	91%	92%	93%	94%	94%	94%
Tertiary	Services as a whole	90%	91%	92%	93%	94%	94%	94%
Public	Public administration, defense, education, human health, and social work activities	95%	95%	95%	95%	95%	95%	95%

 Table A3.2 Estimation of Non-Oil GDP Share of Dili Municipality

Source: JICA Project Team

BAS estimation is based on the private companies in the secondary and tertiary sectors. Therefore, 94% of income share is applied in a gradually ascending trend from 2004 at 90% for those sectors. The primary sector share is considered at a minimum level as the observed crop land in Dili Municipality has limitedly shares of 0.05% to the national crop land. For the public sector, national revenue (mainly from oil sector) and expenditure are considered under the central government of which functions are concentrated in Dili Municipality, while small municipality offices are located in each urban center of the municipalities all over the country. Based on this understanding, it is assumed that the public sector share of Dili Municipality is considerably high at 95% consistently since 2004.

With the above assumptions, GRDP share of Dili Municipality by sector is estimated in Table A3.3.

	Table	AJ.J GKD	i Estimatio		wiunicipai	ity 2004-20	11		
Region	Sector	2004	2005	2006	2007	2008	2009	2010	2011
	Primary	170.9	177.9	187.1	181	181.5	196.2	190.5	153.2
	Secondary	58.3	60.9	47.8	73.2	132.4	187.6	201.3	269.2
Timor-Leste	Tertiary	250.6	276.7	267.3	288.6	318.3	339.4	374	392
	Public	88	88.7	98	110.9	117.2	154.4	174.5	218.2
	GDP Total (Million USD)	567.8	604.2	600.2	653.7	749.4	877.6	940.3	1032.6
	Primary	0.085	0.089	0.094	0.091	0.091	0.098	0.095	0.077
	Secondary	52.5	55.4	44.0	68.1	124.5	176.3	189.2	253.0
	Tertiary	225.5	251.8	245.9	268.4	299.2	319.0	351.6	368.5
Dili Municipality	Public	83.6	84.3	93.1	105.4	111.3	146.7	165.8	207.3
	GRDP Total (Million USD)	361.7	391.6	383.1	441.9	535.1	642.2	706.7	828.9
	% to GDP	63.7%	64.8%	63.8%	67.6%	71.4%	73.2%	75.2%	80.3%
	Population of Dili Municipality	175,730	184,315	193,320	202,765	212,672	223,062	234,026	

 Table A3.3 GRDP Estimation for Dili Municipality 2004-2011

Source: JICA Project Team

When GRDP estimation is extended to the 2000-2011 period, the annual growth rate obtained is at 8.4% which is 2.2% higher than the GDP growth rate (6.2%) for the same period.

#### A3.3 Estimation of Correlation Between Population and GRDP Growth Trends

The correlation between the total GRDP and population trends of Dili Municipality is examined to obtain approximation curve. The result is presented in Figure A3.1.



Source: JICA Project Team

Figure A3.1 Approximation Curve Representing Correlation Between GRDP and Population for Dili Municipality

Since the exponential growth is considered appropriate in population projection, approximation curve also assume to follow the same form. Therefore, the curve is estimated as:

$$Y = 20153 X^{0.374},$$
  
Where,  $Y = Population, X = GRDP$ 

#### A3.4 Population Projection According to the Economic Growth Scenarios

Four growth scenarios for GDP proposed under the Master Plan study are applied to estimate GRDP and population as shown in the right end of the table below. For comparison purpose, population projection results by five cases proposed in the Master Plan are also re-presented.

			111cu 2010	2030			
Item	GDP Growth Case	2010	2015	2020	2025	2030	Annual Average Growth
	High	707	1,201	2,041	3,469	5,896	11.2%
Non-Oil GRDP	Moderate	707	1,124	1,789	2,845	4,527	9.7%
(Million USD)	Low	707	986	1,375	1,918	2,675	6.9%
	Lowest	707	958	1,298	1,758	2,383	6.3%
Population	High	234,026	285,818	348,527	424,995	518,240	4.0%
Projections	Moderate	234,026	278,843	331,723	394,633	469,472	3.5%
(GRDP)	Low	234,026	265,454	300,633	340,474	385,594	2.5%
(Dili Municipality)	Lowest	234,026	262,601	294,206	329,614	369,284	2.3%
Population	Case-1	223,793	305,425	407,479	529,291	708,948	5.77%
Projections	Case-2	223,793	293,605	376,174	467,045	562,697	4.61%
Demographic/	Case-3	223,793	283,034	351,137	422,524	492,251	3.94%
Social Dynamics	Case-4	223,793	260,398	302,991	352,550	410,215	3.03%
(Project Area)	Case-5	223,793	253,285	286,664	324,442	367,198	2.48%

Cable A3.4 Population Projections by GRDP Estimation and by Demographic and Social Dynamics for the Project
Area 2010-2030

Source: JICA Project Team

The result indicates that moderate case demonstrates the most approximated population trend to Case-3 proposed in the master plan study.

#### A3.5 Conclusion and Recommendation

As performed in this verification study, the population framework (Case-3) and macroeconomic framework (moderate case) proposed in the master plan study approximately meet each other. It implies that the proposed frameworks are fairly plausible and the verification study provides supportive evidence for the validity of the proposed development framework.

On the other hand, it is understood that there is an underlying limitation. The study is based on repetition of estimations (estimation of estimation), small number of time series data for population and GDP (six years), hence, less reliable quantity of data and uncertainty of proportion changes in GDP shares by Dili Municipality. Growth rates applied to GRDP trend are the same as those used for GDP projection.

In reality, GRDP growth rates of Dili Municipality would be higher than the national level since Dili Municipality will continue to share large proportion to GDP value in the future and to play a leading role in economic development of Timor-Leste. The gap in the growth rates between GRDP and GDP is observed at 2.2% for the 2000-2011 period. Ideal condition is considered and the gap will be kept constant or will gradually shrink in order to achieve a balanced economic development for the country as a whole.

In the future, it is highly expected that the Government of Timor-Leste will be capable to produce GRDP statistics so that the government will be able to manage and monitor national and regional economic development properly.

## APPENDIX 4: DEVELOPMENT DIRECTION FOR POTENTIAL INDUSTRY IN DILI METROPOLITAN AREA

#### A4.1 Introduction

Non-oil sector development in Timor-Leste is perceived as crucial and an urgent issue as pointed out in the Strategic Development Plan (SDP) 2011-2030. The Ministry of Commerce, Industry and Environment (MCIE) is now developing an industrial development policy at a national level, which extends to the enclave Oecusse. The current development policy overviewed specifically for the area related to Dili Metropolitan Area (DMA), where two industrial zones and a science park are proposed as secondary sector development. The main objective of this report is to outline suitable development direction and to draw potential industries to be enhanced in conjunction with the urban development plan based on the review of the current policy/plan and present conditions in DMA.

#### A4.2 Roles of DMA in Industry Development and Its Potentials

After a thorough review and analysis of the present condition of the industries observed in DMA, the primary roles of DMA in the context of industry development are to provide supportive basic infrastructures such as road, port, airport, water, electricity, and ICT and absorb increasing labor demand. Based on this understanding, the industry development direction can be aggregated into the following potential industries for DMA as shown in Table A4.1.

Sector	No.	Potential Industrial Development	Supportive Facilities by Government Intervention	Possible Related Agency
Secondary	1.	Enhancement of primary processing for cereal products.	Development of post-harvest facilities (mills and threshers) for cereals such as paddy and maize	MCIE
	2.	Fishery development through organizing and coordinating fishery cooperatives. Improvement of fresh fish marketing practices.	Development of fisherman's wharf and market. Development of cold storage.	MCIE
	3.	Quality improvement for high-value added products such as coffee, coconut, and vanilla (enhancement of domestic productions toward final products through introduction of multiple processing steps)	(Private sector driven)	-
	4.	Protection and strengthening of existing manufacturing industries such as bottling water, cannery, ceramic, furniture, rattan/bamboo products, weaving (tais), and	(Private sector driven)	-

Table A 4.1 List of Potential Industries In and Around the Dili Metropolitan Area

Sector	No.	Potential Industrial Development         Supportive Facilities by Government Intervention					
		other handicrafts					
	5.	Development of construction material manufacturing industry (streamlining production of wood, brick, cement, gravel) (Private sector driven)					
	6.	Development of light industry by promotion of foreign direct investment	Development of the special economic zone (SEZ)/export processing zone (EPZ) in parallel with the launching of incentive policies for investors	MCIE			
	7.	Development of the packaging industry to support the above industries	(Private sector driven)	-			
	8.	Strengthening the tourism industry (promotion, advertising campaign abroad, strengthening a brand of annual national events such as Dili Marathon, Tour de Timor)	Rehabilitation and improvement of the existing international airport. Protection and improvement of landscape (green area, footpath, coastal conservation)	AACL (MoPWTC) MoPWTC			
	9.	Improvement of hospitality (enhancing hotel / restaurant, catering services) (Private sector driven)					
	10.	Promotion of Meeting, Incentive, Conference, Exhibition (MICE)	Rehabilitation and improvement of Dili Convention Center. Development of commercial complex buildings by private sector.	MoPWTC			
	11.	Strengthening travel agent businesses by promoting joint venture (domestic and foreign firms)	(Private sector driven)	-			
Tertiary	12.	Strengthening retail / wholesale industries for consumer goods (food, beverage, fresh products, electronics, daily consumables) Strengthening retail / wholesale industries for B-to-B goods (construction materials, spare parts, plastic products, office appliances)	Development of logistics and storage center near the Tibar new port	MCIE			
	13.	Strengthening transport service industry (inland and maritime transport)	Improvement and upgrading of trunk roads; development of the Tibar new port; and strengthening port service facilities (bonded storage, custom, rental storage, etc)	MoPWTC, APORTIL			
	14.	Enhancement of mechanic and repair service for automobile and motorcycle	(Private sector driven)	_			
	15.	Enhancement of education and vocational training services (except for public education)	(Private sector driven)	-			
	16.	Enhancement of printing and publishing industries	(Private sector driven)	-			
	17.	Enhancement of real estate industry	(Private sector driven)	-			
	18.	Enhancement of finance/insurance services for small-medium-scale firms and entrepreneurs	(Private sector driven)	-			
	19.	Enhancement of other consumer services such as salons, healthcare service, entertainment	Development of culture center, athletic park, and stadium	MoPWTC			

Source: JICA Project Team

## **APPENDIX 5 : DEVELOPMENT SUITABILITY ANALYSIS**

#### A5.1 Objective and Methodology

The development suitability analysis was conducted within the study area as a reference for urban planning to assess the suitability of sites for land development based on several factors. The areas were assigned grades from one (1) to four (4) for each factor and then these grades were then integrated using assigned weights into the final development suitability rating. The geographical information system (GIS) was used for this analysis because it provides tools for easy representation of each factor, easy combination of the factors, and quick and repeatable results. The flowchart for the analysis is shown in the Figure A5.1.





The following steps were followed:

- (1) Calculate environment vulnerability ratings from one (1) to four (4) from lowest to highest environmental vulnerability, combining individual ratings for each of the factors: slope instability, flood susceptibility, protection areas, and important bird areas. See Figures A5.2 to A5.6 for the individual criteria for the ratings shown in the map legend.
- (2) Calculate accessibility ratings, from one (1) to four (4) from lowest to highest accessibility to services, combining individual ratings for each of the factors: public facilities, transportation facilities, and future development sites. See Figures A5.7 to A5.13 for the individual criteria for the ratings shown in the map legend.
- (3) Calculate population density ratings, from one (1) to four (4) from lowest to highest population density. See Figure A5.14 for the ratings criteria shown in the map legend.

(4) Calculate development suitability ratings, from one (1) to four (4) from lowest to highest development suitability, combining individual ratings for each of the categories: environmental vulnerability, accessibility, and population density.

These criteria, factors, and weights are summarized in the following table.

Category	Category Weight	Factors	Factor Weight	Explanation	
Environmental Vulnerability (EV)	60%			High environmental vulnerability, lower development suitability	
		Slope Instability	55.0%	Steeper slopes, higher environment vulnerability	
		Flood Susceptibility	10.0%	Flood prone area have higher environment vulnerability	
		Protected Areas	25.0%	Protected areas have higher environment vulnerability	
		Important Bird Areas	10.0%	Bird areas have higher environment vulnerability	
Accessibility (AA)	30%			Higher accessibility rating, higher development suitability rating	
		School Accessibility	25.0%	Areas nearer to schools have higher accessibility rating	
		Hospital/Health Clinic Accessibility	25.0%	Areas nearer to hospitals and health centers have higher accessibility rating	
		Accessibility to Trunk Roads	10.0%	Areas nearer to trunk roads have higher accessibility rating	
		Accessibility to International Airport	10.0%	Areas nearer to the airport have higher accessibility rating	
		Accessibility to Microlet Route	10.0%	Areas nearer to the microlet routes port have higher accessibility rating	
		Accessibility to Future Development Sites	20.0%	Areas nearer to the future development sites have higher accessibility rating	
Population Density (PD)	10%	Population Density 2014	100.0%	Areas with higher population density have higher development needs	
Exclusion Areas (X)		Water Areas		Water areas are excluded from the development suitability analysis and will have a grade of zero (0)	

Table A 5.1Land Suitability and Development Suitability Analysis Criteria, Factors, and Weights

