

NO.

**JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)**

**THE GOVERNMENT OF MALAYSIA  
PRIME MINISTER'S DEPARTMENT  
ECONOMIC PLANNING UNIT**

**THE STUDY  
ON  
INTEGRATED URBAN DRAINAGE IMPROVEMENT  
FOR  
MELAKA AND SUNGAI PETANI  
IN MALAYSIA**

**FINAL REPORT**

**VOL. 2: MAIN REPORT**

**AUGUST 2000**

**CTI ENGINEERING INTERNATIONAL CO., LTD.  
IN ASSOCIATION WITH  
PASCO INTERNATIONAL, INC.**

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### **ESTIMATE OF PROJECT COST**

Price Level : As of May 1999  
Currency Conversion Rate : US\$1.00 = RM 3.8 = 121.4 Yen

## PREFACE

In response to a request from the Government of Malaysia, the Government of Japan decided to conduct Development Study on Integrated Urban Drainage Improvement for Melaka and Sungai Petani and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA selected and dispatched a study team headed by Mr. Makihiko Otagawa of CTI Engineering International Co., Ltd. to Malaysia, three times between January 1999 and July 2000. In addition, JICA set up an advisory committee, which examined the study from specialist and technical points of view.

The team held discussion with the officials concerned of the Government of Malaysia 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 Malaysia for their close cooperation extended to the Team.

August 2000

A handwritten signature in black ink, reading "Kimio Fujita". The signature is written in a cursive style with a long horizontal stroke at the end.

Kimio Fujita  
President  
Japan International Cooperation Agency

August 2000

Mr. Kimio Fujita  
President  
Japan International Cooperation Agency  
Tokyo, Japan

LETTER OF TRANSMITTAL

Sir:

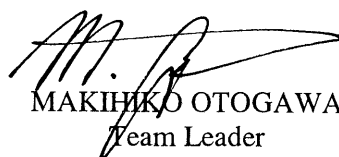
We are pleased to submit herewith the Final Report on the Study on Integrated Urban Drainage Improvement for Melaka and Sungai Petani in Malaysia. Under a contract with the Japan International Cooperation Agency, the Study was conducted by CTI Engineering International Co., Ltd., in association with PASCO International, Inc., during the period from February 1999 to July 2000.

This Final Report presents the results of the two study phases. The first phase was the formulation of the drainage structure plan for two regional urban centers; namely, Sungai Petani and Melaka with the target year of 2020, while the second phase was for the feasibility study on the urban drainage improvement for the four (4) priority areas selected. The second phase further included the preparation of a technical guideline on the integrated urban drainage improvement. In the course of the Study, much attention was given to the particular issues on urban drainage in Malaysia, and reflected them in the proposed drainage improvement plan and the technical guideline.

We wish to take this opportunity to express our sincere gratitude to the Japan International Cooperation Agency, the Ministry of Foreign Affairs, the Ministry of Construction and other related agencies in Japan. We would also like to extend our deep appreciation to the officials concerned of the Government of Malaysia, especially the Economic Planning Unit, Prime Minister's Department and the Department of Irrigation and Drainage, Ministry of Agriculture.

