

KINGDOM OF THAILAND
ROYAL THAI POLICE
AND MUNICIPALITY OF CHIANG MAI

JAPAN INTERNATIONAL COOPERATION
AGENCY

THE STUDY ON
IMPROVEMENT OF ROAD
TRAFFIC ENVIRONMENT
IN CHIANG MAI CITY
IN THE KINGDOM OF
THAILAND

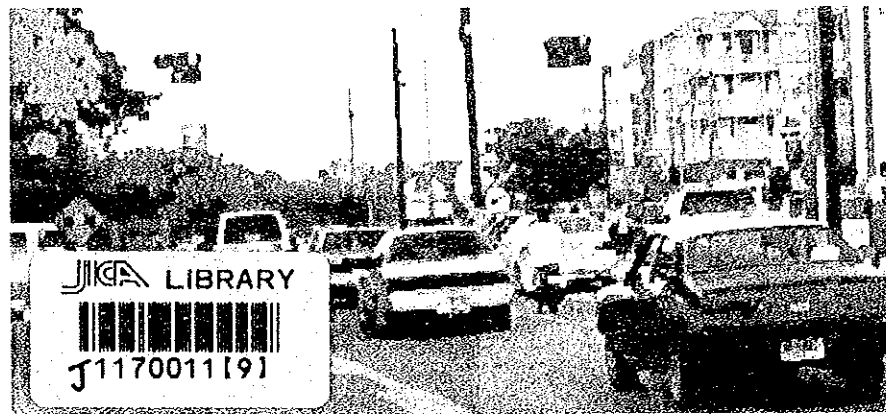
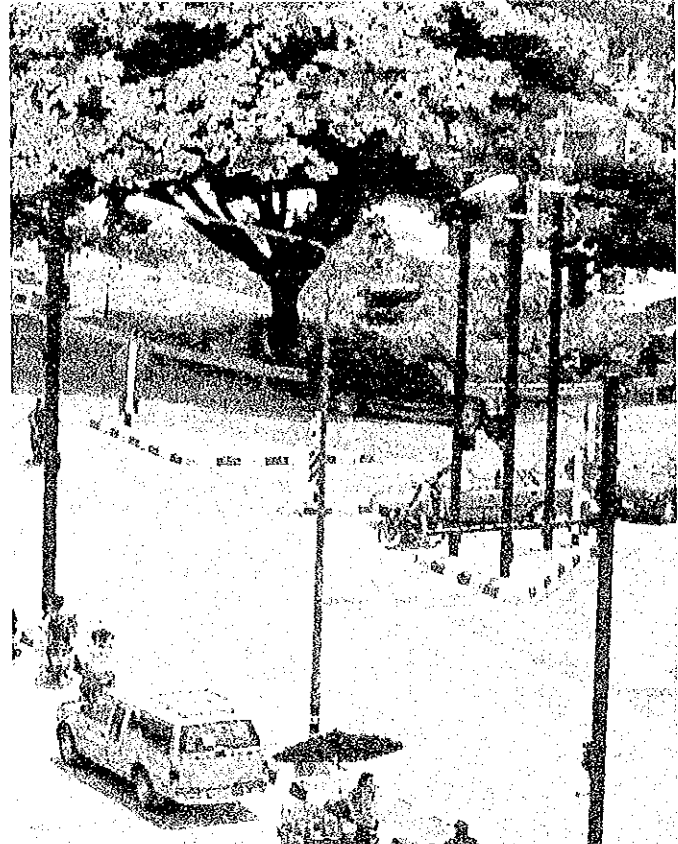
Final Report

September 2002

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IN THE KINGDOM OF THAILAND

FINAL REPORT

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JPY 1 = THB 0.35



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PREFACE

In response to a request from the Government of the Kingdom of Thailand, the Government of Japan decided to conduct a study on "The Study on Improvement of Road Traffic Environment in Chiang Mai City in the Kingdom of Thailand" and entrusted the study to the Japan International Cooperation Agency (JICA).

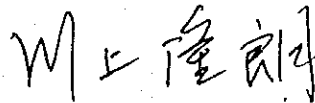
JICA selected and dispatched a study team headed by Mr. Chiaki Kuranami of PADECO, Co., Ltd. and Fukuyama Consultants Co., Ltd. to the Kingdom of Thailand, three times between July 2001 and August 2002. In addition, JICA set up an advisory committee headed by Mr. Atsushi Fukuda, Associate Professor, Nihon University, between July 2001 and August 2002, which examined the study from technical points of view.

