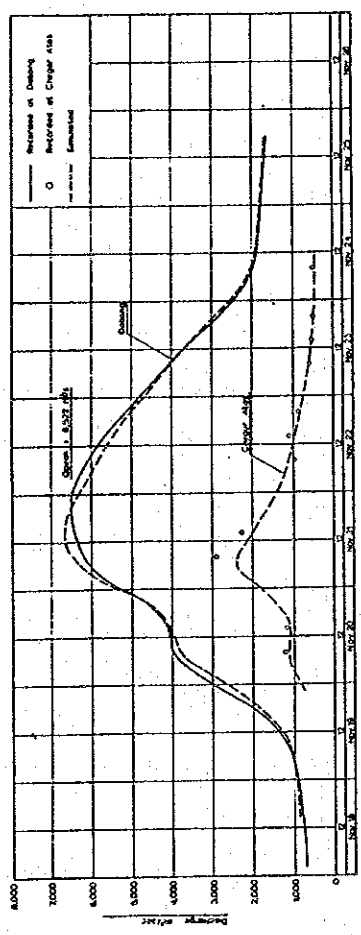

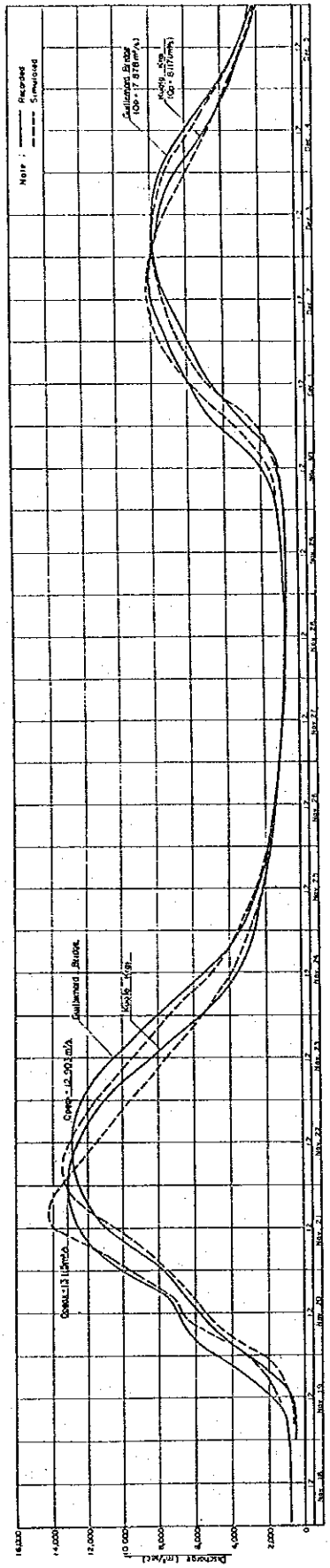

Fig.3.7

Recorded and Simulated Hydrographs

GOVERNMENT OF MALAYSIA