Source: JICA Project Team

Description         Very Low Vulnerability         Low Vulnerability         Moderate Vulnerability         High Vulnerability         Very High Vulnerability           Singe Instability         Grad         I.1.1.5         I.6.2.3         3.5.4.3.5           Singe Instability         Singe Vulnes         Unstable Singe         Vulnerability         Exerciption         Singe Vulnes         Singe Vulnes           Singe Vulnes         Under 1 See Vulnes         Very Vulnes Vulnes         Singe Vulnes         Singe Vulnes         Singe Vulnes           Piost Singe Vulnes         Singe Vulnes         Very Vulnes Vulnes         Singe Vulnes         Singe Vulnes         Singe Vulnes           Piost Singe Vulnes         Singe Vulnes         Singe Vulnes         Singe Vulnes         Singe Vulnes         Singe Vulnes           Piost Singe Vulnes         Singe Vulne							
Image Shop Instability DescriptionIndex Shop Shabe SlopeInitial Slope Unstable SlopeIndex Unstable SlopeIntermety Unstable Slope Instable SlopeIntermety Unstable SlopeInterme		Description	Very Low Vulnerability	Low Vulnerability	Moderate Vulnerability	High Vulnerability	Very High Vulnerability
Sheer Instability Instable SupperStable SupperModerate/Unstable SupperEnterney Unstable SupperInstable SupperSingle SupperUnder 15 deg15.20 deg20.3 degOver 30 degOver 30 degFind Supper Su		Grade	1	1.1-1.5	1.6-2.5	2.6-3.5	3.5-4.0
Singe Values (FieldUnder 15 deg (Field15-20 deg (C20-0 deg (COver 30 deg (COver 30 deg (CFload Susceptibility (Faced AreaNot Flood Prone1241Fload Susceptibility (Faced AreaC14111	Slope Instability	Description	Stable Slope	Unstable Slope	Moderately Unstable Slope	Extremely Unstable Slope	
GradeI234InterpretationFlod SusceptibilityDescriptionNot Flod ProneFlod ProneInterpretationInterpretatio		Slope Values	Under 15 deg	15-20 deg	20-30 deg	Over 30 deg	
Fload SusceptibilityInstant Pice of Pice Pice Pice Pice Pice Pice Pice Pice		Grade	1	2	3	4	
GradeIndIndIndIndIndIndIndProtected AreasDescriptionOutside PAProtected AreaIndI	Flood Susceptibility	Description	Not Flood Prone	Flood Prone			
Protected Area         Description         Outside PA         Protected Area		Grade	1	4			
Important Bird AreasImportant Bird AreaImportant Bird AreaImport AreaDescriptionVery Low AccessibilityLow AccessibilityModerate AccessibilityHigh AccessibilityVery High AccessibilityBend AreasDescriptionVery Low AccessibilityLow AccessibilityModerate AccessibilityHigh AccessibilityVery High AccessibilityBescriptionVery Low AccessibilityLow AccessibilityModerate AccessibilityHigh AccessibilityVery High AccessibilityPoints*0>0-5>10>34Rode01234Horpita/Health Clinic AccessibilityDescriptionVery Low AccessibilityModerate AccessibilityHigh AccessibilityVery High AccessibilityRode AccessibilityDescriptionVery Low AccessibilityModerate AccessibilityHigh AccessibilityVery High AccessibilityRode Accessibility Do International ApplicationO1234Accessibility Do International ApplicationInternational ApplicationSton - 900Within 900Rode Accessibility Do International ApplicationInternational ApplicationInternational ApplicationSton - 900Accessibility Do International ApplicationInternational ApplicationInternational ApplicationInternational ApplicationAccessibility Do International ApplicationInternational ApplicationInternational Application<	Protected Areas	Description	Outside PA	Proposed PA	Protected Area		
Important Bind AreaBind AreaBind AreaIncludieIncludieIncludieGrade114Includie<		Grade	1	2	4		
Grade141111DescriptionVery Low AccessibilityLow AccessibilityModerate AccessibilityHigh AccessibilityVery High AccessibilitySehool AccessibilityDescriptionVery Low AccessibilityLow AccessibilityModerate AccessibilityHigh AccessibilityVery High AccessibilitySehool AccessibilityDescriptionVery Low AccessibilityLow AccessibilityModerate AccessibilityHigh AccessibilityVery High AccessibilityPoints*0>0>5>1934Hospital Health Clinic AccessibilityDescriptionVery Low AccessibilityLow AccessibilityModerate AccessibilityHigh AccessibilityVery High AccessibilityPoints*0>0>2>8>185Accessibility to Trunk RoseDescriptionVery Low AccessibilityLow AccessibilityModerate AccessibilityHigh AccessibilityVery High AccessibilityDescriptionVery Low AccessibilityLow AccessibilityModerate AccessibilityHigh AccessibilityVery High AccessibilityAccessibility to International JordDescriptionVery Low AccessibilityLow AccessibilityModerate AccessibilityHigh AccessibilityVery High AccessibilityAccessibility to International JordDescriptionVery Low AccessibilityLow AccessibilityModerate AccessibilityHigh AccessibilityVery High AccessibilityAccessibility to International JordDescriptionVery Low AccessibilityLow AccessibilityModerate Acc	Important Bird Areas	Description	Outside Bird Area	Bird Area			
DescriptionVery Low AccessibiliyLow AccessibiliyModerate AccessibiliyHigh AccessibiliyVery High AccessibiliyGrade0-0.50.61.51.62.50.63.53.64.0School AccessibiliyDescriptionVery Low AccessibiliyModerate AccessibiliyHigh AccessibiliyVery High AccessibiliyPaints*0>050.19.07.917.91Honghalt Halth Clinic AccessibiliyDescriptionVery Low AccessibiliyModerate AccessibiliyHigh AccessibiliyVery High AccessibiliyAngel Halth Clinic AccessibiliyDescriptionVery Low AccessibiliyModerate AccessibiliyHigh AccessibiliyVery High AccessibiliyAccessibiliy to Turk RoseDescriptionVery Low AccessibiliyModerate AccessibiliyHigh AccessibiliyVery High AccessibiliyAccessibiliy to Turk RoseDescriptionVery Low AccessibiliyModerate AccessibiliyHigh AccessibiliyVery High AccessibiliyAccessibiliy to Turk RoseDescriptionVery Low AccessibiliyLow AccessibiliyModerate AccessibiliyHigh AccessibiliyVery High AccessibiliyAccessibiliy to Turk RoseDescriptionVery Low AccessibiliyLow AccessibiliyModerate AccessibiliyHigh AccessibiliyNet High AccessibiliyAccessibiliy to Turk RoseDescriptionVery Low AccessibiliyLow AccessibiliyModerate AccessibiliyHigh AccessibiliyNet High AccessibiliyAccessibiliy to Turk RoseDescriptionVery Low AccessibiliyLow AccessibiliyModerate Accessibiliy <td></td> <td>Grade</td> <td>1</td> <td>4</td> <td></td> <td></td> <td></td>		Grade	1	4			
Index0-0.50.6-1.51.6-2.52.6-3.53.6-0Shod AccessibilityDescriptionVery Low AccessibilityLow AccessibilityModerate AccessibilityHigh AccessibilityVery High AccessibilityPoints*031234Hospital/Halth Clinic AccessibilityDescriptionVery Low AccessibilityLow AccessibilityModerate AccessibilityHigh AccessibilityVery High AccessibilityHospital/Halth Clinic AccessibilityDescriptionVery Low AccessibilityLow AccessibilityModerate AccessibilityHigh AccessibilityVery High AccessibilityAccessibility to Trunk RoadsDescriptionVery Low AccessibilityLow AccessibilityModerate AccessibilityHigh AccessibilityVery High AccessibilityAccessibility to Trunk RoadsDescriptionVery Low AccessibilityLow AccessibilityModerate AccessibilityHigh AccessibilityVery High AccessibilityAccessibility to International AdviteDescriptionVery Low AccessibilityLow AccessibilityModerate AccessibilityHigh AccessibilityVery High AccessibilityAccessibility to Microl EduDescriptionVery Low AccessibilityLow AccessibilityModerate AccessibilityHigh AccessibilityVery High AccessibilityAccessibility to Microl EduDescriptionVery Low AccessibilityLow AccessibilityModerate AccessibilityHigh AccessibilityVery High AccessibilityAccessibility to Microl EduDescriptionVery Low AccessibilityLow AccessibilityModerate Accessibi		Description	Very Low Accessibility	Low Accessibility	Moderate Accessibility	High Accessibility	Very High Accessibility
School Accessibility PindeNery Low AccessibilityLow AccessibilityModerate AccessibilityHigh AccessibilityNery High AccessibilityPinde*0>> <td></td> <td>Grade</td> <td>0-0.5</td> <td>0.6-1.5</td> <td>1.6-2.5</td> <td>2.6-3.5</td> <td>3.6-4.0</td>		Grade	0-0.5	0.6-1.5	1.6-2.5	2.6-3.5	3.6-4.0
Points*         0         >0         >5         >19         >34           Hand         Red         0         1         2         3         4           Happial/Health Clink Accessibility         Forgriom         Very Low Accessibility         Iwa Accessibility         Moderate Accessibility         High Accessibility         Very High Accessibility           Arecessibility to Trunk Roads         Description         Very Low Accessibility         Low Accessibility         Moderate Accessibility         High Accessibility         Very High Accessibility           Accessibility to Trunk Roads         Description         Very Low Accessibility         Low Accessibility         Moderate Accessibility         High Accessibility         Very High Accessibility           Accessibility to International Map         Description         Very Low Accessibility         Low Accessibility         Moderate Accessibility         High Accessibility         Very High Accessibility           Accessibility to International Map         Description         Very Low Accessibility         Low Accessibility         Moderate Accessibility         High Accessibility         Very High Accessibility           Accessibility to International Map         Description         Very Low Accessibility         Low Accessibility         Moderate Accessibility         High Accessibility         Very High Accessibility	School Accessibility	Description	Very Low Accessibility	Low Accessibility	Moderate Accessibility	High Accessibility	Very High Accessibility
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$ \begin{array}{ c c c c } \hline \begin{tabular}{ c c c } \hline \begin{tabular}{ c c c } \hline \begin{tabular}{ c c c c } \hline \begin{tabular}{ c c c c } \hline \begin{tabular}{ c c c c c } \hline \begin{tabular}{ c c c c c } \hline \begin{tabular}{ c c c c c } \hline \begin{tabular}{ c c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Accessibility to Trunk Roads	Description	Very Low Accessibility	Low Accessibility	Moderate Accessibility	High Accessibility	Very High Accessibility
IndexIndexIndexIndexIndexIndexIndexIndexArcessibility to International AirpitDescriptionVery Low AccessibilityLow AccessibilityModerate AccessibilityHigh AccessibilityVery High AccessibilityInstance2 km and beyond1,500-1,999 m1,000-1,499 m500-999 mWithin 499 mIndex01234Accessibility to Microfet RowtDescriptionVery Low AccessibilityLow AccessibilityModerate AccessibilityMigh AccessibilityVery High AccessibilityInstance2 km and beyond1,500-1,999 m1,000-1,499 m500-999 mWithin 499 mInstance01234Accessibility to Future Development SitesDescriptionVery Low AccessibilityLow AccessibilityModerate AccessibilityHigh AccessibilityVery High AccessibilityAccessibility of Future Development SitesDescriptionVery Low AccessibilityLow AccessibilityModerate AccessibilityHigh AccessibilityVery High AccessibilityAccessibility of Future Development SitesDescriptionVery Low AccessibilityLow AccessibilityModerate AccessibilityHigh AccessibilityVery High AccessibilityAccessibility of Future Development SitesDescriptionVery Low AccessibilityLow AccessibilityModerate AccessibilityHigh AccessibilityVery High AccessibilityAccessibility of Future Development SitesDescriptionVery Low DevelopmentModerate DevelopmentHigh		Distance	1 km and beyond	500-999 m	300 – 499 m	100 – 299 m	Within 99 m
Accessibility to International ArispinDescriptionVery Low AccessibilityLow AccessibilityModerate AccessibilityHigh AccessibilityVery High AccessibilityInternational Arispin11234Accessibility of Microlet RouteDescriptionVery Low AccessibilityLow AccessibilityModerate AccessibilityHigh AccessibilityVery High AccessibilityAccessibility of Microlet RouteDescriptionVery Low AccessibilityLow AccessibilityModerate AccessibilityHigh AccessibilityVery High AccessibilityAccessibility of Future DevelopmentTotal2344Accessibility of Future DevelopmentDescriptionVery Low AccessibilityLow AccessibilityModerate AccessibilityHigh AccessibilityVery High AccessibilityAccessibility of Future DevelopmentDescriptionVery Low AccessibilityLow AccessibilityModerate AccessibilityHigh AccessibilityVery High AccessibilityAccessibility of Future DevelopmentDescriptionVery Low AccessibilityLow AccessibilityModerate DensityHigh AccessibilityVery High AccessibilityAccessibility of Future DevelopmentDescriptionVery Low DensityLow DensityModerate DensityHigh DensityVery High DensityAccessibilityDescriptionVery Low DensityLow DensityModerate DensityHigh DensityVery High DensityPop Den 2014O.300 p/sq km301-2,000 p/sq km2,001-4,000 p/sq km4,001-7,000 p/sq km>7,000 p/sq kmArcassibil		Grade	0	1	2	3	4
$ \begin{array}{ c c c c } \hline \begin{tabular}{ c c c } \hline \end{tabular} \\ \hline \en$	Accessibility to International Airport	Description	Very Low Accessibility	Low Accessibility	Moderate Accessibility	High Accessibility	Very High Accessibility
$ \begin{array}{ c c c c c } \hline \begin{tabular}{ c c c c } \hline \end{tabular} & \hline$		Distance	2 km and beyond	1,500-1,999 m	1,000-1,499 m	500 – 999 m	Within 499 m
$ \begin{array}{ c c c c c c c } \mbox{Accessibility} & Low Accessibility} & Moderate Accessibility & High Accessibility & Very High Accessibility \\ \hline Distance & 2 km and beyond & 1,500 , 199 m & 1,000 , 1,499 m & 500 - 999 m & Within 499 m \\ \hline Grade & 0 & 1 & 2 & 3 & 4 \\ \hline Accessibility to Future Development \\ Sites & Description & Very Low Accessibility & Low Accessibility & Moderate Accessibility & High Accessibility & Very High Accessibility \\ \hline Description & Very Low Accessibility & Low Accessibility & Moderate Accessibility & High Accessibility & Very High Accessibility \\ \hline Accessibility to Future Development \\ Sites & Description & Very Low Accessibility & Low Accessibility & Moderate Accessibility & High Accessibility & Very High Accessibility \\ \hline Description & 2 km and beyond & 1,500 , 1999 m & 1,000 , 1,499 m & 500 - 999 m & Within 499 m \\ \hline Distance & 2 km and beyond & 1,500 , 1999 m & 1,000 , 1,499 m & 500 - 999 m & Within 499 m \\ \hline Description & Very Low Density & Low Density & Moderate Density & High Density & Very High Density \\ \hline Pop Den 2014 & 0.300 p/sq km & 301 - 2,000 p/sq km & 2,001 - 4,000 p/sq km & 4,001 - 7,000 p/sq km & >7,000 p/sq km \\ \hline Description & Very Low Density & Land Area & Land Area & Land Area \\ \hline Water Areas & Description & Other & 0 & 1 & 0 & 0 & 0 \\ \hline Description & Cont & 0 & 1 & 0 & 0 & 0 & 0 \\ \hline Description & Other & 0 & 1 & 0 & 0 & 0 & 0 \\ \hline Description & Description & Very Low Density & Land Area & Land Area & Cont & Description &$		Grade	0	1	2	3	4
$ \begin{array}{ c c c c c } \hline \begin{tabular}{ c c c c } \hline \end{tabular} \\ \hline$	Accessibility to Microlet Route	Description	Very Low Accessibility	Low Accessibility	Moderate Accessibility	High Accessibility	Very High Accessibility
$ \begin{array}{ c c c c } \hline \mbox{Grade} & 0 & 1 & 2 & 3 & 4 \\ \hline \mbox{Accessibility DFuture Development} \\ \hline \mbox{Sites} & \hline \mbox{Description} & Very Low Accessibility & Low Accessibility & Moderate Accessibility & High Accessibility & Very High Accessibility \\ \hline \mbox{Distance} & 2 km and beyond & 1,500-1,999 m & 1,000-1,499 m & 500-999 m & Within 499 m & \\ \hline \mbox{Distance} & 2 km and beyond & 1,500-1,999 m & 1,000-1,499 m & 500-999 m & Within 499 m & \\ \hline \mbox{Distance} & 0 & 1 & 2 & 3 & 4 \\ \hline \mbox{Distance} & Very Low Density & Low Density & Moderate Density & High Density & Very High Density & \\ \hline \mbox{Distance} & 0 & 1 & 2 & 3 & 4 \\ \hline \mbox{Distance} & 0 & 0 & 1 & 2 & 0 & 3 & 0 & 1 \\ \hline \mbox{Distance} & 0 & 0 & 0 & $		Distance	2 km and beyond	1,500-1,999 m	1,000-1,499 m	500 – 999 m	Within 499 m
$ \begin{array}{ c c c c c c c c } \hline Accessibility & Very Low Accessibility & Low Accessibility & Moderate Accessibility & High Accessibility & Very High Accessibility \\ \hline Bisance & 2 km and beyond & 1,500-1,999 m & 1,000-1,499 m & 500-999 m & Within 499 m \\ \hline Bisance & 2 km and beyond & 1 & 2 & 3 & 4 \\ \hline Grade & 0 & 1 & 2 & 3 & 4 \\ \hline Pop Loa 10 & Very Low Density & Low Density & Moderate Density & High Density & Very High Density \\ \hline Pop Den 2014 & 0.300 p/sq km & 301-2,000 p/sq km & 2,001-4,000 p/sq km & 4,001-7,000 p/sq km & >7,000 p/sq km \\ \hline Bisance & 0 & 1 & 2 & 3 & 4 \\ \hline Grade & 0 & 1 & 2 & 3 & 4 \\ \hline Mater Areas & Description & Water Area & Land Area & Internet & Int$		Grade	0	1	2	3	4
$ \begin{array}{ c c c c c c } \hline \begin{tabular}{ c c c c c } \hline \begin{tabular}{ c c c c c c } \hline \begin{tabular}{ c c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Accessibility to Future Development Sites	Description	Very Low Accessibility	Low Accessibility	Moderate Accessibility	High Accessibility	Very High Accessibility
$ \begin{array}{ c c c c c c c } \hline \begin{tabular}{ c c c c c c c } \hline \end{tabular} \hline \en$		Distance	2 km and beyond	1,500-1,999 m	1,000-1,499 m	500 – 999 m	Within 499 m
		Grade	0	1	2	3	4
Pop Den 2014         0-300 p/sq km         301-2,000 p/sq km         2,001-4,000 p/sq km         4,001-7,000 p/sq km         >7,000 p/sq km           Grade         0         1         2         3         4           Water Areas         Description         Water Area         Land Area         Image: Constraint of the second s	Population Density 2014	Description	Very Low Density	Low Density	Moderate Density	High Density	Very High Density
Grade         0         1         2         3         4           Water Areas         Description         Water Area         Land Area         Image: Constraint of the second secon		Pop Den 2014	0-300 p/sq km	301-2,000 p/sq km	2,001-4,000 p/sq km	4,001-7,000 p/sq km	>7,000 p/sq km
Water Areas     Description     Water Area     Land Area       Grade     0     1     Image: Constraint of the second se		Grade	0	1	2	3	4
Grade 0 1	Water Areas	Description	Water Area	Land Area			
		Grade	0	1			

Table A 5 3	Development Cuitability Amelouis Cuitania I	Fastana and Waishta
Table A 5.2	Development Suitability Analysis Criteria, r	ractors, and weights

Source: JICA Project Team

#### Results

The results of the development suitability analysis are shown in the following figures.