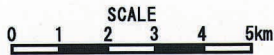
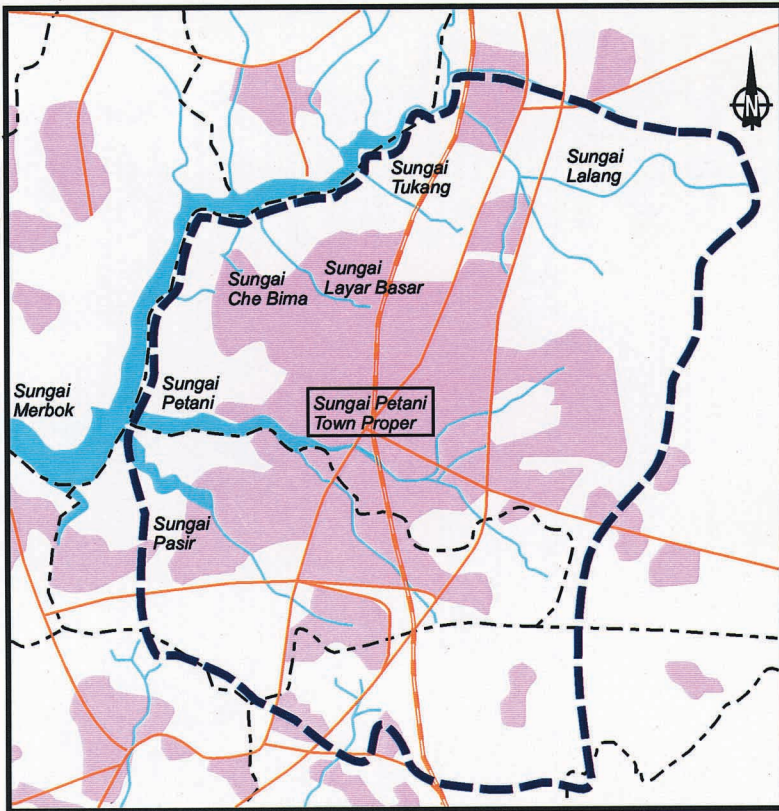
Finally, we hope that this Report will contribute to the urban drainage improvement in Malaysia.

Very truly yours,

  
MAKIHIKO OTOGAWA  
Team Leader

Study on Integrated Drainage Improvement  
for Melaka and Sungai Petani in Malaysia