STUDY
ON
KELANTAN RIVER BASIN - WIDE FLOOD MITIGATION
JAPAN INTERNATIONAL COOPERATION AGENCY

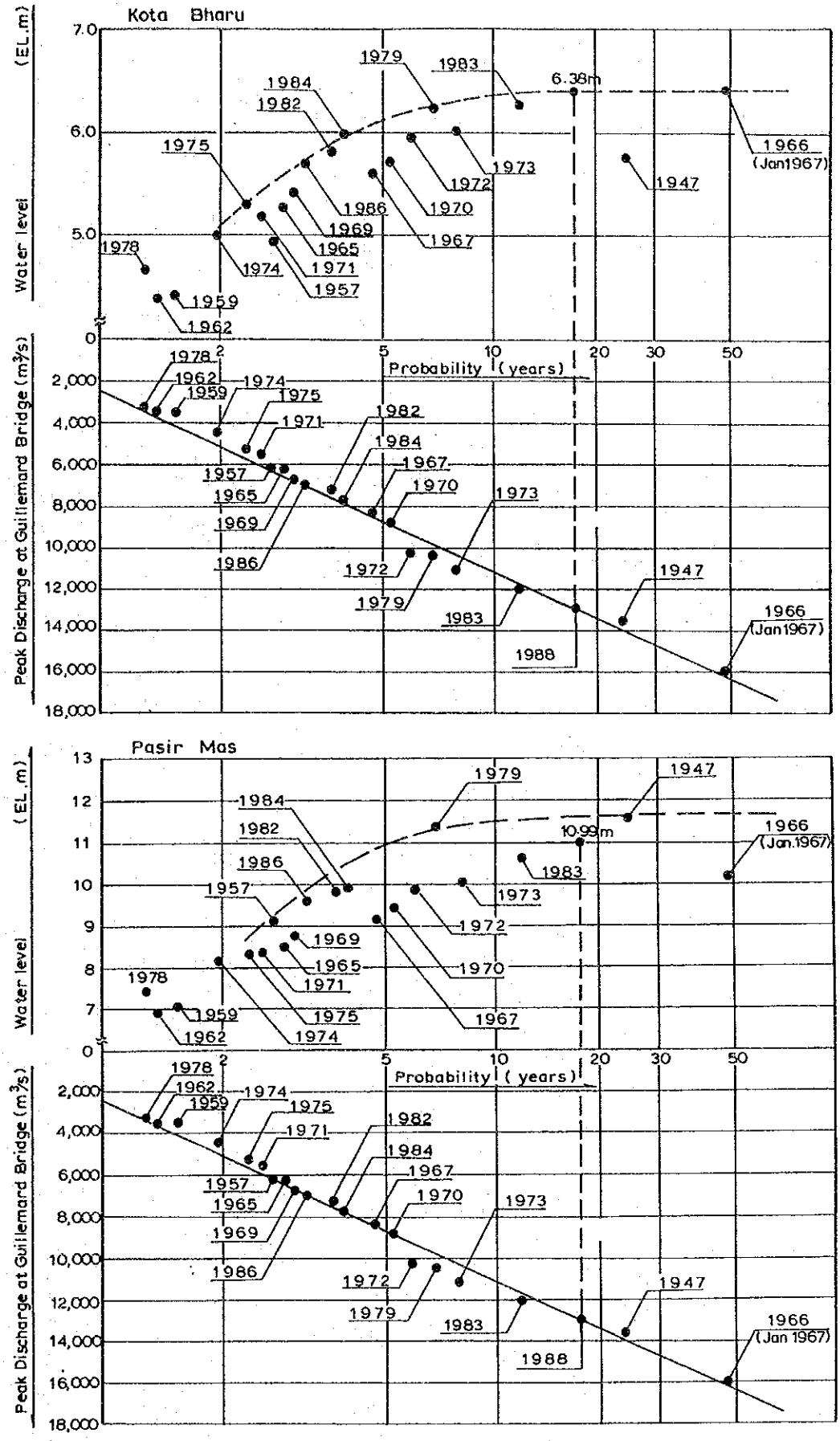