Figure A 5.2









Source: JICA Project Team Figure A 5.6

**Total Environmental Vulnerability Ratings Map** 



Source: JICA Project Team Figure A 5.7

**School Accessibility Ratings Map** 



Health Service Accessibility Ratings



Source: JICA Project Team









Source: JICA Project Team Figure A 5.11 Microlet Route Accessibility Ratings Map



Source: JICA Project Team Figure A 5.12 Future Development Sites Accessibility Ratings Map





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Figure A 5.14

Population Density Ratings Map



Figure A 5.15

**Exclusion Area Ratings Map**


Source: JICA Project Team Figure A 5.16

Land Suitability Ratings Map



Figure A 5.17

**Development Suitability Ratings Map** 

# **APPENDIX 6: RESULTS OF HOUSEHOLD SURVEYS**

# A6.1 Zone Code





Large Zone	Medium Zone	:	Small Zone		Household	Perso Sur	n Trip vey	SP Survey	
District	Sub- District	Census No.	Suco	in 2010	in 2010	Target House hold	Visited House hold	Target House hold	Visited House hold
Dili		197	Caicoli	4,323	817	79	80	20	20
		199	Colmera	3,315	604	58	59	20	20
		202	Dare	1,796	282	29	31	-	-
	Vera Cruz	208	Lahane Ocidental	5,467	602	58	58	-	-
		211	Macarenhas	6,683	984	95	105	21	21
		214	Motael	2,877	452	46	46	20	20
		217	Vila Verde	9,554	1,577	136	138	31	31
			Sub Total	34,015	5,318	501	517	112	112
		187	Acadiru Hun	2,593	334	34	34	20	20
		193	Bemori	5,527	773	75	77	20	20
	Nain Feto	195	Bidau Lecidere	1,225	170	17	17	20	20
	Nain reio		Gricenfor	1,166	203	21	21	20	21
		209	Lahane Oriental	10,886	1,691	146	147	-	-
		216	Santa Cruz	5,195	844	82	85	20	22
		Sub Total		26,592	4,015	375	381	100	103
		189	Bairropite	27,875	4,084	352	352	89	94
	Dom	200	Comoro	65,404	9,941	855	855	128	149
	Aleixo	204	Fatuhada	7,178	1,029	99	101	23	24
		207	Kampung Alor	4,697	842	81	81	20	20
			Sub Total	105,154	15,896	1,387	1,389	260	287
		190	Balibar	1,265	175	18	18	-	-
		191	Becora	20,893	3,033	261	261	-	-
		196	Bidau Santana	8,193	1,085	105	106	-	-
	Cristo Rei	198	Camea	7,589	966	93	98	-	-
		201	201 Culu Hun		1,114	107	108	28	29
		206         Hera           213         Meti Aut		7,376	1,026	99	99	-	-
				716	106	11	14	-	-
			Sub Total	54,936	7,505	694	704	28	29
Liquica	Bazartete /Tibar	270	Tibar	3,096	429	43	44	-	-
2	5		25 Total	223,793	33,163	3,000	3,035	500	531

Table A6.1.2: Zone Code and Samples inside the Study Area





# A6.2 Survey Forms

# A6.2.1 Person Trip Survey

JICA	Person Trip Survey					
	For official use Name of surve Name of Supe Name of cord Name of encc Name of area Date of surve Date of trip su	eyor ervisor er rder superviso y (dd:mm) irveyed (d	or d:mm)	]		Surveyor's ID       01       02     03       01     05
FORM 1 H Instruction: (A1) ADDRES	IOUSEHOLI To Be completed I S OF HOUSEHO	D INFO by Head of I LD	RMATIC	NC		Household ID
No. / F City / Mi (A2) NUMBER	Building Inicipality OF HOUSEHOL	Str D MEMBE	RS		Estate /Distric	Zone No.
Male Female Total	Under 5 year a3 a6 a9	5 years a4 a7 a10	s and above	Hc a5 a8 a11	ousehold helpers (ex. Maid)	
(A3) WHAT IS HOUSEHO 2. 10-2 3. 25-4 4. 50-7 5. 75-9 6. 100 7. 200 8. 300 9. 400 10. 50	THE TOTAL MO DLD INCOME er 9 US\$/month 4 US\$/month 9 US\$/month 199 US\$/month 199 US\$/month 299 US\$/month 399 US\$/month 500 US\$/month 0-599 US\$/month		11. 600-6 12. 700-7 13. 800-8 14. 900-9 15. 1,000 16. 1,250 17. 1,500 18. 1,750 19. More	99 US 99 US 99 US 99 US -1,249 -1,249 -1,749 -1,749 than 2	\$\$/month \$\$/month \$\$/month \$\$/month 9 U\$\$/month 9 U\$\$/month 9 U\$\$/month 9 U\$\$/month 12,000 U\$\$/month 12,000 U\$\$/month	(A4) HOW MANY VEHICLES ARE OWNED BY HOUSEHOLD         Type       No. of Units         1. Bicycle       a13         2. Motorcycle       a14         3. Car/4WD       a15         4. Truck       a16         5. Others       a17         (A5) HOW MANY VEHICLES ARE RENTED BY COMPANY OR GOVERNMENT         Type       No. of Units         1. Bicycle       a18         2. Motorcycle       a19         3. Car/4WD       a20
(A6) OWNERS 1. Own 2. Rented (A7) LENGTH a24 Source: IICA P	CHIP OF HOSEH		LAND		(A8) RACE OF II 1. Asian 2. Africar 3. Europe 4. Mixed of	3. Car/4WD     a20       4. Truck     a21       5. Others     a22         NFORMANT         aan       origin     a25

Figure A6.2.1: Household Information Form for Person Trip Survey

FORM 2 HOSEHOLD MEMBER INFORMATION				
Instruction: To Be completed by every household member 5 years and above				
(B1) AGE	(B2) SEX			
b2 years old	1. Male 2. Female b3			
(B3) WORK ADDRESS				
No. / Building	Street Estate /District			
City / Municipality	Zone No.			
(B4) SCHOOL ADDRESS				
No. / Building	Street Estate /District			
City / Municipality	Zone No.			
(B5) OCCUPATION	(B6) EMPLOYMENT SECTOR (B7) MONTHLY INCOME			
1. Employer         2. Employee         3. Own account worker         4. Student (Elem.)         5. Student (H.S. & Univ.)         6. Housewife         7. Jobless         8. Others specify         b7	1. Agriculture/Foresty2. Mining/Quarying3. Manufacturing4. Electricity, Gas, Watersupply5. Construction6. Wholesale, retail trade7. Repair of Vehicles, personal8. Household googs9. Transport, storage & Comm.10. Financial intermediation11. Real eatate, renting12. Public administration13. Education14. Health & social work15. Service industry16. Private households17. Others (including student, jobless)			
(B8) DRIVER LICENSE	b8       b9         (B10) VEHICLE TYPE AND ITS       (B12) NEEDED NEW TRANSPORT         NUMBER OF YOUR OWN UDE       SYSTEM FOR YOU IN FUTURE         1			
(B9) VEHICLE FOR YOUROWN USE 1. Having 2. Not having	Type     No. of Units       1. Bicycle     b12       2. Motorcycle     b13       3. Car/4WD     b14       4. Truck     b15       5. Others     b16       (B11) MONTHLY COST TO TRANSPORTATION			
	TypeNo. of Units1. For Private car fuelb17US\$2. For Microlet rideb18US\$3. For Bus rideb19US\$4. For Taxib20US\$5. Othersb21-1b21-2			

Figure A6.2.2: Household Member Information Form for Person Trip Survey



Figure A6.2.3: Trip Information Form for Person Trip Survey

FORM 4 HOUSEHOLD CONDTIONS				
Instruction: To Be completed by every hous	ehold member 5	years and above		
(D1) HOUSING OWNERSHIP       (D3)         1. Self-owned house (H)       2. Family-owned (H)         3. Rental of govowned (H)       3. Rental of private-owned (H)         4. Rental of private-owned (H)       6. Rental of Suco-owned (H)         5. Rental of church-owned (H)       7. Uncertain ownership (H)         8. Others specify       d1-2         d1-1       select one         (D2) RENT PAYMENT       If rented, how much per month?         If select one       US\$ / month         (D6) BUILDING / LAND USE       Which type of	LAND RIGHT      1. Possessing     2. Possessing     3. Under regis     4. Tenancy in     5. Tenancy fo     6. Uncertain o     7. Others spe     d3-2     1     sele      LAND AREA ease specify lan ind property area	STATUS g title of deed g use right registered tration of title or use righ common (e.g. Suco) r a term (private owned) wnership cify ct one d area, even if tenancy. a (s.q.m) d4	(D5) HOUSE CONDITIONS         s.q.m         Living area       d5-1         No. of rooms       d5-2         No. of storey       d5-3         Structure (pillar, wall)       1. Concrete/Brick         2. Iron / zink plates       3. Wooden (pillar, wall)         4. Bamboo / temporal       5. Soil /clay / stone         6. Others specify       d5-5         d5-4       select one	
I. Residential only         use of         2. Residential with ret         3. Residential with wh         property?         4. Residential with wh         4. Residential with wh         4. Residential with wh         66-1         5. Others: Specify         (D7) URBAN SERVICES         Which urban service do you have in your         d7-1       1.Yes / 2.No         1. Yes / 2.No       2. Piped water su         d7-3       1.Yes / 2.No         4. Toilet waste co         d7-4       1.Yes / 2.No         4. Toilet waste co         d7-6       1.Yes / 2.No         7. Solid waste co	ail shop (grocery olesale (trade gc tage factory (sm house? hts pply lilection d line)	, book, IT shop, vegetable boods storage, material stor all metal work, small woo d6-2 (D8) HOUSE ITEMS Which items do you I d8-1 1.Yes / 2.Ne d8-2 1.Yes / 2.Ne d8-3 1.Yes / 2.Ne d8-5 1.Yes / 2.Ne d8-6 1.Yes / 2.Ne d8-7 1.Yes / 2.Ne	shops, bakery, flower shop, etc) age, construction material, etc) den work, small car-repair, etc) nave in your house? 1. Radio 2. TV 3. Washing machine 4. Refrigerator / Freezer 5. Vacume cleaner 6. Internet service 7. Computer	
(D9) ENERGY SOURCE FOR COOKIN           Which energy source for cooking in your           d9-1         1.Yes / 2.No           d9-2         1.Yes / 2.No           d9-3         1.Yes / 2.No           d9-4         1.Yes / 2.No           d9-5         1.Yes / 2.No           d9-6         1.Yes / 2.No           d9-6         1.Yes / 2.No           d9-6         1.Yes / 2.No           d9-7         1.Yes / 2.No           d9-8         1.Yes / 2.No           d9-7         1.Yes / 2.No           d9-8         1.Yes / 2.No           d9-7         1.Yes / 2.No           d9-8         1.Yes / 2.No	G house?	(D10) DRINKING WAT Which source for driv d10-1 1.Yes / 2.Nu d10-2 1.Yes / 2.Nu d10-3 1.Yes / 2.Nu d10-4 1.Yes / 2.Nu d10-6 1.Yes / 2.Nu d10-6 1.Yes / 2.Nu d10-7 1.Yes / 2.Nu d10-7 2.Nu	ER SOURCE         aking water in your house?         1. Public piped water         2. Piped water (private well)         3. Non-piped (private well)         4. Non-piped (spring, river)         5. Water vendor         6. Bottle of water         7. Others	
Which status for land subsidence in your         d11-1       1.Yes / 2.No       1. Floor having ci         d11-2       1.Yes / 2.No       2. Floor sinking o         d11-3       1.Yes / 2.No       3. House decline         d11-4       1.Yes / 2.No       4. A part of the si         d11-5       1.Yes / 2.No       5. Fence subside         d11-6       1.Yes / 2.No       6. Others	house or proper acks r declined d or sinking te subsided d/declined	Which source of info           d12-1         1.Yes / 2.Ne           d12-2         1.Yes / 2.Ne           d12-3         1.Yes / 2.Ne           d12-4         1.Yes / 2.Ne           d12-5         1.Yes / 2.Ne           d12-6         1.Yes / 2.Ne           d12-7         1.Yes / 2.Ne	mation for public service relying on?         1. Administrative office         2. Newspaper anouncement         3. Radio anouncement         4. TV anouncement         5. Community announcement         6. Neighborhood imformation         7. Others	

# Figure A6.2.4: Household Condition Form for Person Trip Survey

FORM 5 PEOPLE'S SATISFACTION & EXPECTATION						
Instruction: To Be completed by every hous	ehold member 5 years and above					
(E1) HOUSE SATISFACTION          1. Not at all         2. No         3. So-so         4. Yes         5. Yes, very much         e1-1         select one         If select "1 or 2", which is reason?         1. Problem of utilities*         2. Upsafe house structure	(E4) UTILITIES SERVICES How do you satisfy your water system? Please select degree of satisfaction by your water system. 1. Not at all / 2. No / 3. So-so / 4 Yes / 5 Yes. very much e4-1 1. Water volume/pressure e4-2 2. Water quality cleanness e4-3 3. Supply without cutoff e4-4 4. Water service charge How do you satisfy your sanitation/	(E5) URBAN FACILITIES         SATISFACTION         How do you satisfy public facilities in Dili?         Please select degree of satisfaction by         public facilities.         1. Not at all / 2. No / 3. So-so /         4. Yes / 5. Yes, very much         e5-1         1. Schools (upto university)         e5-2         2. Hospital and health-care         e5-3         3. Security (firestation, police)         e5-4         4. Library, vocational, culture         e5-5         5. Leisure (cinema theatre)				
3. Insufficient space/rooms     4. Unsafe security to crime     5. Unstable tenure status     6. Expensive rent/tenant fee     7. Others specify         [e1-3]     * utilities: water, electricity, sewer, etc     e1-2     select one	sewer? Please select degree of satisfaction by your sanitation/ sewer system.         1. Not at all / 2. No / 3. So-so /         4. Yes / 5. Yes, very much         e4-5       1. Discharge to public network         e4-6       2. On-site discharge         e4-7       3. Collecting waste         e4-8       4. No treatment	e5-6       6. Park and green open space         e5-7       7. Community facilities         If Dili needs to develop more urban facilities, within limitation of land, which facilities should be provided as priority?         e5-8       select one from above 1-7				
(E2) HOUSE SURROUNDINGS SATISFACTION          1. Not at all         2. No         3. So-so         4. Yes         5. Yes, very much         e2-1         select one         If select "1 or 2", Which is reason?         1. Lack of access road         2. Frequent natural disaster	How often do you face drainage         problem? Please select degree of         drainage conditions in case of         inundation.         1. No inundation/flood         2. 1-2 times in every five years         3. 2-5 times in every two years         4. 2-5 times in a year         e4-9         select one         How deep was your area by inundation?         Please select degree of inundation.	(E6) URBAN RULES' SATISFACTION         How do you satisfy "urban rules" for life         activities in Dill? Please select degree of         satisfaction by urban rules.         1. Not at all / 2. No / 3. So-so /         4. Yes / 5. Yes. very much         1. Rule of land/building usage         2. Rule of building safety         3. Rule of building set-back, height         4. Rule of compulsory facilities         5. Rule of space usage         6. Others specify         e6-1         select one				
3. Pollution surroundings         4. Noisy location (factory, etc)         5. Traffic congestions         6. Lack of communal spaces         7. Lack of children's play park         8. Others specify         e2-2         select one	In case of normal inundation          1. Water upto ankle         2. Up to knee         3. Up to waist         4. More than waist         e4-10         select one         In case of normal inundation, how long?         1. Within several hours	<ul> <li>(E7) MEASURES FOR GOOD CITY Do you think "Activity Rule" for city life is inevitable? Please select answers.</li> <li>1. Not at all</li> <li>2. Some rules and free in priciple</li> <li>3. Necessary but modest control</li> <li>4. Compulsory with strong control</li> <li>e7-1 select one</li> </ul>				
(E3) DESIRABLE DWELLING          1. Detached Residence         2. Mxed Use Detached House         3. Collective Housing         4. Mxed Use Collecting Housing         5. Others specify         e3-2         e3-1         select one	2. Within half day         3. Within one day         4. Over several days         e4-11         select one         How often is waste collection in your area?         1. Daily collection         2. One-three days in a week         3. One days in a week         4. No collection         e4-12         select one	In case of selection of "3 or 4", which measure is urgent against current situation?           1. No more building by order           2. Limitted development by control           3. Building construction regulations           4. Land use regulations           5. Land tenure rule and control           6. Others specify           e7-2           select one				