The team held discussions with the officials concerned of the Government of the Kingdom of Thailand and conducted field surveys at the study area. Upon returning to Japan, the team conducted further studies and prepared this final report.

I hope that this report will contribute to the promotion of this project and to the enhancement of friendly relationship between our two countries.

Finally, I wish to express my sincere appreciation to the officials concerned of the Government of the Kingdom of Thailand for their close cooperation extended to the study team.

September 2002



Takao Kawakami
President
Japan International Cooperation Agency

September 2002

Mr. Takao Kawakami
President
Japan International Cooperation Agency
Tokyo, Japan

Letter of Transmittal

Dear Sir,

We are pleased to submit herewith the final report of "The Study on Improvement of Road Traffic Environment in Chiang Mai City in the Kingdom of Thailand".

This report presents the results of the study, which was undertaken in the Kingdom of Thailand, from July 2001 to August 2002 by the Study Team, organized jointly by PADECO Co., Ltd. and Fukuyama Consultants Co., Ltd.

The Study Team recommended projects for improving traffic environment based on the present traffic situation of Chiang Mai and made an implementation plan of the recommended projects until the target year of 2010. Furthermore, the signal system was installed in a dangerous intersection as a pilot project, and contributed greatly to the improvement of traffic safety at the site.

We owe a great deal to many people for the completion of this report. We would like to express our deep appreciation and sincere gratitude to all those who extended their kind assistance and cooperation to the Study Team, in particular, the concerned officials of the Royal Thai Police and Chiang Municipality in the Kingdom of Thailand.

We are very much thankful to the officials of your agency, the JICA Advisory Committee, the Ministry of Foreign Affairs, and Japan National Police Agency.

We do hope that the report will contribute to facilitating further socio-economic development in the Kingdom of Thailand.

Very truly yours,



Chiaki Kuranami
Team Leader

The Study on Improvement of Road Traffic Environment
in Chiang Mai City in the Kingdom of Thailand

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LIST OF ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
AR	All Red
ATC	Automatic Traffic Control
BHT	Thai Baht
CBD	Central Business District
CCTV	Closed Circuit Television
CH	Charoen Prathet / Chang Klan Road Area (for school survey)
CM	Chiang Mai
CMU	Chiang Mai University
CPU	Central Processing Unit
DOH	Department of Highway
DS	Degree of Saturation
DTCP	Department of Town and Country Planning
DTS	Pedestrian Traffic Volume Survey
ETA	Expressway and Rapid Transit Authority
EVS	School Area Entry & Exit Volume Survey
EVT	Electric-Powered Vehicle Transit
GDP	Gross Domestic Products
IQS	Intersection Queue Length Survey
ITM	Intersection Traffic Movement Survey
J-#	Traffic Counting at Junction - (Location Number)
JBIC	Japan Bank for International Cooperation
JICA	Japan International Cooperation Agency
KN	Kaeo Nawarat Road Area (for school survey)
LED	Light Emitting Diode
LR	Load Ratio
LTD	Land Transport Department
LTO	Land Transport Office
MOCM	Municipality of Chiang Mai
MODERATO	Management by Origin-Destination Related Adaptation for Traffic Optimization
MS	Microsoft
MTBF	Mean Time Between Failures
NMT	Non Motorized Transport (Pedestrians & Bicycles)
NTCT	Northern Technical Center for Traffic System Management
OCMLT	Office of the Commission for Management of Land Traffic
OCMRT	Office of the Commission for Management of Road Traffic
OD	Origin and Destination
OS	Operation System
PCU	Passenger Car Unit
PFS	Parking Facility Survey
PI	Performance Index
PTS	Public Transport Operation and Utilization Survey
PWD	Public Works Department
RTP	Royal Thai Police

SCATS	Sydney Coordinated Adaptive Traffic System
SCOOT	Split, Cycle and Offset Optimization Technique
STS	School Trip Interview Survey
TC-#	Traffic Counting - (Location Number)
TDM	Transport Demand Management
TOD	Time-of-Day
TOR	Terms of Reference
TOT	Telephone Organization of Thailand
TVS	Cross-section Traffic Volume Survey
V/C	Volume per Capacity
VMS	Variable Message Signs
VOS	Vehicle Occupancy Survey