Fig.3.8

Inundation Depth in the Urban Areas

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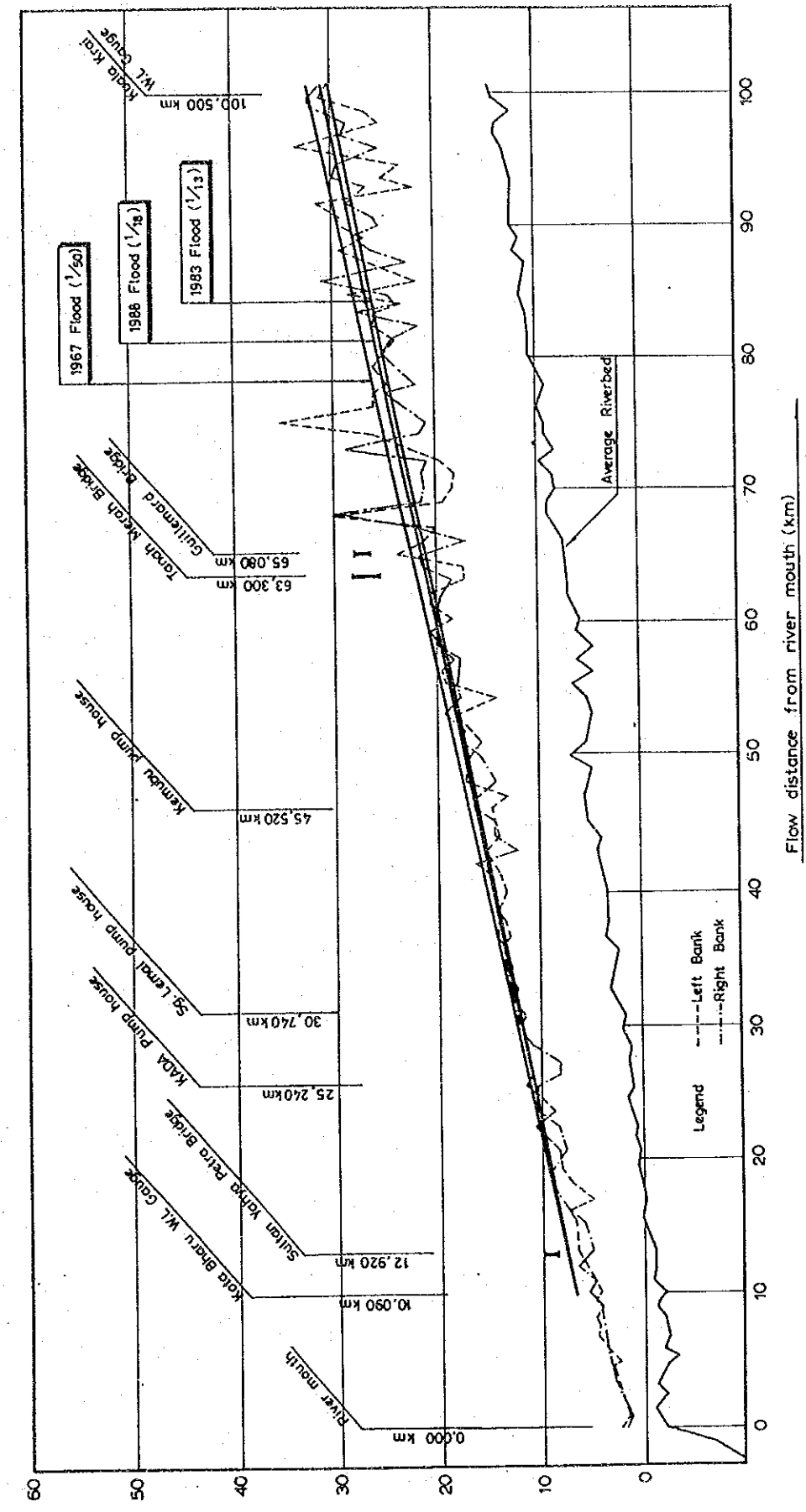