# Figure A6.2.5: People's Satisfaction and Expectation Form for Person Trip Survey

# A6.2.2 Stated Preference Survey

STATED PREFER	RENCE SURVEY
Instruction: Select one person out of eight persons who used	Mikrolet, Bus, Car or Motorcycle. Fill in the form A or
<u>B according to the used travel mode.</u>	Housebold ID Member ID
1 Does your ride bus or microlet usually?	
	3 Both
2 Supposing it cannot take a bus or microlet. Is th	
2. Supposing it cannot take a bus of microlet. Is the	
	5. Filvale Cal/Truck
<u>c2-4</u> 4. Taxi <u>c2-5</u> 5. Other	and a second second second second
3. If new public transport system (Priority is given	over a private car such as Bus Rapid
new public transport system?	is introduced in Dill City, will you use the
	c3
A If your answer is "Yes" how much per 1 ride w	vill you pay for new public transport system?
	C4 US\$/ride
5. If your answer is " <b>No</b> ", what is the reason?	
1. Bus/Mikrolet is cheepest 2. 0	Operation is frequent
3. Transfer is not necessary. 4.	Other (specify)
FORM B. FOR PRIVATE CAR AN	ID MOTORCYCLE USERS
1. Why do you have a car?	
1. Moves directly to the destination	2. Baggage can be carried
3. Far to a bus stop or no bus operation	4. Safer than a bus (Security or accident)
5. Destination can be changed flexibly	6. Comfortable
2. If the Parking fee is necessary in the city center	r area by the cases below, do you change
traffic mode?	
1. 0.5US\$/day	2. 1US\$/day
 3. 2US\$/day	4. 3US\$/day
5 4U\$\$/day	6 More than 5US\$/day
3. If fuel price is increased by the cases below do	vou change traffic mode?
5. If full price is increased by the cases below, at $1 \rightarrow 1.21$ [S\$/litre)	$2 40\%$ up (ex 1 $\rightarrow$ 1 4 IS\$/litre)
$\boxed{360\% \text{ up (ex } 1 \rightarrow 1.6 \text{ IS$//itre})}$	$ 4 80\% \text{ up (ex 1 \rightarrow 18 \text{ ISS}/\text{litre}) $
	6 More than 100% up
$\5.100\%$ up (ex. $1\rightarrow 205\%$ /liter)	(ex. 1 $\rightarrow$ more than 2US\$/liter)
4. Is the alternative modes available for you? (In c	case of selection of question 3)
d4-1 1. Bycycle d4-2 2. Motorcycle	d4-3 3. Bus/Microlet
d4-4 4. Taxi d4-5 5. Other	
5. If charged passing through a bridge such as a	Comoro bridge by the cases below, do
you change route or traffic mode?	
1. 0.5US\$/time	2. 1US\$/time
3. 2US\$/time	4. 3US\$/time
5. 4US\$/time	6. More than 5US\$/time
6. Is the alternative for you? (In case of selection of	of question 5)
1. Change route 2 Change bus/	mikcolet use
	d6

Figure A6.2.6: Survey Form for Stated Preference Survey (1)



Figure A6.2.7: Survey Form for Stated Preference Survey (2)

# A6.3 Survey Result











Source: JICA Project Team



### A6.3.2 Vera Cruz









Source: JICA Project Team



### A6.3.3 Nain Feto



Source: JICA Project Team







### A6.3.4 Dom Aleixo











### A6.3.5 Cristo Rei



Source: JICA Project Team





Figure A6.3.10: Simple Tabulation for Person Trip Survey in Cristo Rei (2)

## A6.3.6 Tibar



Source: JICA Project Team









# **APPENDIX 7: RESULTS OF TRAFFIC SURVEYS**

# A7.1 Traffic Survey

# A7.1.1 Traffic Count Survey Schedule

Table A7.1.1: Traffic Count Survey Schedule

Turne	Doint		Survey day	Cumumu Harun	
туре	Point	Day1(Tue)	Day2(Wed)	Day3(Thu)	
	C01	17-Jun	18-Jun	3-Jul	6:30 - 6:30
	C02	17-Jun	18-Jun	3-Jul	6:30 - 18:30
	C03	17-Jun	18-Jun	3-Jul	6:30 - 18:30
	C04	17-Jun	18-Jun	3-Jul	6:30 - 18:30
	C05	17-Jun	18-Jun	3-Jul	6:30 - 6:30
	C06	17-Jun	18-Jun	3-Jul	6:30 - 18:30
Cordon Line Survey	C07	24-Jun	25-Jun	26-Jun	6:30 - 6:30
-	C08	24-Jun	25-Jun	26-Jun	6:30 - 18:30
	C09	24-Jun	25-Jun	26-Jun	6:30 - 18:30
	C10	17-Jun	18-Jun	3-Jul	6:30 - 18:30
	C11	24-Jun	25-Jun	10-Jul	6:30 - 6:30
	C12	24-Jun	25-Jun	10-Jul	6:30 - 6:30
	C13	24-Jun	25-Jun	10-Jul	6:30 - 6:30
	S01	1-Jul	2-Jul	7-Aug	6:30 - 6:30
	S02	1-Jul	2-Jul	7-Aug	6:30 - 18:30
	S03	26-Aug	27-Aug	28-Aug	6:30 - 18:30
	S04	26-Aug	27-Aug	28-Aug	6:30 - 18:30
Screen Line Survey	S05	1-Jul	2-Jul	10-Jul	6:30 - 18:30
Boreen Eine Barvey	S06	10-Jun	11-Jun	12-Jun	6:30 - 6:30
	S07	10-Jun	11-Jun	12-Jun	6:30 - 6:30
	S08	9-Sep	10-Sep	11-Sep	6:30 - 6:30
	S09	1-Jul	2-Jul	7-Aug	6:30 - 18:30
	S10	9-Sep	10-Sep	11-Sep	6:30 - 18:30
	R01	1-Jul	2-Jul	10-Jul	6:30 - 18:30
	R02	1-Jul	2-Jul	10-Jul	6:30 - 18:30
	R03	1-Jul	2-Jul	7-Aug	6:30 - 18:30
	T01	8-Jul	9-Jul	7-Aug	6:30 - 18:30
	T02	26-Aug	27-Aug	28-Aug	6:30 - 18:30
	T03	26-Aug	27-Aug	28-Aug	6:30 - 18:30
	104	14-Oct	15-Oct	16-Oct	6:30 - 18:30
	105	14-Oct	15-Oct	16-Oct	6:30 - 18:30
	106	8-Jul	9-Jul	7-Aug	6:30 - 18:30
Traffic Count	107	8-Jul	9-Jul	7-Aug	6:30 - 18:30
	108	9-Sep	10-Sep	11-Sep	6:30 - 18:30
	109 T40	2-Sep	3-Sep	4-Sep	6:30 - 18:30
	110 T14	2-Sep	3-Sep	4-Sep	6:30 - 18:30
	T11 T10	5-Aug	6-Aug	18-Sep	6:30 - 18:30
	T12 T12	5-Aug	6-Aug	18-Sep	6:30 - 18:30
	113 T14	5-Aug	6-Aug	4-Sep	6:30 - 18:30
	114 T15	5-Aug	6-Aug	11-Sep	0.30 - 10.30
	110 T16	20 Sop	6-Aug	26-Aug	6.30 - 18.30
	T10	30-3ep	1-001	2-001	6:20 19:20
	117	23-3ep	24-3ep	20-Sep	0.30 - 18.30
	Route01	16-Sep	17-Sep	18-Sep	Morning peak;
	Route02	30-Sep	1-Oct	2-Oct	7:30 - 8:30
	Route03	30-Sep	1-Oct	2-Oct	Doutimo
	Route04	23-Sep	24-Sep	25-Sep	13.00 - 14.00
Travel Speed Survev	Route05	23-Sep	24-Sep	25-Sep	13.00 - 14.00
	Route06	23-Sep	24-Sep	25-Sep	4
	Route07	16-Sep	17-Sep	18-Sep	Evening Peak:
	Routeu8	16-Sep	17-Sep	18-Sep	17:00 - 18:00
	Route09	16-Sep	17-Sep	18-Sep	
	Route10	30-Sep	1-Oct	2-Oct	



### **A7.1.2 Traffic Count Survey Points**

Source: JICA Project Team

Figure A7.1.1: Traffic Survey Point in Dili







Figure A7.1.3: Traffic Survey Point in Hera





Source: JICA Project Team

Figure A7.1.4: Travel Speed Survey Route in Dili



Figure A7.1.5: Travel Speed Survey Route in Tibar



Figure A7.1.6: Travel Speed Survey Route in Hera

# A7.2 Survey Result

## A7.2.1Traffic Count Survey Result







## A7.2.2 Hourly Traffic Count Result for Major Point

Source: JICA Project Team

Figure A7.2.3: Preliminary Result of Hourly Traffic Count (Edge of DMA: C01)



Figure A7.2.4: Preliminary Result of Hourly Traffic Count(Edge of DMA: C05)







Figure A7.2.6: Preliminary Result of Hourly Traffic Count (Major Routes: S08)



Figure A7.2.7: Preliminary Result of Hourly Traffic Count (Major Routes: S10)



Figure A7.2.8: Preliminary Result of Hourly Traffic Count (Inside of CBD: T08)





Source: JICA Project Team Figure A7.2.9: Preliminary Result of Travel Speed Survey (Morning Peak)





Figure A7.2.10: Preliminary Result of Travel Speed Survey (Daytime)





# APPENDIX 8: FORMULATION OF FUTURE TRANSPORT DEMAND

# A8.1 Methodology

### A8.1.1 General

The four step method, which is the most basic analysis method, is applied to forecast future demand. The four step method is composed of the following: i) trip generated and attracted, ii) trip distribution, iii) modal split, and iv) trip assignment as shown in Figure A8.1.1.

<u>Trip Production</u> Calculate the total trip at each zone					
¥					
Generated and Attracted Calculate the number of origins and destinations at each zone	zone A zone B				
*					
Trip Distribution Calculate the number of trips at zone to zone	zone A zone B				
Modal Split Calculate number of trips per travel mode at zone to zone	Motorcycle Zone A Microlet Zone B				
<b>*</b>					
Trip Assignment Calculate number of trips per route choice at each zone to zone	zone A zone B				

Figure A8.1.1 Outline and Flow of Four Step Method

#### A8.1.2 Zoning

The target zone for demand forecast is classified into 25 small zones, 5 medium zones, and 2 large zones. There are 25 small zones, 10 medium zones, and 18 large zones including the outside of Dili.

Table A8.1.1 Target Zone							
Zone							
Small Medium Large							
Dili	25	5	2				
Outside Dili	0	5	16				
Total	25	10	18				

Large Zone	Medium Zone	Sr	nall Zone	Population	Household	Person Trip Survey	SP Survey
District	Sub-	Census No.	Suco	in 2010	in 2010	Target	Target
District	District	(Zone No.)	Suco			Household	Sample
Dili		197 (15)	Caicoli	4,323	817	79	20
		199 (14)	Colmera	3,315	604	58	20
		202 (23)	Dare	1,796	282	29	-
	Vera Cruz	208 (17)	Lahane Ocidental	5,467	602	58	-
		211 (16)	Macarenhas	6,683	984	95	21
		214 (18)	Motael	2,877	452	46	20
		217 (19)	Vila Verde	9,554	1,577	136	31
			Sub Total	34,015	5,318	501	112
		187 (7)	Acadiru Hun	2,593	334	34	20
		193 (10)	Bemori	5,527	773	75	20
	Noin Esta	195 (6)	Bidau Lecidere	1,225	170	17	20
	Nain Felo	205 (8)	Gricenfor	1,166	203	21	20
		209 (11)	Lahane Oriental	10,886	1,691	146	-
		216 (13)	Santa Cruz	5,195	844	82	20
			Sub Total	26,592	4,015	375	100
		189 (22)	Bairropite	27,875	4,084	352	89
	Dom	200 (24)	Comoro	65,404	9,941	855	128
	Aleixo	204 (21)	Fatuhada	7,178	1,029	99	23
		207 (20)	Kampung Alor	4,697	842	81	20
			Sub Total	105,154	15,896	1,387	260
		190 (12)	Balibar	1,265	175	18	-
		191 (5)	Becora	20,893	3,033	261	-
		196 (4)	Bidau Santana	8,193	1,085	105	-
	Cristo Rei	198 (3)	Camea	7,589	966	93	-
		201 (9)	Culu Hun	8,904	1,114	107	28
		206 (1)	Hera	7,376	1,026	99	-
		213 (2)	Meti Aut	716	106	11	-
		-	Sub Total	54,936	7,505	694	28
Liquica	Bazartete /Tibar	270 (25)	Tibar	3,096	429	43	
2	5		25 Total	223,793	33,163	3,000	500

Table A8.1.2 Zone Code Inside the Study Area





Large Zone	Medium Zone	Census No.
District	Sub-District	(Zone No.)
Dili	Metinaro	501 (29)
	Atauro	502 (29)
Liquica	Bazartete/Motaulun	503 (29)
	Liquica	504 (26)
	Maubara	505 (26)
Ainaro		601 (28)
Aileu		602 (28)
Baucau		603 (29)
Bobonaro		604 (26)
Cova Lima		605 (28)
Ermera		606 (27)
Lautem		607 (29)
Manufahi		608 (28)
Manatuto		609 (29)
Oecusse		610 (26)
Viqueque	611 (29)	
Indonesia/West Ti	701 (26)	
Indonesia/Other Is	702 (-)	
Other Country	703 (-)	

 Table A8.1.3 Zone Code outside the Study Area



Figure A8.1.3 Zone Map outside the Study Area

#### A8.1.3 Trip Purpose

Trip purpose is categorized into four trip purposes which are categorized into eight categories of Person Trip Survey. These trip purposes are able to affect the characteristics of the analysis method.

	Table 10:1.4 Category of http://upose					
	In Person Trip Survey		In Demand Forecasting			
1	To Home	1	Home			
2	To Work	2	Work			
3	To School	3	School			
4	Personal Business					
5	Firm Business					
6	Social	4	Others			
7	Shopping					
8	Others					

### Table A8.1.4 Category of Trip Purpose

Source: JICA Project Team

#### A8.1.3 Travel Mode

Travel mode is categorized as shown in Table A8.1.5. Bike is not a negligible mode because of its high mode share in Dili. In addition, analysis accuracy of modal spirit forecast is improved by gathering the travel mode.

Table A8.1.5 Category of Trip Wode						
In Person Trip Survey		In Demand Forecasting				
1	Walking					
2	Bicycle	- 1	Walk			
3	Tricycle					
13	Others					
4	Motorcycle	2	Bike			
5	Passenger Car					
6	Passenger Truck	3				
7	Freight Truck		Private			
8	Trailer					
9	Taxi					
10	Microlet (Mini Bus)					
11	Bus	4	Public			
12	Ferry, Boat					
C						

Table A8.1.5 Category of Trip Mode

Source: JICA Project Team

# A8.2 Calibration

#### A8.2.1 Traffic Assignment Flow

Traffic assignment flow for calibration of current condition is shown in Figure A8.2.1.



Source: JICA Project Team

Figure A8.2.1 Traffic Assignment Flow

• Population, which is divided by sex, age, and zone was calculated by Person Trip Survey and National Census in 2010.

• Person trip OD by mode is calculated by expansion factor which is calculated by the above divided population.

- Vehicle trip OD is calculated by occupancy rate from the Cordon line survey.
- Traffic assignment is calculated by vehicle trip OD Passenger Car Unit.

#### A8.2.2 Road Network

The current road network is shown in Figure A8.2.1. Almost all roads below are two lanes except the National Road No.1 and Banana Road. In addition, many one way roads exist in the city center.



Source: JICA Project Team Figure A8.2.1 Current Road Network inside the Study Area The road rank and service level estimated the capacity as summarized in Table A8.2.1. A two lane road which is to be just one lane due to the parking, boarding, and alighting of Microlet deal using one lane.