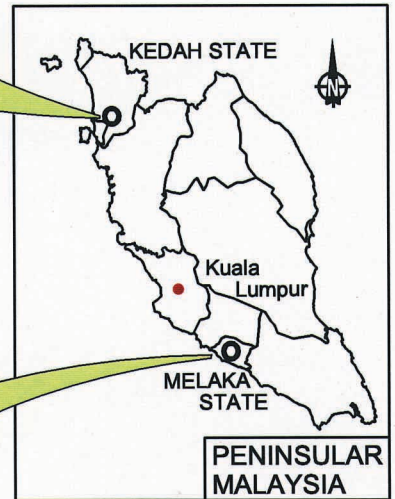
# SUNGAI PETANI



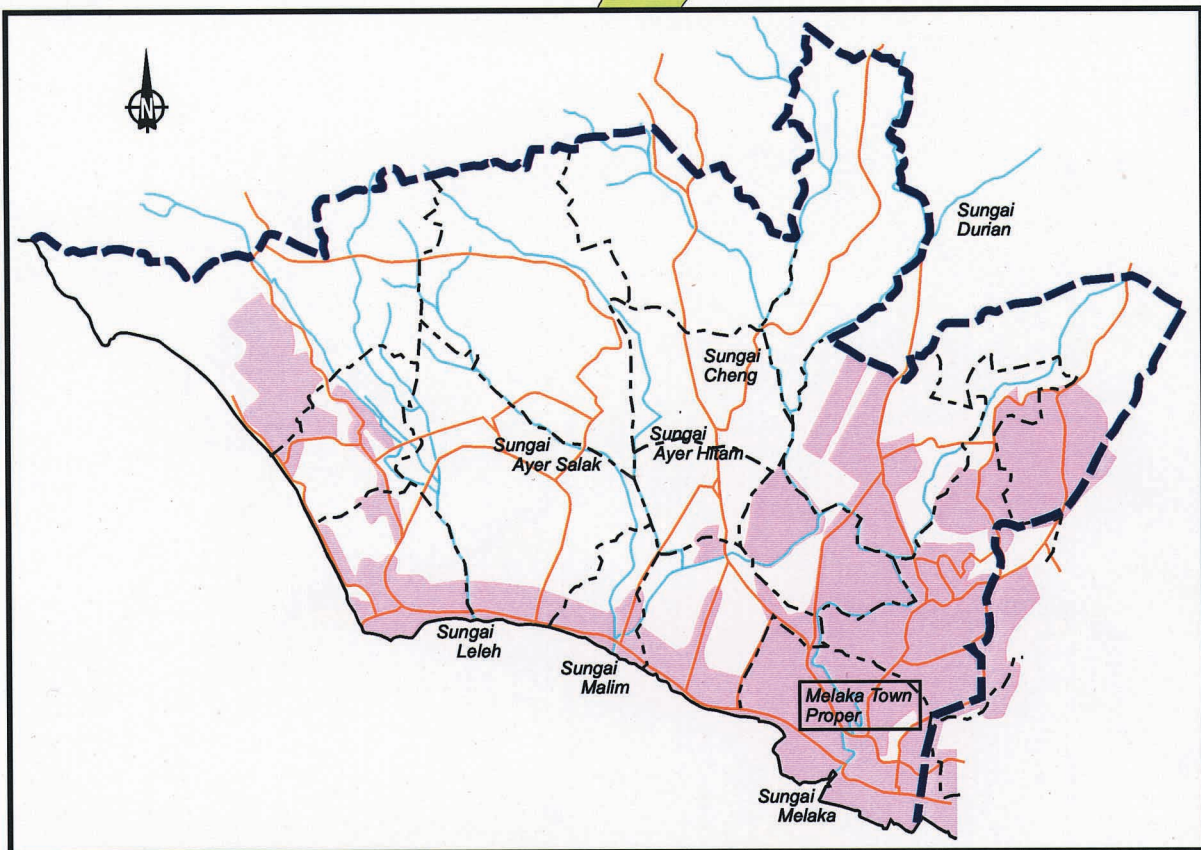
# GENERAL MAP

## LEGEND

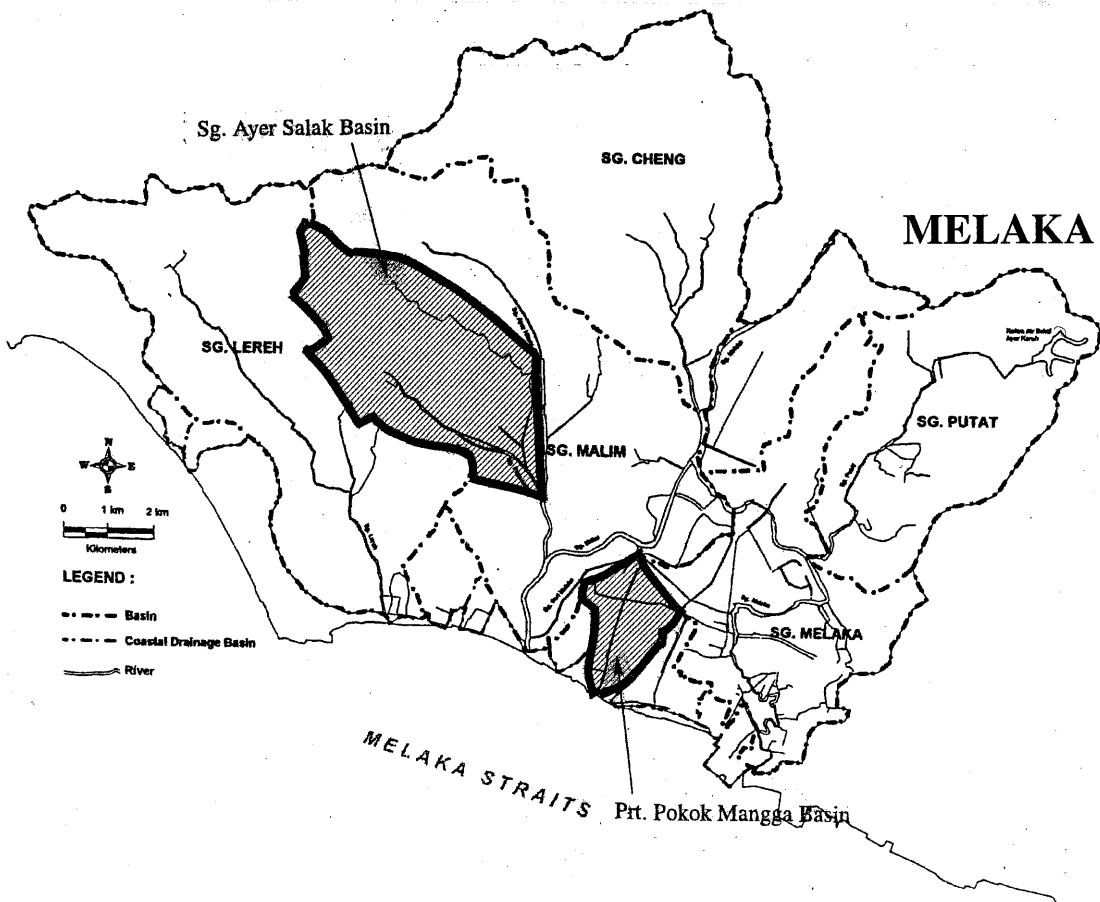
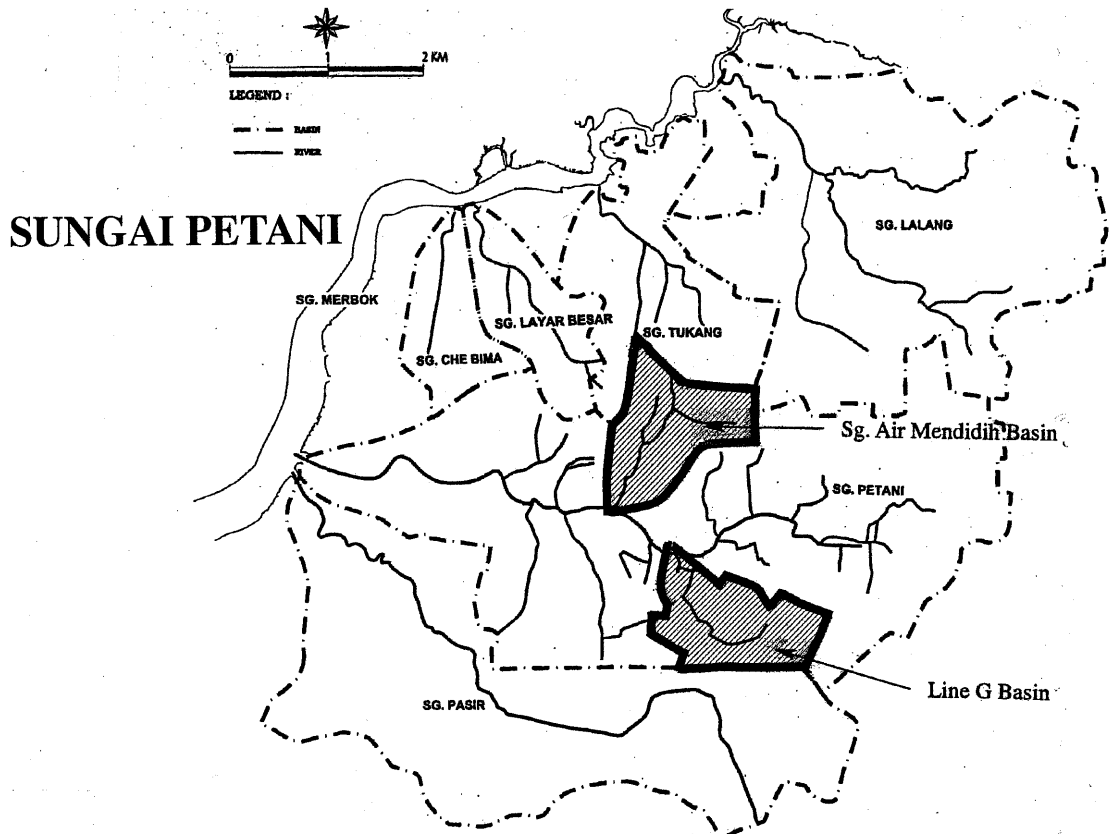
- Principal Road
- Railway
- Mukim Boundary
- Built-up Area
- Study Area



# MELAKA



# LOCATION MAP OF PRIORITY AREAS



**THE STUDY  
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IN MALAYSIA**

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