Fig.3.9

Longitudinal Profile of Flood Water Level in the Kelantan River

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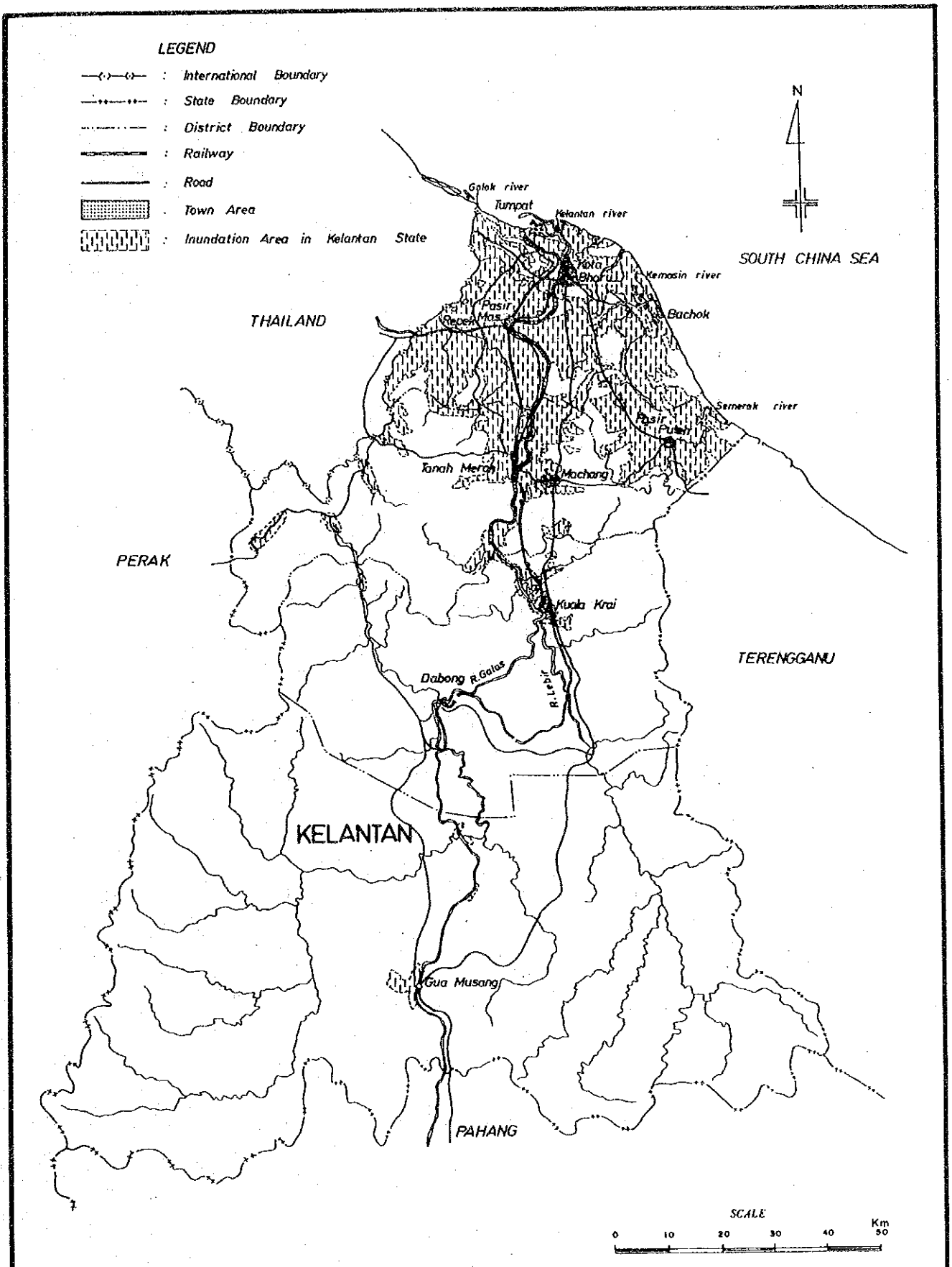