Rank	Divide	Location	Surface	Lane	Speed	Capacity
	Divided	Urban	Pavement	4	40	40,000
National Road	Undivided	Suburban	Pavement	2	40	25,000
		Suburban	Unpaved	2	30	20,000
	Divided	Urban	Pavement	4	40	30,000
Urban Dood	Undivided	Urban	Pavement	2	30	20,000
Ulball Koau		Urban	Unpaved	2	25	15,000
		Urban	Pavement	1	20	10,000
Other	Roundabout	-	Pavement	3	30	35,000
Other		-	Pavement	2	30	20,000

Source: JICA Project Team

#### A8.2.3 Current OD (2014)

The current OD is made with the traffic assignment flow shown in Table A8.2.2. Occupancy rate is calculated from the Cordon Line Survey. Person Trip Survey can collect traffic data of the study area. Vehicle OD includes areas outside of the study area coordinated by the Cordon Line Survey.

Table A8.2.2 Occupancy Rate						
	Bike		Private		Public	
	Intra Zone	Inter Zone	Intra Zone	Inter Zone	Intra Zone	Inter Zone
Total Passenger (Person)	164	186	1,143	3,830	501	5,531
Total Vehicle (Vehicle)	110	128	281	829	60	359
Average Occupancy rate (Person/Vehicle)	1.5	1.5	4.1	4.6	8.4	15.4

## Table A8.2.2 Occupancy Rate

Source: JICA Project Team

Passenger Car Unit (PCU) is summarized in Table A8.2.3. Private includes Passenger Car/Tax=1.0, Light Truck=1.5 and Heavy Truck/Trailer=3.0. Public includes Microlet=1.5 and bus=3.0.

Table A8.2.3 Passenger Car Unit					
	Bike	Private	Public		
Passenger Car Unit (PCU)	0.5	1.6	2.1		

Source: JICA Project Team

#### A8.2.4 Traffic Assignment in Current Condition

By using the above described Current OD in 2014, the volume of vehicle trip is forecasted applying the equilibrium assignment model to the present road network. The results are shown in Figures A8.2.2 and A8.2.3. The comparison with the present estimate and Screen Line Survey line and Cordon Line Survey observed is shown in Figure A8.2.4. The r-squared by PCU in this correlation is 0.9086. Reproducibility is obtained mostly.


Source: JICA Project Team











### Figure A8.2.4 Comparison with Estimated and Observed in the Cordon Line and Screen Line Surveys

# A8.3 Trip Production Forecasting

# A8.3.1 General

Total trip production per day is forecasted. The number of total trip production is the control total number of trip generated and attraction forecasting. Trip rate per person per day is calculated by person trip. Characteristics of trip rate are different among job classification.

# A8.3.2 Trip Rate

Trip rate per person is summarized in Table A8.3.1. Trip rate of employee, student, and the unemployed are approximately same. These are 2.5438 trip/day, 2.5931 trip/day and 2.5526 trip/day respectively.

	14		inp nate p	ci i cibon p	er Duj				
		Trip Purpose (Trip per Person per Day)							
		Home	Work	School	Others	Invalid	Total		
	Employee	1.2993	0.6549	0.4683	0.2218	0.0000	2.6444		
	Student	1.3182	0.5000	0.5000	0.2273	0.0000	2.5455		
Car Owner	Unemployed	1.3636	1.0909	0.0909	0.1818	0.0000	2.7273		
	Invalid	-	-	-	-	-	-		
	Total	1.3028	0.6593	0.4574	0.2208	0.0000	2.6404		
	Employee	1.2441	0.6362	0.4677	0.1717	0.0016	2.5213		
	Student	1.2787	0.7062	0.4244	0.1831	0.0016	2.5939		
No-car Owner	Unemployed	1.2570	0.6089	0.4860	0.1899	0.0000	2.5419		
Owner	Invalid	1.5000	0.0000	0.5000	0.0000	0.0000	2.0000		
	Total	1.2612	0.6664	0.4488	0.1781	0.0015	2.5560		
	Employee	1.2542	0.6396	0.4678	0.1808	0.0013	2.5438		
	Student	1.2793	0.7027	0.4257	0.1839	0.0016	2.5931		
Total	Unemployed	1.2632	0.6368	0.4632	0.1895	0.0000	2.5526		
	Invalid	1.5000	0.0000	0.5000	0.0000	0.0000	2.0000		
	Total	1.2655	0.6657	0.4497	0.1825	0.0013	2.5648		

Table A8.3.1 Trip Rate per Person per Day

Source: JICA Project Team

### A8.3.3 Future Framework and Trip Rate

The summary of future framework is shown in Table A8.3.2. The future household income is estimated by the growth rate of GRDP per household in Dili. Car ownership rate per household is estimated by the model between household income and number of car owner of PT survey. Car owner rate per household is at 26.9% household in 2014 to 67.4% household in 2030.

		2010	2014	2020	2030	Remark
a	GRDP per Capita (Dili)	858	1,464	1,892	3,698	"Middle Growth" scenario of GDP at national level (Timor-Leste)
b	GRDP per Household (Dili)	5,749	9,497	11,692	21,079	Timor-Leste
c	Household Size: (Person per Household)	6.7	6.5	6.2	5.7	
d	Population: (Person)	223,793	270,323	351,137	492,251	"Case-3" scenario of population projection
e	Number of Household	33,163	41,672	56,820	86,431	"Case-3" scenario of population projection
f	Average Household Income: (Person)	401.7	515.8	882	1,186	Estimated by growth rate of GRDP
g	Car Ownership Rate per Household	-	26.9	53.2	67.4	Estimated by household income and number of car owner of PT survey. $y = -4E-05x^2 + 0.1051x + 28.75$
h	Number of Private Car	13,815	21,542	32,687	51,262	Transport Sector Improvement, ADB TA 3731–TIM, Timor-Leste in Number 2008 and 2012
i	Population Age Five and Above: (Person)	194,960	235,181	304,787	430,227	Estimated by "Case-3" scenario of population projection
j	Student at Residence Base: (Person)	80,955	81,437	109,417	159,250	Estimated by "Case-3" scenario of population projection
k	Worker at Residence Base: (Person)	55,272	70,507	95,732	152,937	Estimated by "Case-3" scenario of population projection
1	Student at Enrollment Base: (Person)	-	81,332	109,276	159,045	PT Survey
m	Worker at Work Place Base: (Person)	-	69,985	95,024	151,806	PT Survey
n	Unemployed: (Person)	11,604	12,701	14,528	15,126	"Case-3" scenario of population projection

Table A8.3.2 Future Framework

Source: JICA Project Team

### A8.3.4 Future Total Trip Production

Expanding the trip production of the study area is forecasted based on the trip production rate and future framework. Total trips increased to more than one million trips, approximately twice of 2014 trips as shown in Table A8.3.3.

Target Year	Trip Purpose (Trip per Person per Day)							
	Home	Work	School	Others	Total			
2014	314,462	110,410	108,800	30,131	563,803			
2030	569,024	219,356	197,798	59,804	1,045,982			

 Table A8.3.3 Future Total Trip Production by Trip Purpose

Source: JICA Project Team

# A8.4 Trip Generation and Attraction Forecasting

### A8.4.1 Method

The trip generation which departs from each zone and the trip attraction which arrives to each zone will be forecasted in this flow. The model parameters are established to forecast the trip generation and attraction

in each zone. Linear regression model is applied. The predictive accuracy of the model is shown by the r-squared.

 $Gi=ai^*X1i + bi^*X2i + \cdots$   $Aj=aj^*X1j + bj^*X2j + \cdots$ Where, Gi: Trip Generation in Zone i Aj: Trip Attraction in Zone j X1i, X2j: Attributes in Zone i, j ai, aj, bi, bj: Coefficient

### A8.4.2 Estimation of Trip Generation and Attraction

Explanatory variables are established by models as shown in Figure A8.4.1. It shows high values because all r-squared are more than 0.8 as shown in Table A8.4.1. It is necessary to balance generation and attraction before the forecast of trip distribution step. Each generation must be paired with a corresponding attraction. Then, the volume of generation and attraction forecast by each zone and trip purpose was adjusted with the overall trip production forecast result as shown in Table A8.4.2.

	Table A0.4.1 Trip Ocheration and Attraction Model Landheters								
Model		Population	Student	Employees	Student	Employees			
Tuna	Purpose	five and	at	at	at	at Work	Constant	R-squared	
Туре		above	Residence	Residence	Enrollment	Place			
	Home	-	-	-	1.994	0.770	3,038	0.9845	
Trip Generation	Work	-	-	1.668	-	-	2,024	0.9427	
	School	-	0.655	-	-	-	1,851	0.8222	
	Others	0.079	-	-	-	-	546.2	0.8685	
	Home	0.7869	-	-	-	-	4,279	0.9119	
Trip	Work	0.296	-	-	-	1.273	376.5	0.9525	
Attraction	School	-	-	-	0.738	-	1,583	0.9476	
	Others	_	-	-	0.220	_	571.4	0.8732	

Table A8.4.1 Trip Generation and Attraction Model Parameters

Large Zone	Medium Zone		Small Zone				Populatio	on		
		G		in 2010	in 2014			in 2014		
District	Sub-District	No.	Suco	ALL	ALL	Population (5 and above)	Student (at Residence)	Employees (at Residence)	Student (at Enrollment)	Employees (at Work Place)
		197	Caicoli	4,323	5,222	4,543	1,591	1,510	8,763	13,782
		199	Colmera	3,315	4,004	3,484	981	1,532	660	4,094
		202	Dare	1,796	2,169	1,887	659	571	178	284
	Vera Cruz	208	Lahane Ocidental	5,467	6,604	5,745	1,750	1,060	1,223	652
		211	Macarenhas	6,683	8,072	7,023	2,407	1,855	6,965	1,558
		214	Motael	2,877	3,475	3,023	1,109	1,024	1,041	4,136
		217	Vila Verde	9,554	11,540	10,040	3,590	2,857	1,624	3,465
		187	Acadiru Hun	2,593	3,132	2,725	809	782	1,586	655
		193	Bemori	5,527	6,676	5,808	1,919	1,930	460	579
	Nain Feto	195	Bidau Lecidere	1,225	1,480	1,287	373	461	270	2,366
		205	Gricenfor	1,166	1,408	1,225	364	512	5,795	3,352
		209	Lahane Oriental	10,886	13,149	11,440	3,966	3,756	1,553	1,069
D:1:		216	Santa Cruz	5,195	6,275	5,459	1,892	1,626	1,040	1,727
Din	189 200	189	Bairropite	27,875	33,671	29,293	10,973	8,525	8,279	2,961
		200	Comoro	65,404	79,002	68,732	24,293	20,888	22,387	12,994
	Dom Aleixo	204	Fatuhada	7,178	8,670	7,543	2,658	2,183	1,026	3,999
		207	Kampung Alor	4,697	5,674	4,936	1,469	2,102	679	1,074
		190	Balibar	1,265	1,528	1,329	513	440	366	220
		191	Becora	20,893	25,237	21,956	7,934	6,319	12,192	3,366
		196	Bidau Santana	8,193	9,896	8,610	2,997	2,405	865	1,955
		198	Camea	7,589	9,167	7,975	2,709	1,886	1,186	525
	Cristo Rei	201	Culu Hun	8,904	10,755	9,357	3,169	2,642	547	1,409
		206	Hera	7,376	8,910	7,751	2,170	2,346	2,080	2,625
		213	Meti Aut	716	865	752	169	281	32	403
Liquica	Bazartete/Tibar	270	Tibar	3,096	3,740	3,254	973	1,013	537	734
			$\Sigma$	223,793	270,323	235,181	81,437	70,507	81,332	69,985

#### Table A8.4.2 Trip Generation and Attraction Model Parameters





# A8.5 Trip Distribution Forecasting

# A8.5.1 Method

Generation and attraction volume among each zone are linked by the distribution forecasting. The volume of travels among zones, as the trip depart the zone and arrives to another zone, will be forecasted. The gravity model for interzonal trips and the trip rate model for intrazonal trips are applied for trip distribution forecasting as shown in the following equations. The intrazonal trip length created in the model is at 0.5 km for each zone.

Inter zonal trip  $Xij = K * Oi^{\alpha} * Dj^{\beta} / Lij^{\gamma} \gamma$ Intra zonal trip Xij = Ri \* OiRi = Xii / Oi

Where, Xij: Interzonal trip distribution zone *i* to *j* 

X*ii*: Intrazonal trip distribution in zone i

- O*i*: Trip generation in zone *i*
- D*j*: Trip attraction in zone *j*
- Lij: Travel length from zone i to j (km)

R*i*: Intra trip rate

K,  $\alpha$ ,  $\beta$ ,  $\gamma$ : Model parameters

# A8.5.2 Estimation of Trip Distribution

To adjust the total trip generation and attraction volume by each zone, the distribution forecast by gravity model is calculated. The parameter for the gravity model is shown in Table A8.5.1. After forecasting by gravity model, frater balancing method is applied. This is a model of convergence calculation. The total trip generation and attraction volume for each zone is converged according to trip generation and attraction volume of the zone.

The observed and estimated values of the trip length are shown in Figure A8.5.1. The trip lengths are mostly adjusted by the model. Trip among zones will be forecasted by this model in each zone.

	Tuble Hole H Infra Zonar Hip Distribution Houer Faranceers							
Trip Purpose	a	β	γ	Log(K)	R-squared			
Home	0.6453	0.7812	-0.4712	-0.0007	0.7374			
Work	0.7232	0.6486	-0.3950	-0.0016	0.7160			
School	0.5790	0.5841	-0.4080	-0.0012	0.6723			
Others	0.1765	0.2459	0.0103	-1.4847	0.3719			
Oulers	0.1703	0.2439	0.0105	-1.4047	0.3719			

Table A8.5.1 Intra Zonal Trip Distribution Model Parameters



Source: JICA Project Team

Figure A8.5.1 Verification of trip Distribution Models

# A8.6 Modal Split Forecasting

# A8.6.1 Method

The trip modal split forecasting model is based on the forecast and analysis of transportation modes choice at the time of a particular trip with an individual or a group. Generally, the volume of trips and share for each traffic modes will be forecasted. The most common applied method to study modal split is the logit model.

The modal split models consist of three models, "Walk Split Model", "Bike-Other Split Model", and "Private-Public Split Model" as shown in Figure A8.6.1. It is a binary choosing method that splits into two transportation mode by each step. The split of these models is established as trip purpose using the Person Trip Survey data. The "Walk Split Model" splits into walk and traffic. The "Bike-Other Model" splits the walk into motorcycle and traffic. The "Private-Public Split Model" splits, aside from walk and motorcycle, into a private trip (a privately-owned car and a taxi) and a public transportation mode (a Microlet and a bus).





### A8.6.2 Walk Split Model

#### (1) Inter Zonal Walk Split Model

The diversion curve models are being used in the "Walk Split Model". The independent variable used in this model is the trip distance of the shortest pass on the road network. Although walk share is mostly based on trip distance, it is also different with the trip purpose or car ownership conditions. The car ownership conditions, which are established with the framework in the future, are also taken into consideration. Walk share curve is a model for each trip purpose in consideration of the car ownership rate. The model equation taken by the Person Trip Survey is shown in Figure A8.6.2.



Source: JICA Project Team

Figure A8.6.2 Inter Zonal Walk Split Model

### (2) Intrazonal Walk Split Model

The result of walk share is summarized in Table A8.6.1. Walk share is approximately 30% regardless of purpose, car owner, and bike owner. Therefore, total walk share is applied for intrazonal walk split.

Table P	Table A0.0.1 Intra Zonar Wark Share by 111p 1 of pose and venicle Ownership								
Trip Purpose	Car	Non-Car Owner	Bike	Non-Bike	All				
	Owner	Owner	Owner	Owner					
Home	29.8%	28.3%	30.0%	28.3%	28.4%				
Work	29.0%	28.0%	27.5%	28.1%	28.1%				
School	24.9%	29.2%	29.2%	29.0%	29.0%				
Others	32.5%	27.2%	28.1%	27.5%	27.6%				

 Table A8.6.1 Intra Zonal Walk Share by Trip Purpose and Vehicle Ownership

#### A8.6.3 Bike-Other Split Model

The logit model is generally applied for modal split model.