Fig.4.1

Inundation Area of the 1988 Flood in the State of Kelantan

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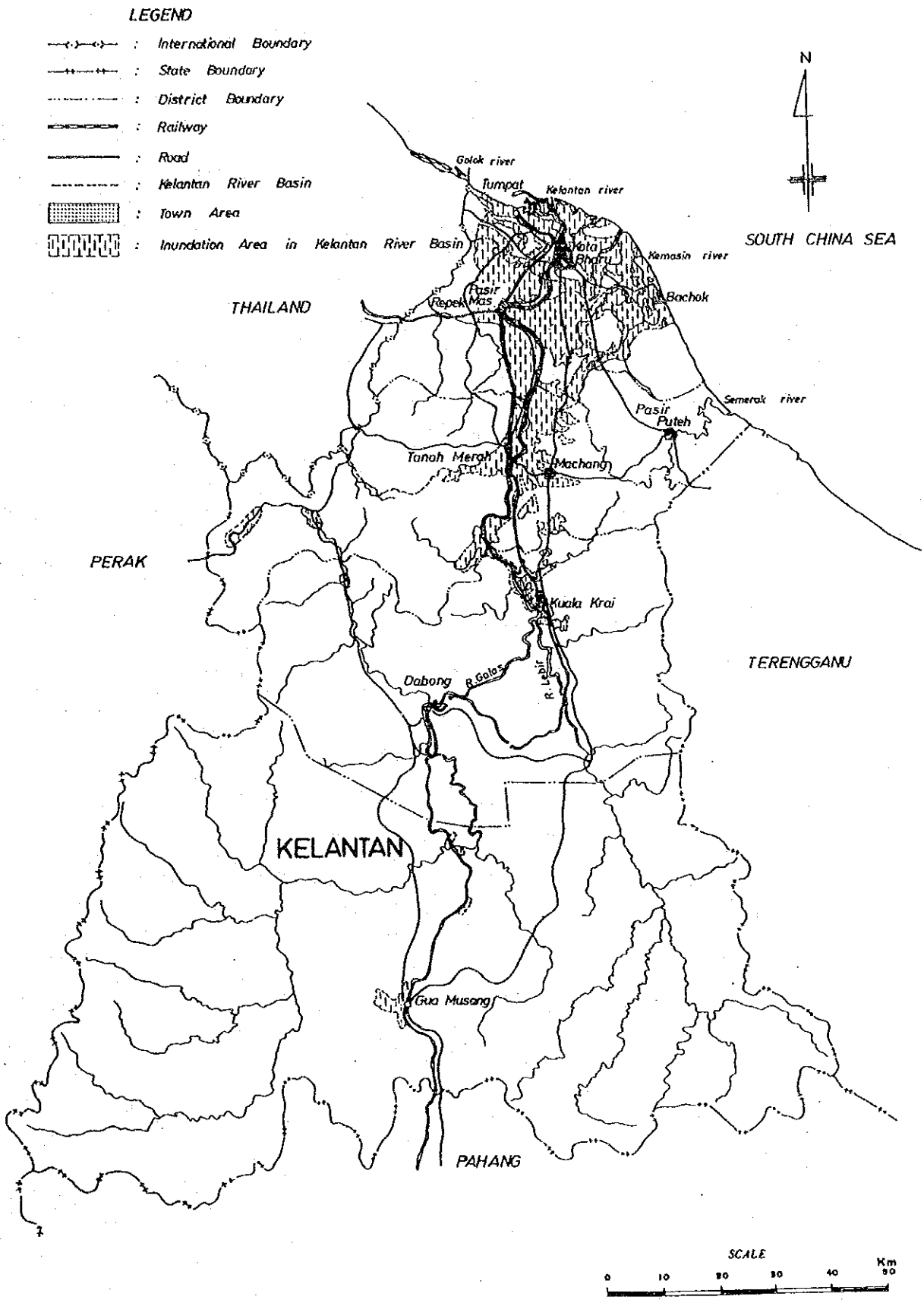