The logit model means that an individual act based on the rule of "choosing the preferable alternative out of the alternative group which can be used". The desirability of some alternative is different from the characteristic which the alternative has or its personal social attributes. The parameters of the model must be able to be forecast the existing and future situations. Model equation is shown and model parameter is summarized in Table A8.6.2.

$$P=1/(1 + \exp(\Delta V))$$
$$V=\alpha Cb + \beta Co + \gamma$$

Where, Cb: Bike Cost

Co: Other Cost

 $\alpha$ ,  $\beta$ ,  $\gamma$ :Model Parameter

Table 10.0.2 Disc-Other Split Would I drameters									
Trip Purpose	$\alpha$ (Bike)	$\beta$ (Other)	$\gamma$ (Consist)						
Home	0.1608	0.1828	0.4915						
Work	4.5943	2.5943	1.4541						
School	-6.5391	-3.390	-0.9724						
Others	-55.295	-85.017	-54.605						

Table A8.6.2	<b>Bike-Other</b>	Split Mode	el Parameters
1401C A0.0.2	Disc-Other	Spnt mou	

Source: JICA Project Team

### A8.6.3 Private-Public Split Model

The logit model is also applied for Private-Public split model. Model parameter is summarized in Table A8.6.3.

Trip Purpose	$\alpha$ (Private)	$\beta$ (Public)	γ (Consist)
Home	-0.6685	-16.905	-2.3758
Work	-0.1966	-13.577	-2.1281
School	-1.3872	-41.964	-5.1973
Others	-1.073E-14	-1.661E-13	-

Table A8.6.3 Private-Public Split Model Parameters

Source: JICA Project Team

# A8.7 Traffic Assignment Forecasting

# A8.7.1 General

The traffic volume that passes through each links which constitutes a transportation network will be forecasted. The traffic assignment forecasting model calculates whether the traffic volume among zones will be assigned on some routes among the zone. By forecasting the traffic volume of each links, it will be considered as the index which studies the solution of the traffic problem forecast in the future.

# A8.7.2 Model of Road Network Assignment

Vehicle trip is assigned to an individual road link in the process of a trip assignment forecasting. This step takes in an input an OD matrix that indicates the volume of vehicle trip between the origin and destination pairs. User equilibrium assignment is used for the estimate method. User equilibrium assignment is formulated under the assumption that all trip persons have the information on the road characteristic which chooses the road link and choose the route for minimum travel time or cost.

The input of a link performance function is necessary for user equilibrium assignment. This function describes the travel time which passes through the link under conditions with various congestions by the ratio of traffic and capacity. The Bureau of Public Roads (BPR) function is the most common and the equation is shown below.

 $Vc = Vo / [1 + \alpha (Vol / C)^{\beta}]$ 

Where, Vc: Congested Speed

Vo: Free-Flow Speed Vol: Traffic Volume (PCU) C: Ideal Traffic Capacity (PCU)  $\alpha = 0.48, \beta = 2.82$ 

### A8.7.3 Assignment of Future Traffic Demand at the Present Road Network

The result of future traffic demand is forecasted at the present road network as shown in Figure A8.7.1, Figure A8.7.2, and Figure A8.7.3. The below figures are reprint of the main text.



Source: JICA Project Team

Figure A8.7.1 Result of Future Traffic Demand Assignment at the Present Road Network



Figure A8.7.2 Result of Future Traffic Demand Assignment at Present Road Network in the City Center



Source: JICA Project Team

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Figure A8.7.3 Result of Future Traffic Demand Assignment at Present Road Network in the Comoro Area
```

The vehicle assignment result about vehicle km total, vehicle-hours total, speed, and average volume capacity ratio are summarized in Table A8.7.1.

N-	Care	V	Vehicle-km	Vehicle-hour	Averag (kn	e Speed n/h)	Average Volume
No.	Case	i cai	(PCU-km)	(PCU-Hour)	Peak	Average	Capacity Ratio (VCR)
	Existing	2013	719,405	27,912	25.8	28.7	0.33
	Do-Nothing	2030	1,352,428	78,284	17.3	25.4	0.63
Case-1	On-going project	2030	1,339,484	69,846	19.2	26.4	0.62
Case-2	Do-minimum	2030	1,336,013	67,550	19.8	26.7	0.6
Case-3	Bypass project	2030	1,318,791	54,566	24.2	29.1	0.54
Case-4	BRT project	2030	975,755	42,071	23.2	27.9	0.46
Case-5	Do-maximum	2030	958,060	35,495	27	30.1	0.41

 Table A8.7.1 Vehicle Assignment Results

# APPENDIX 9: LIST OF ALL PROJECTS PROPOSED IN DILI URBAN MASTER PLAN

No.	Project	Project Term				Possible
		Short	Mid	Long	(million USD)	Fund
		-2020	2021-2025	2026-2030		Source
Urba	n Management			•		
1	[Priority Project] Dili Urban				3.00	Public
	Development Management Project					
Road	and Public Transportation	1	T.	[	12.00	DDD
1	[ <b>Priority Project</b> ] Development of off				13.00	PPP
	street parking and tringe parking	$\bullet$	•		(in case of 1,000	OF Private
					narking)(*1)	Tilvate
2	[Priority Project] Improvement of				19.80	Public
_	Ring-road and traffic management in	•			(in case of	1 40110
	CBD		•		improvement 6	
					intersections) (*2)	
3	[Priority Project] Road widening of				155.00	Public
	current road network between Comoro	$\bullet$	•		( in case of	
	and CBD				By-pass length of	
4	[Priority Project] New By-pass		•	•	10km)	Public/
5	IPriority Project Improvement of Mass					PPP Dublic
5	Transit				(20,000 USD per	or
	Hanst				vehicle in case	PPP
					large size bus)	
		-		-	(*3)	
		•		•	24.00 (in	
					case of	
					introduction	
					of length of	
					10 KIII DK1)	
Seap	ort					
	[Priority Project] Domestic Ferry	-				
1	Terminal and other related Facilities		-	-	10.50	Public
	Project					
2	[Priority Project] International Cruise				2.00	Dublia
2	Project	•	-	-	5.00	Fublic
	[Priority Project] Comprehensive Bus					
3	Terminal and other related Facilities	•	•	-	3.90	Public
-	Project	•	•			/PPP
4	Development of Security Facilities and				2.22	Dublia
4	System Project		-	-	2.23	Public
5	Pilot and Tugboat Base Development					Public
5	Project	•	-	-	-	Tuone
6	Seaside Tourism Center Construction	•	•		-	PPP
	Project	-	-	-		

Note: Land acquisition cost is not included

Source: JICA Project Team / Yokohama City Road and Highway Bureau(\*1)/ Nagano City Department of Construction (\*2)/ Osaka Prefecture Department of Urban Developing (\*3)

No.	Project	Term			Project Cost	Possible	
	-	Short	Mid	Long	(million USD)	Fund	
		-2020	2021-2025	2026-2030		Source	
Airp	ort						
1	[Priority Project] PNLIA Development Project 1	•	-	-	100.00	Public	
Disas	ster Prevention		•				
1	[Priority Project] Implementation	•			1.60	Public	
	of hazards, risks and vulnerability						
	assessment on Dili Metropolitan						
	Area						
2	Installation of monitoring	$\bullet$			2.00	Public	
	equipment for hydro-meteorological						
	and geological hazards						
3	Capacity development of	$\bullet$	•	•	0.30	Public	
	hydro-meteorological and						
	geological staff for weather						
	overeasing and early warning						
4	Systems Paviaw of the Drainage Master Plan				8.00	Dublia	
4	from watershed management	•	•	•	8.00	rublic	
	aspects and implementation of flood						
	control measures for the five rivers						
	in Dili						
5	Formulation of flood and sediment	•			7.00	Public	
_	control master plan for the rivers in	-	-	_			
	Hera and Tibar and implementation						
	of priority measures						
Wate	Water Supply						
	[Priority Project] Survey on the	-					
1	Capacity of the Ground Water for	•			2.00	Public	
	Water Supply						
2	Master Plan of Water Supply				2.00	Public	
3	Reconstruction of the Distribution Net Work	•	•	•	1.00	Public	
4	Strengthening the Responsible				0.50	Dublia	
4	Organization of the Water Supply		•		0.30	Fublic	
5	Establishing the Standard for the				1.00	Public	
5	Structural Aspect of the Facilities		•		1.00	T ublic	
6	The Modification of the Master				1.00	Public	
	Plan for Water Supply				1100	i uone	
7	Development of the Water Supply				100.00	Public	
Sowo	Facilities						
1	Construction of CSTS				11/ 00	Public	
2	Construction of the Decentralized	•			114.90	Tublic	
-	Water Water Treatment Plant				248.80	Public	
3	Strengthening DNSB	•			103.00	Public	
4	[ <b>Priority Project</b> ] Establishing the	-					
	Standard of the Sewerage System	$\bullet$			1.00	Public	
	for Buildings	-				-	
5	Review and Revision of DSDMP				1.50	Public	
6	Communicating with communities						
	on sewerage system and Instruction				15 50	Public	
	the communities cooperative		-	-	15.50	i uone	
	maintenance of the sewerage system						

No.	Project	Term			Project Cost	Possible	
		Short	Mid	Long	(million USD)	Fund	
		-2020	2021-2025	2026-2030		Source	
Draiı	nage					•	
1	1 Drainage Channels Improvement of Inclination of Drainage Channels Re-Shape of Section of Drainage Channels		•		50.30	Public	
2	[Priority Project] Establishment of Standard on Kerb, Rainwater Collection Pits and Connection Pipelines to Drainage System between the responsible organizations of roads and drainage system	•			0.50	Public	
Instructing Communities for Co-operative Maintenance of the Drainage System		•	•	•	3.30	Public	
4	Survey of Rainfall	•		•	1.50	Public	
5	Strengthening DNSB	•			22.60	Public	
6	6 Study and Construction of Retention Ponds		•	•	17.60	Public	
7	7 Review and Revision of DSDMP		•		1.50	Public	
Solid	Solid Waste Management						
1	[Priority Project] Improvement of Tibar Dumpsite conditions and operations	•			2.40	Public	
2	Improvement of waste collection				0.30	Public	
3	Regulatory strengthening	•			1.35	Public	
4	IEC campaign and social preparation	•			1.20	Public	
5	Capacity Building on SWM	•			0.20	Public	
6	Development of New Sanitary Landfill		•		7.00	Public	
7	7 Closure of Tibar Dumpsite		•		1.50	Public	
8	Acquisition of compactor trucks				0.80	Public	
9	Imposition of fees for waste collection		•	•	0.60	Public	
10	New Technology for Waste Treatment			•	10.00	PPP /Public	

No.	Project	Term			Project Cost	Possible
		Short	Mid	Long	(million USD)	Fund
		-2020	2021-2025	2026-2030		Source
Powe	er Supply		_			
1	[Priority Project] Upgrade Dili substation	•			1.00	ODA
2	[Priority Project] Extension distribution network	•			6.20	ODA
3	Development of 150/20kV 3x63MVA substation		•		10.00	ODA
4	Development of SCADA system for distribution network		•		5.00	ODA
5	Development of Renewable energy				1.00	Public
Power Supply						
1	[Priority Project] Development of Submarine fiber links	•			16.50	ODA
2	[Priority Project] Development of Optic Trunk Communication Network	•			1.00	PPP
3	[Priority Project] Development of National ICT Center	•			6.00	ODA
4	Development of E-Government		•		0.75	Public
5	Development of Domain management system		•		1.00	Public
6	Establishment of Government Data Center with Cyber Security			•	4.00	ODA

# **APPENDIX 10: PROJECT SHEETS FOR PRIORITY PROJECTS**

1. Project Title			
<b>Urban Development Im</b>	plementation and Management Project for Dili Metropolitan Area		
2. Project Description			
2.1 <u>Background</u>	• The population of Dili Metropolitan Area (DMA) is expected to increase from 223,793 in 2010 to around 500,000 in 2030. Urban problems due to increase in		
	degradation are foreseen.		
	• In order to solve the problems and form better and attractive metropolitan area, Dili Urban Master Plan (DUMP) has been formulated since April 2014.		
	• In order to secure realization of the master plan, capacity development is to be conducted to strengthen institution and human resources.		
2.2 Objective	• To enhance the capacity of the national government officials in urban		
	development and management.		
2.3 Expected Benefits	• To contribute in achieving the Development Vision 2030 for DMA		
	• Io utilize the working experience to other spatial planning.		
	• To make a model of spatial planning, urban development, urban management, and development coordination mechanism in Timor-Leste.		
2.4 Components	• Establishment and operation of spatial management coordination board for DUMP		
	To formulate and update master plan		
	> To monitor and control Dili metropolitan development		
	> To carry out inter-regional development coordination, integration, and		
	synchronization		
	• Implementation of urban development based on DUMP		
	To monitor the progress of priority projects proposed in DUMP and take actions to		
	accelerate the projects		
	To prepare detailed district plan based on the development directions of the priority		
	areas proposed in DUMP		
	<ul> <li>Urban Development Management including detail zoning based on DUMP</li> </ul>		
	To prepare guidelines and manuals for spatial planning		
	To establish land development permit mechanism and strengthen building permit		
	ro establish fand development permit mechanish and strengthen bunding permit		
	To control development zone and concernation zone		
2.5 Project Image	To control development zone and conservation zone		
2.5 Project Image			
	Technology Transfer Acquire Practical Skills		
3. Responsible organiza	tion		
Housing and Urban Plann	ing Department, Ministry of Public Works, Transportation and Communication		
4. Project Cost and Poss	ible Fund Source		
4.1 Project Cost			
USD 3.0 million (for three	years)		
4.2 Possible Fund Source			
Public			
5. Implementation Sche	dule		
2016-2017 Submission of Application Form for Technical Cooperation			
2018-2020 Implementation of the Project			

1. Project Title				
Development of Off Street Parking and Fringe Parking				
2. Project Description				
2.1 Background	• Currently, the Dili Metropolitan Area has no railway and no bus network			
	but has a Microlet (Mini bus) service.			
	• Traffic capacity is decreased because of cars parked on the streets			
2.2 Objective	• To mitigate traffic volume of the central business district (CBD)			
	• To encourage modal shift to mass transit			
	• To increase road capacity by removing cars parked on the streets			
2.3 Expected Benefits	• To mitigate traffic volume and congestion of CBD			
<u>r</u>	• To encourage modal shift to mass transit and increase of passengers of			
	mass transit			
	• To increase road capacity by removing cars parked on the streets			
2.4 Components	• Development of fringe parking or P&R parking near mass transit stations			
	(hus stop)			
	• Development of off-road parking in CBD			
	(parking fee should be set higher than the fringe parking or P&R parking fee)			
2.5 Project Image				
<u></u>				
	Truck bus route     (priority (and otc))			
	Bus stop			
	Feeder mode			
	Detail routes/sites are			
	Detail sites and routes are to be examined to be considered			
3. Responsible Organiza	ition			
<ul> <li>Parking lot operation</li> </ul>	erator (not formed)			
<ul> <li>Ministry of Put</li> </ul>	blic Works, Transport and Communications			
(Directorate of Road, Bri	dge, and Flood Control/Directorate of Land Transport)			
Public Transpo	rtation Company (not formed)			
4. Project Cost and Possible Fund Source				
4.1 Project Cost				
USD 13,000 per vehicle	(*1, in case of a multi-story parking)			
(Source: Nagano City Department of Construction)				
*Land acquisition cost is not included				
4.2 Possible Fund Source				
Public-Private Partnership (PPP) or Private				
5. Implementation Sche	dule			
2017 Con	duct Feasibility Study (with mass transit feasibility study)			
2018-2019 Deta	iled Design			
2020-2022 Bide	ling and Land Acquisition			
2023-2024 Con	struction			
2025 Com	mencement of Operation			
*1:https://www.city.nagano.	nagano.jp/uploaded/attachment/66669.pdf			

1. Project Title					
Improvement of Ring-road and Traffic Management in CBD					
2. Project Description					
2.1 Background	• Based on population increase in Dili Metropolitan Area and its urban				
	development, the traffic volume will also increase.				
	• Currently, the Dili Metropolitan Area does not have sufficient road network				
	to deal with future traffic demand and thru traffic.				
2.2 Objective	• This project aims to develop CBD and other Dili urban centers such as				
	Tibar and Hera by relieving traffic congestion and providing smooth service.				
2.3 Expected Benefits	• Reduce traffic congestion in CBD and target areas				
<u></u>	• Increase travel speed between west (Tibar, Comoro) and east (Hera)				
2.4 Components	Introduction of traffic signal				
	Improvement of intersection				
	Reconsidering one-way regulation in CBD				
	<ul> <li>Reconsidering one-way regulation in CDD</li> <li>Pood widening (including utilization of river space) of perrow section</li> </ul>				
2.5 Drain at Imaga	• Road widening (including utilization of fiver space) of narrow section				
2.5 Project Image					
	CBD traffic				
	Improvement				
	of Bus service				
	Sections its traffic how will be saturated				
	of Intersection				
	King Koad				
	Ninter2#iontitieSturePOJ Sterr8ContribeStray				
	TatcCarSurey "10" of Intersection				
3. Responsible Organiza	tion				
<ul> <li>Ministry of Pul</li> </ul>	plic Works, Transport, and Communications				
(Directorate of Road, Br	idge, and Flood Control)				
Police					
4. Project Cost and Poss	ible Fund Source				
4.1 Project Cost					
Improvement of Intersec	tion: USD 3 33 million (*1)				
(Land acquisition cost is not included)					
1 2 Possible Fund Source	not meruded/				
Public					
Source: (*1) Ocake Prefecture Department of Urban Developing					
5 Implementation Schedule					
2017	Conduct Feasibility Study and Route Selection				
2017	Datailed Dagian				
2010-2019	Detailed Design Didding and Lond Appricition				
2020-2022	Didding and Land Acquisition				
2023-2025	Construction				
2025	Commencement of Operation				

1. Project Title					
Road Widening of Current Road Network between Comoro and CBD					
2. Project Description					
2.1 Background	• Based on population increase in Dili Metropolitan Area and its urban development, traffic volume will also increase.				
	• Currently, the Dili Metropolitan Area has two major roads (Avenida Presidente Nicolau Lobato and Banana Road) connecting east area (Comoro area) and				
	CBD.				
	• In spite of Banana Road having four lanes, where the eastbound connecting section "Rua dos Martires da Patria" having only two lanes, it may become a				
	"bottle-neck" in the future due to traffic.				
	with Comoro Bridge #3 and it will be regarded as the bypass of Avenida Presidente				
	Nicolau Lobato and its traffic volume will increase.				
2.2 Objective	• This Project aims to strengthen the development of CBD and other Dili				
<u></u> <u></u>	urban centers such as Tibar and Hera by relieving traffic congestion and providing				
	smooth service				
2.3 Expected Benefits	• Reduce traffic congestion in the target area				
	<ul> <li>Increase travel speed between west (Tibar, Comoro) and east (Hera)</li> <li>Deliver to ff a comparison of the providence of the providence</li></ul>				
	• Relieving traffic congestion in CDB and Avenida Presidente Nicolau Lobato by traffic flow distribution to Banana Road.				
2.4 Components	• Road widening of "Rua dos Martires da Patria"				
<u>.</u>	• Improvement of intersection				
	<ul> <li>Improvement of sidewalk or introduction of bike-lane</li> </ul>				
2.5 Project Image					
2 Bomonsible Organi	Detail sites and routes are to be examined				
3. Responsible Organiz					
<ul> <li>Ministry of Pu</li> </ul>	ablic Works, Transport, and Communications				
(Directorate of	Koad, Bridge, and Flood Control )				
Ouner Koad A	uninisuator				
4. Project Cost and Possible Fund Source					
USD 15.5 million per k	rm (*1) (in case of road widening from two lanes to four lanes)				
*L and acquisition cost is not included					
(*1) Osaka Prefecture Department of Urban Developing					
4.2 Possible Fund Source					
Public					
5. Implementation Schedule					
2017	Conduct Feasibility Study and Route Selection				
2018-2019	Detailed Design				
2020-2022	Bidding and Land Acquisition				
2023-2025	Construction				
2025	Commencement of Operation				

1. Project Title				
Improvement of Mass to	ransit			
2. Project Description				
2.1 Background	• Based on population increase in Dili Metropolitan Area and its urban			
	development, the traffic volume will also increase.			
	• Currently, Dili Metropolitan Area has no railway and no bus network but			
	has a Microlet (mini bus) service.			
	• It is worrying if the traffic demand increases and level of public			
	transportation remains insufficient, motorization will occur and will cause increase in			
	traffic volume and then serious congestion will occur.			
2.2 Objective	• This project aims to improve public transportation (mass transit). It will not			
	only improve the service level of public transportation but also prevent modal-shift to			
	private cars.			
	• To assist on the development of the Dili Metropolitan Area as			
	"Transit-Oriented Development (TOD)" area.			
2.3 Expected Benefits	• Improvement of service level of public transportation (travel time, comfort)			
	• Mitigation of rapid increase on traffic volume of private car			
	• Mitigation of air pollution and greenhouse gases			
	• Increase the attractiveness of the Dili Metropolitan Area by providing			
	comfort in mobility.			
2.4 Components	• Improvement of Microlet service including the development of related			
	facilities			
	• Formation of public transportation organization			
	• Introduction of priority lane for public transportation			
	Introduction of large size bus			
	<ul> <li>Introduction of pedastrian bridges serves DDT street and servesting to</li> </ul>			
	Introduction of pedestrian bridges across BK1 street and connecting to			
2.5 Durais at Luna an	BRI stations			
2.5 Project mage	Truck bus route			
	Bus stop			
	Toeder mode			
	Detail routes/ sites are			
	L. to be considered			
3. Responsible Organiza	tion We he Turned and Commission (Directory) of Deal Dilayout Flort			
• Ministry of Public	works, Transport, and Communications (Directorate of Road, Bridge, and Flood			
Control)				
<ul> <li>Millisury of Transpo</li> <li>Public Transportation</li> </ul>	n and Communications (Directorate of Land Transport)			
Public Transportation Company (not formed)				
4. Project Cost 4.1 Project Cost				
<u>4.1 Fluter Cost</u> USD 24 million (*1 in case of introduction of length of 10 km RRT)				
Source: A study on planning process for hus rapid transit system Tsutomu Yabe				
http://kamome.lib.ynu.ac.jp/dspace/bitstream/10131/451/1/11737150-01.pdf				
Land acquisition cost is not included				
4.2 Possible Fund Source				
Public or PPP				
5. Implementation Schedule				
2017-2018 Conduct Feasibility Study/Coordination for Organization Formation				
	Conduct Feasibility Study for Bus Facilities (including bus terminal)			
2019-2021	Introduction of Bus Vehicle/Improvement of Bus stop			
2022-2024	Introduction of Priority Lane			
2025-2030	Development of Bus Stop Area/Introduction of BRT			
(It is desirable that this	project is conducted in cooperation with By-pass project in order to mitigate traffic			
congestion by decreasing the number of lanes in the existing road)				

1. Project Title				
<b>Domestic Ferry Termin</b>	nal and other related Facilities Project			
2. Project Description				
2.1 Background	• This project aims at transforming Dili Port into a modernized ferry terminal			
	where three ferries will be operated.			
2.2 Objective	• To accommodate increasing number of passengers in the future			
2.3 Expected Benefits	<ul> <li>Smooth traffic flow and promotion of tourism</li> </ul>			
2.4 Components	• Rehabilitation of No. 5 and No. 6 Berths (109 m x $12 \text{ m} = 1,308 \text{ m}^2$ )			
-	• Refurbishment of Passenger Control Office (48 m x 14 m)			
	• New Ferry Jetty (100 m)			
	• Yard Area $(5,940 \text{ m}^2)$			
	• Fence and Gate (261 m)			
2.5 Project Image	New Ferr       Proposed Domestic Ferry         New Ferr       Pasenger Control Office         Ferry Terminal       Image: Control office         Image: Control office       Image: Control office <t< th=""></t<>			
3. Responsible Organiz	zation			
APORTIL				
4. Project Cost and Pos	ssible Fund Source			
<u>4.1 Project Cost</u>				
Total Estimated Project Cost = USD 10,500,000				
4.2 Possible Fund Source				
Public				
5. Implementation Schedule				
2017-2018 Construct	tion Plan			
2019-2021 Construct	ion			

1. Project Title					
International Cruise Terminal and other related Facilities Project					
2. Project Descript	tion				
2.1 Background	• This project aims at transforming Dili Port into a new international cruise				
	terminal capable of attracting international cruise vessels.				
2.2 Objective	<ul> <li>To increase tourism and to obtain foreign currency income</li> </ul>				
2.3Expected	<ul> <li>Attracting international cruise ships</li> </ul>				
Benefits					
2.4 Components	• Rehabilitation of No. 1 – No. 4 Berths (90 m x 20 m + 90 m x 12 m = $2,880m^2$ )				
-	<ul> <li>Refurbishment of existing passenger terminal building (37 m x 24 m)</li> </ul>				
	• Yard area $(4,872 \text{ m}^2)$				
	• Fence and gate (228 m)				
2.5 Project Image					
	Proposed International Cruise Terminal Passenger Terminal Building Passenger Terminal Building Cruise Terminal Existing Dili Port				
3. Responsible Or	ganization				
APORTI	L				
4. Project Cost and	d Possible Fund Source				
4.1 Project Cost					
Total Estimated Pro	oject Cost = USD 3,000,000				
4.2 Possible Fund S	bource				
Public					
5. Implementation Schedule					
2017-2018 Construction Plan					
2019-2021 Construction					
(Note: The interna	(Note: The international cruise terminal might be extended on the eastside of the terminal in response to a				
change in size of cr	uise vessels which will call Dili Port in the future.)				

1. Project Title				
<b>Comprehensive Bus Te</b>	rminal and other related Facilities Project			
2. Project Description				
2.1 Background	• This project aims at transforming Dili Port into a modernized ferry terminal			
	where three ferries will be operated.			
2.2 Objective	• To accommodate the increase of passengers in the future			
2.3 Expected Benefits	<ul> <li>Smooth traffic flow and promotion of tourism</li> </ul>			
2.4 Components	• Rehabilitation of No. 5 and No. 6 Berths (109 m x $12 \text{ m} = 1,308 \text{ m}^2$ )			
	• Refurbishment of passenger control office (48 m x 14 m)			
	• New ferry jetty (100 m)			
	• Yard area $(5,940 \text{ m}^2)$			
	• Fence and gate (261 m)			
2 Remensible Organiz	Proposed Comprehensive Bus Terminal and other related Facilities Project       Image: Comprehensive Bus facilities Project         Image: Comprehensive Bus facilities Project       Image: Comprehensive Bus facilities Bus facilities Project         Image: Comprehensive Bus facilities Project       Image: Comprehensive Bus facilities Bus facilit			
<b>5. Kesponsible Organiz</b>	ation			
<ul> <li>APOKIIL</li> <li>4. Project Cost and Post</li> </ul>	sible Fund Source			
4.1 Project Cost				
Total Estimated Project Cost = USD 3,900,000				
4.2 Possible Fund Source				