Fig.4.2

Inundation Area of the 1988 Flood in the Kelantan River Basin

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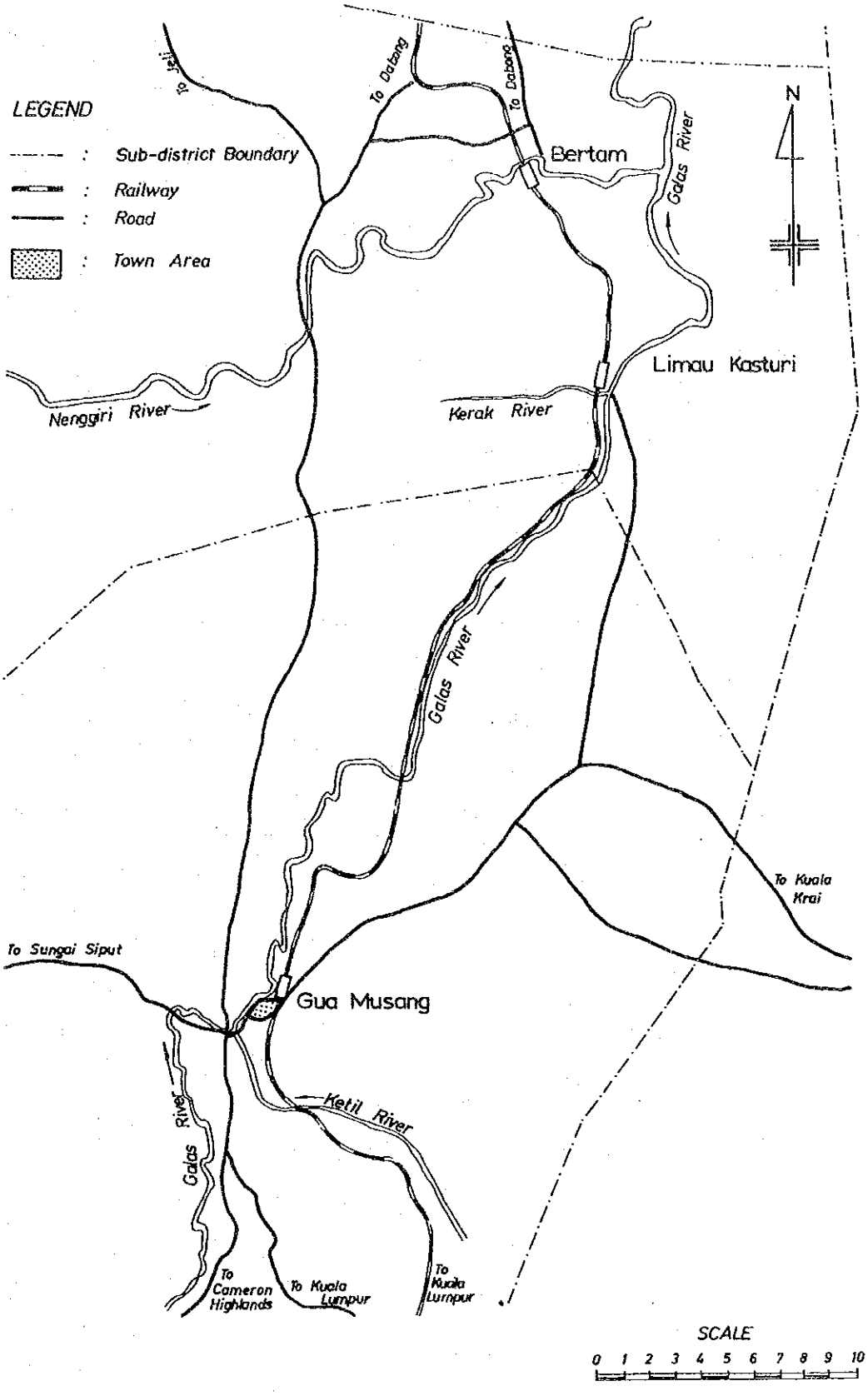