Public				
5. Implementation Schedule				
2017-2018 Construction Plan				
2019-2021 Construction				
2018-2025 Establish	2018-2025 Establishment of Comprehensive Inland Bus Service System			

1. Project Title					
President Nicolau Loba	to International Airport (PNLIA) Development Project 1				
2. Project Description					
2.1 Background	• The airport facility is currently in poor condition and do not meet				
	international standards for safety operation. Also, passenger terminal building is too				
	narrow to increase air traffic movement currently.				
2.2 Objective	• To develop PNLIA in accordance with international standards as well as				
	for future demand.				
	• To improve airport facilities where major works involve runway expansion				
	to 2,050 m and terminal area improvement works.				
2.3 Expected Benefits	• Improvement of the aircraft safety operation				
2.4 Components	Ennancement of the passenger service level including security measures				
2.4 Components	• reasionity study for the PPP scheme and phontization for the PNLIA				
	Fynancion of runway up to 2 100 m x 45 m including taxiways and aircraft				
	parking apron				
	• New terminal area development (new passenger terminal building				
	including land side access facility)				
	• Air navigation facilities especially airport lighting system and facilities.				
2.5 Project Image					
	Durnway Expansion Image (up to 2 500 m x 45m - 300m strip width				
	Kunway Expansion Image (up to 2,500 m x 45 m)				
	and the second days of the second days and the				
	Contraction of the second s				
	AND A CONTRACTOR OF A CONTRACT				
	DRAFT				
	New Terminal Area Image				
3. Responsible Organiza	ition				
Ministry of Public Works	, Transport, and Communications, Civil Aviation Authority Timor-Leste (AACTL), Air				
A Design of Cost and Dessible Fund Sources					
4. Project Cost and Poss	sible Fund Source				
4.1 Project Cost					
1 otal project cost around USD 100 million					
4.2 POSSIDIE FUND SOURCE					
5 Implementation Sala	rublic 5. Implementation Schodula				
2017 2018 Feasibility Study and Detailed Design					
2018-2021 Construction for Airport Facilities					
	ion for amport i demues				

1. Project Title	
Hazards, Risks and Vu	Inerability Assessment on Dili Metropolitan Area
2. Project Description	
2.1 Background	<ul> <li>Dili Metropolitan Area is affected by natural disasters such as frequent floods, strong winds and landslides, and possible disasters by earthquakes and tsunami.</li> <li>The project area of Dili Metropolitan Area is at 178 (2 low<sup>2</sup> and expressed of transition).</li> </ul>
	• The project area of Diff Metropolitan Area is at 178.62 km and composed of two municipalities, seven sub-districts, and 32 Sucos. The total population is 223,793. The area is divided into eight river basins.
2.2 Objective	<ul> <li>Identification of hazards, risks, and vulnerability to natural disasters in the Dili Metropolitan Area.</li> </ul>
2.3 Expected Benefits	• The results of hazards, risks, and vulnerability assessment are to be the basis for the regional disaster risk management (DRM) and countermeasures.
2.4 Components	<ol> <li>Identification of hazards and preparation of hazard maps of natural disasters.</li> <li>Based on hazard maps, vulnerabilities of population, houses and assets, important infrastructure and lifelines, and central organization to each of natural disasters are to be assessed at the Suco level through field works.</li> <li>Possible risks are also assessed.</li> <li>The hazard maps and the results of assessment are to be the basis for the disaster risk management plan.</li> </ol>
2.5 Project Image	
	Ness: (1) fundation depth, (2) Evacuation Center, (3) Landmarks, (4) Scall.         (1) Direction, (6) Emergency Hotlines, (7) Topographic Features, (8) Dos and Don'ts for Evacuation, (9) Evacuation Center, (3) Landmarks, (4) Scall.         (2) Direction, (6) Emergency Hotlines, (7) Topographic Features, (8) Dos and Don'ts for Evacuation, (9) Evacuation Center, (3) Landmarks, (4) Scall.         (3) Direction, (6) Emergency Hotlines, (7) Topographic Features, (8) Dos and Don'ts for Evacuation, (9) Evacuation Center, (3) Landmarks, (4) Scall.         (4) Direction, (6) Emergency Hotlines, (7) Topographic Features, (8) Dos and Don'ts for Evacuation, (9) Evacuation Center, (3) Landmarks, (4) Scall.         (5) Direction, (6) Emergency Hotlines, (7) Topographic Features, (8) Dos and Don'ts for Evacuation, (9) Evacuation Center, (9) Landmarks, (4) Scall.         (6) Direction, (7) Emergency Hotlines, (7) Topographic Features, (8) Dos and Don'ts for Evacuation, (9) Evacuation Center, (9) Landmarks, (4) Scall.         (7) Direction, (8) Emergency Hotlines, (7) Topographic Features, (8) Dos and Don'ts for Evacuation, (9) Evacuation Center, (9) Landmarks, (4) Scall.         (7) Direction, (8) Emergency Hotlines, (7) Topographic Features, (8) Dos and Don'ts for Evacuation, (9) Evacuati
3. Responsible Organiz	ation
National Disaster Manag	gement Directorate
4. Project Cost and Pos	sidie Fund Source
4.1 Project Cost Total project cost is assum	and to be USD 1.6 million
4.2 Possible Fund Source	
Public	
5. Implementation Sch	edule
The implementation of the project is planned for 2016 to 2020 (short-term), because the results are fundamental information for the DRM of Dili Metropolitan Area. Outlines of the assessment schedule are as follows 2017: Preparation 2018: Collection of basic data and information at Suco level	
2019-2020: Hazard analysi	s of natural disasters and preparation of community-based hazard maps and supplementary data
2021: Risks and vulnerabil	ity assessment

Dumpsite Conditions and Operations
The Tibar Dumpsite corresponds to a 10 ha lot located in Tibar, Liquica about 12 km southwest of Central Dili. For the past 30 years, it has been receiving waste generated
from Dili. The waste disposed to the dumpsite is subjected to manual and unsanitary
sorting by over 70 pickers (including small children) and daily burning to recover
metals. The currently deployed bulldozer and excavator are not adequate to grade and
compact the burned and disposed waste. The waste at the dumpsite is left exposed
emitting foul odor and generates leachate when exposed to rain or surface flow during
storm events. Portions of the dumpsite become inaccessible during heavy rains due to
the poor condition of the internal access road. The site staff have limited knowledge
To improve environmental conditions of the dumpsite
To improve operations at the dumpsite
Reduction of emission of foul odor from exposed waste
• Stop generation of greenhouse gases and smoke from hurning
<ul> <li>Stop generation of greenhouse gases and shoke from outning</li> <li>Minimize leachate generation</li> </ul>
• Stoppage of unsanitary waste picking and burning
• Reduction of health and safety risks to disposal and collection crew, waste
pickers, and the nearby communities.
The project will include the following:
• Environmental assessment of dumpsite;
• Site clearing (10 ha), grading, compaction of waste, application of
intermediate soil cover (5 ha);
• Construction of peripheral drainage canal (1,800 m), improvement of
internal access road (1,300 m);
• Training of site personnel on proper disposal operations;
• System improvement;
• Safety, security, and sanitation measures for the entire dumpsite;
<ul> <li>Acquisition of 2 hulldozers: and</li> </ul>
<ul> <li>Construction of a Materials Recovery Facility (1000 m<sup>2</sup> floor area)</li> </ul>

2.5 Project Image	
BAZ Lower Cell Sol Construction BAZ Construction Centre BAZ Construction Centre BAZ Construction Centre BAZ Construction C	ge Canal ral Cell Upper Cell (Active)
Incoming Recovery of	Disposal at Active Cell
Waste Recyclables ->	Compaction Application of Soil Cover
de min	Application of some over
Tibar Dumpsite showing proposed improvements of the existing wast	e cells and the diagram of the planned waste
flow Source: JICA Project Team	
3. Responsible Organization:	
Directorate for Hygiene and Public Order, Ministry of State Administ	ration
4. Project Cost and Possible Fund Source	
4.1 Project Cost Total: USD 2.5 Million	
Environmental assessment	: 0.10
Weight bridge and disposal equipment	: 0.40
Materials Recovery Facility	: 0.50
Site clearing, grading, waste compaction and soil cover application	: 0.55
Training on disposal operation	: 0.10
System improvement, safety, sanitation and security measures	: 0.30
4.2 Possible Fund Source	
Public 5 Implementation Schedule	
2017 : Environmental assessment	
2017 : Improvement of internal access road	
2017 : Site clearing of recyclables and litter	
2017 : Acquisition of two bulldozers and one weighbrid	lge
2017 : Construction of drainage canal	
2017 2018 : Social preparation 2017 2018 : Training on disposal operations and monitoring	
2017-2018 . Framing on disposal operations and monitoring	
2018 : Establishment of Materials Recovery Facility	
2018 - 2020 : Site grading, compaction, and soil cover applica	tion for old and incoming waste

1. Project Title	
Survey of Water Resource	s (Ground Water) in Dili and Tibar
2. Project Description	The Dili and Tiber is the highlighted area of when development. The
2.1 Background 2.2 Objective 2.3 Expected Benefits	<ul> <li>The Dili and Tibar is the highlighted area of urban development. The Government of Timor-Leste (hereafter: GOTL) has tried to study the development of the commercial, industrial, and academic areas in the area. Since there is no available figures regarding the capacity of water resources for water supply that prevents a feasibility study of the development, for private investors, the problem becomes more serious. To encourage development, capacity should be indispensable.</li> <li>In the aspect of sustainable development, studying the development based on capacity is necessary to avoid subsidence and salinity.</li> <li>On the point of view, the study on the capacity of water resource is one of the necessary elements to attract urban development with less environmental impact.</li> <li>To propose to GOTL the potential of water resources for water supply and to establish the procedure for the survey and evaluation to expand it to other areas of Timor-Leste.</li> </ul>
	<ul> <li>governmental/private development.</li> <li>To support the establishment of master plan of the water supply in the area.</li> <li>To help the feasibility study of urban development</li> <li>To support GOTL in controlling water resources.</li> </ul>
2.4 Components	<ul> <li>Area : Dili and Tibar</li> <li>Survey : Site visit on the existing wells, boring to install test wells, geotechnical survey, water level of groundwater, and electrical survey after pumping water up.</li> <li>Analysis : Dynamic state of the ground water based on the kinetic survey of the groundwater level and the salinity and the amount of raised water</li> <li>Evaluation : Proposal of groundwater potential for water supply</li> <li>Transferring : Enlarging the capacity of the survey</li> </ul>
2.5 Project Image	Tibar Area Tibar Area Dili Urban Area 7 8 4 4 Hera Area Liquica Liquica Empra
	Location Map of Catchment Area
<b>5. Kesponsible Organization</b> National Directorate of Wat	er Quality and Control. Ministry of Public Works, Transport and Communications
4. Project Cost and Possib	le Fund Source
4.1 Project Cost         Total project cost and break down, if available         USD 2.0 million         4.2 Possible Fund Source         Public	
Implementation schedule from now to the commencement of operation.	
2017 Data collection, conducting geotechnical survey, installing test wells, stress test of water level and electrical conductivity before/after pumping water up, kinetic analysis of water level and quality of water (salinity), and evaluating the capacity of the ground water.	

1. Project Title	
Establishment of a Stan	dard for the Sewerage System of the Building for Connection to the Public
Sewerage System	
2. Project Description	In Dili DNCD will implement the development of the public serverges
2.1 Background	<ul> <li>In Dill, DNSB will implement the development of the public sewerage system under the Dili Sanitation and Drainage Master Plan. On the implementation of the development, the connection from the sewerage system of buildings to the public is one element of the development. At the connection point, the elevation of the pipeline and the quality of wastewater flowing into the public needs to be considered.</li> <li>Based on this situation, the standard of the sewerage system of the buildings needs to be studied.</li> </ul>
2.2 Objective	• To propose the standard of the sewerage system of the buildings
2.3 Expected Benefits	<ul> <li>To avoid misconnection of the sewerage between the buildings and the public.</li> <li>To keep the performance of the sewerage system by controlling the quality of the inlet flow to the public sewerage system.</li> </ul>
2.4 Components	<ol> <li>Survey of the existing sewerage system of buildings</li> <li>Study on the minimum requirement of the pipeline connecting the public sewerage system from buildings</li> <li>Study on the minimum requirement of the septic tank equipped in buildings</li> <li>Draft of the standard of the sewerage system in buildings</li> </ol>
2.5 Project Image	Location Map, illustration of system, etc. Please put source. Situation observed in Dill
3. Responsible Organization	n rate of Ruildings Ministry of Dublic Works Transport and Communications
4 Project Cost and Possible Fund Source	
4.1 Project Cost       USD 1.0 million in total.       4.2 Possible Fund Source       Public	
5. Implementation Schedule	
Implementation schedule fro 2017: Surv	om now to commencement of operation. ey of existing sewerage system for buildings, study of connection of pipeline and septic tank.

1. Project Title	
Establishment of the Standard on Kerb, Rainwater Collection Pits and Connection Pipelines	
2. Project Description	
2.1 Background	• Choking of the rainwater collection-system in the road is one of the causes of inundation. To avoid choking of the system, proper and periodical maintenance is indispensable. At present, there are many kinds of structures for rainwater
	collection-system in roads that are observed in Dili. For proper maintenance, unifying the structures of the rainwater collection system is necessary.
2.2 Objective	• To propose the standard for the rainwater collection system
2.3 Expected Benefits	• Easy construction with acceptable quality and maintenance to mitigate the
<u></u>	inundation due to choking of the rainwater collection system in roads.
2.4 Components	<ol> <li>Survey of the existing rainwater collection system in roads</li> <li>Study ofr the structures of the rainwater collection system in roads</li> <li>Collecting comments on the structure of the rainwater collection system from the responsible organization of sewerage and roads</li> <li>Draft of the standard of the rainwater collection system in roads</li> </ol>
2.5 Project Image	Situation observed in Dili
3. Responsible Organization	n
DNSB and National Directorate of Roads, Bridges and Flood Control, Ministry of Public Works, Transport, and Communications	
4. Project Cost and Possible Fund Source 4.1 Project Cost USD 0.5	
<u>4.2 Possible Fund Source</u> Public	
5. Implementation Schedule	
Implementation schedule from present to commencement of operation 2017: Survey of the existing rainwater collection system in roads; study of the structure of the rainwater collection system in roads; collecting comments on the structure of the rainwater collection system from the responsible organization of sewerage and roads; and draft of the standard of the rainwater collection system in roads.	

1. Project Title	
Upgrade Dili Substation	
2. Project Description	
2.1 Background	• This project aims to upgrade the existing Dili substation capacity from 63 MVA
	to 94.5 MVA for sufficient power supply of DMA by 2017.
2.2 Objective	• To meet the load demand of DMA by 2017
	• To improve power source for citizens in DMA
2.3 Expected	<ul> <li>Providing sufficient power supply</li> </ul>
Benefits	<ul> <li>Improving the electrification</li> </ul>
2.4 Components	31.5 MVA-150/20 kV transformer with complete high-medium voltage switchgear (Project cost: USD 1 million)
	31.5 MVA-15/20 kV transformer: 1 set 20 kV switch gear: 1 set
2.5 Decient Inc.	
2.3 Project Image	
	Source: China Nuclear Industry 22nd Construction Co., Ltd
	Dili substation
3. Responsible Organ	ization
EDIL 4 Decise Cost and D	angle In Frank Common
4. Project Cost and Po	ossible Fund Source
4.1 Project Cost Total: USD 1.0 million	
4.2 Possible Fund Source	
Public	
5. Implementation Schedule	
2017	Conduct Feasibility Study and Detailed Design
2017	Bidding and Construction
2018	Commencement of Operation

1. Project Title	
Extension Distribu	tion Network
2. Project Description	n
2.1 Background	• The purpose of extension distribution network is to cope with the increase in
	power demand in the future by providing sufficient power supply to all areas of DMA
2.2 Objective	• To improve the quality of electricity
2.4 Expected	• Electrification of all areas in DMA
Benefits	• Reduce the loss voltage and poor performance of electrical appliances
2.4 Components	• Distribution substations with low voltage lines and 20 kV transmission lines:
	Distributions substations will be installed with capacity of 103.9 MVA (equivalent to
	approximately 130 substations). (Cost: USD 5.2 million)
	20 kV transmission lines with overhead line and underground cable (underground cable is
	installed in the historic area and center area only) with length of 69.7 km. (Cost: USD 1 million)
	(Total project cost: USD 6.2 million)
2.5 Project Image	
	Source: IICA Project Team
	Typical Substation in Dili
3. Responsible Organ	lization
EDTL	
4. Project Cost and P	ossible Fund Source
4.1 Project Cost	
Total: USD 6.2 millio	n
4.2 Possible Fund Sou	rce
Public 5. Implementation Schodule	
5. Implementation Schedule	
2017 Conduct reastoring study 2017-2018 Detailed Design	
2018-2019 Bidding	
2019-2020 Construct	tion
2021 Commen	cement of Operation

1. Project Title	1. Project Title	
<b>Development of Su</b>	ıbmarine Fiber Link	
2. Project Descripti	on	
2.1 Background	• This project aims to build a submarine fiber link to provide sufficient internet	
	communication bandwidth for Dili and Timor-Leste.	
2.2 Objective	• To establish high speed networks	
	<ul> <li>To improve connectivity for users</li> </ul>	
2.3Expected	<ul> <li>Providing high speed broadband internet connection</li> </ul>	
Benefits	• To meet the requirements of the international bandwidth demand	
2.4 Components	• Submarine Fiber Link (Length: 300 km, Project cost: USD 16.5 million) Submarine Fiber Link connection from Darwin (Australia) to Suai (Timor-Leste). Dimensioning (fp x wave length x capacity per wave length): 8 x 16 x 10 Gbps (estimation)	
2.5 Project Image	Fourier World Bank         Submarine Fiber Link from Kupang (Indonesia) to Dili (Timor-Leste)	
3. Responsible Org	anization	
National Communica	ation Authority, Ministry of Public Works, Transport, and Communications	
4. Project Cost and	Possible Fund Source	
4.1 Project Cost		
Total: USD 16.5 million		
4.2 Possible Fund Source		
Public		
5. Implementation Schedule		
2017	Conduct Feasibility Study	
2017-2018	Detailed Design	
2018-2019	Bidding	
2019-2020	Common common of Operation	
2021	Commencement of Operation	

1. Project Title	
Development of Optic Trunk Communication Network	
2. Project Descripti	on
2.1 Background	• This project aims to build an optic fibre trunk network for the metro trunk
_	communications and local access network is essential to solve the telecommunications
	infrastructure issues.
2.2 Objective	<ul> <li>To establish broadband network for Dili</li> </ul>
	• To improve connectivity for users
2.3Expected	• Increase in the number of internet users
Benefits	• Enhanced convenience in the use of the internet
2.4 Components	• Ontia Trunk Communication Naturark (Lanoth: 160 km Draigat cost: USD 1
2.4 Components	• Optic Trunk Communication Network (Length: 160 km, Project cost: USD 1 million)
	Natwork construction amongst the urban cores and sub conters by connecting fibre
	optic cables loid along the roads
	Ungrade the networking equipment including ontical transmission device router
	switch and network control unit to expand the network handwidth capacity
2.5 Project Image	Dill Fiber Ontic Network
2.5 Hojeet mage	
	Fiber Optic
	RING Configuration
	FO
	Cisco 2021 Vimax Cisco 2021
	P Plone P Phone P Phon
	Source: Ministry of Transport and Communications
	<b>Optic Trunk Communication Network in Dili</b>
3 Desponsible Org	anization
Operators in partner	anization
<b>1</b> Project Cost and	Possible Fund Source
4. Froject Cost and Possible Fund Source	
4.1 Project Cost Total: USD 1 million	
1 2 Possible Fund Sc	
PPP	
5. Implementation Schedule	
2017	Conduct Feasibility Study
2017	Detailed Design
2018	Bidding
2019-2020	Construction
2021	Commencement of Operation
2021	

1. Project Title	
Development of National ICT Center	
2. Project Descrip	tion
2.1 Background	• The main purpose of this project is to develop ICT training centers to develop
	the potential and ability of all government employees to facilitate the process of
	introducing ICT to be implemented in their respective workplaces.
2.2 Objective	• Develop and produce core manpower of technicians, engineers, and scientists to
	support all government plans that are related to ICT
	• Government initiative and approach to industries to enforce development
	<ul> <li>Become a center of technology intermediaries by creating a transfer office (10)</li> <li>ICT Development Center in Dili and Timer Leate as well</li> </ul>
	<ul> <li>ICT Development Center in Diff and Timor-Leste as well</li> <li>The ICT training conter will be the Center of the Besserah and Development of</li> </ul>
	• The ICT training center will be the Center of the Research and Development of the ICT and other relevant sectors in Dili and Timor Leste
	Well equipped facilities through government support
2.3 Expected	Guaranteed employment in good firms
Benefits	<ul> <li>Outainfield employment in good mins</li> <li>Preparedness of the trainer for the development of decentralization process to</li> </ul>
	be fulfilled in the municipalities in Timor-Leste
	<ul> <li>Promoting ICT to all sectors to accelerate research and development</li> </ul>
	<ul> <li>Increasing the capacity of government employees to work in relevant fields</li> </ul>
	<ul> <li>Increasing the capacity of local government leaders for ICT and relevant areas</li> </ul>
	• Standardizing the administration of the government in setting up the role and
	procedure to ensure uniform administration to the nations
2.4 Components	• National ICT Center (Project cost: USD 6 million)
2.5 Project Image	
	I the name
	Source: VDC ICT Center in Vietnam
	Typical National ICT Center
3. Responsible Org	anization
National Communic	ation Authority, Ministry of Public Works, Transport, and Communications
4. Project Cost and	Possible Fund Source
4.1 Project Cost	
Total: USD 6 million	
<u>4.2 Possible Fund Source</u>	
Public	
5. Implementation	Schedule
2017	Conduct Feasibility Study
2017-2018	Detailed Design
2018	Bidding
2018-2020	Construction
2021	Commencement of Operation