Fig.4.3

Location Map of Gua Musang, Limau Kasturi and Bertam

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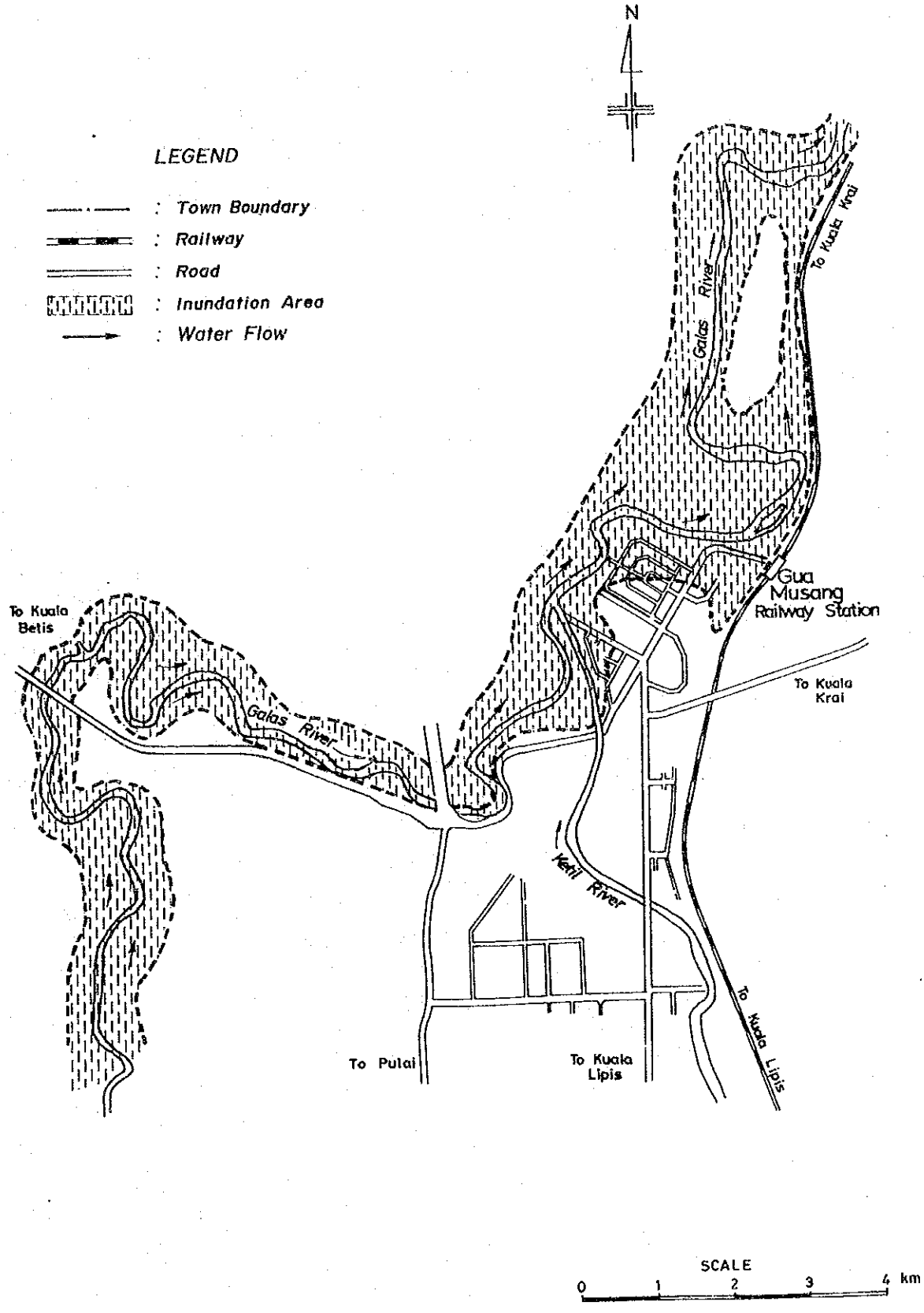

Fig.4.4

Inundation Area of the 1988 Flood in the Town Area of Gua Musang

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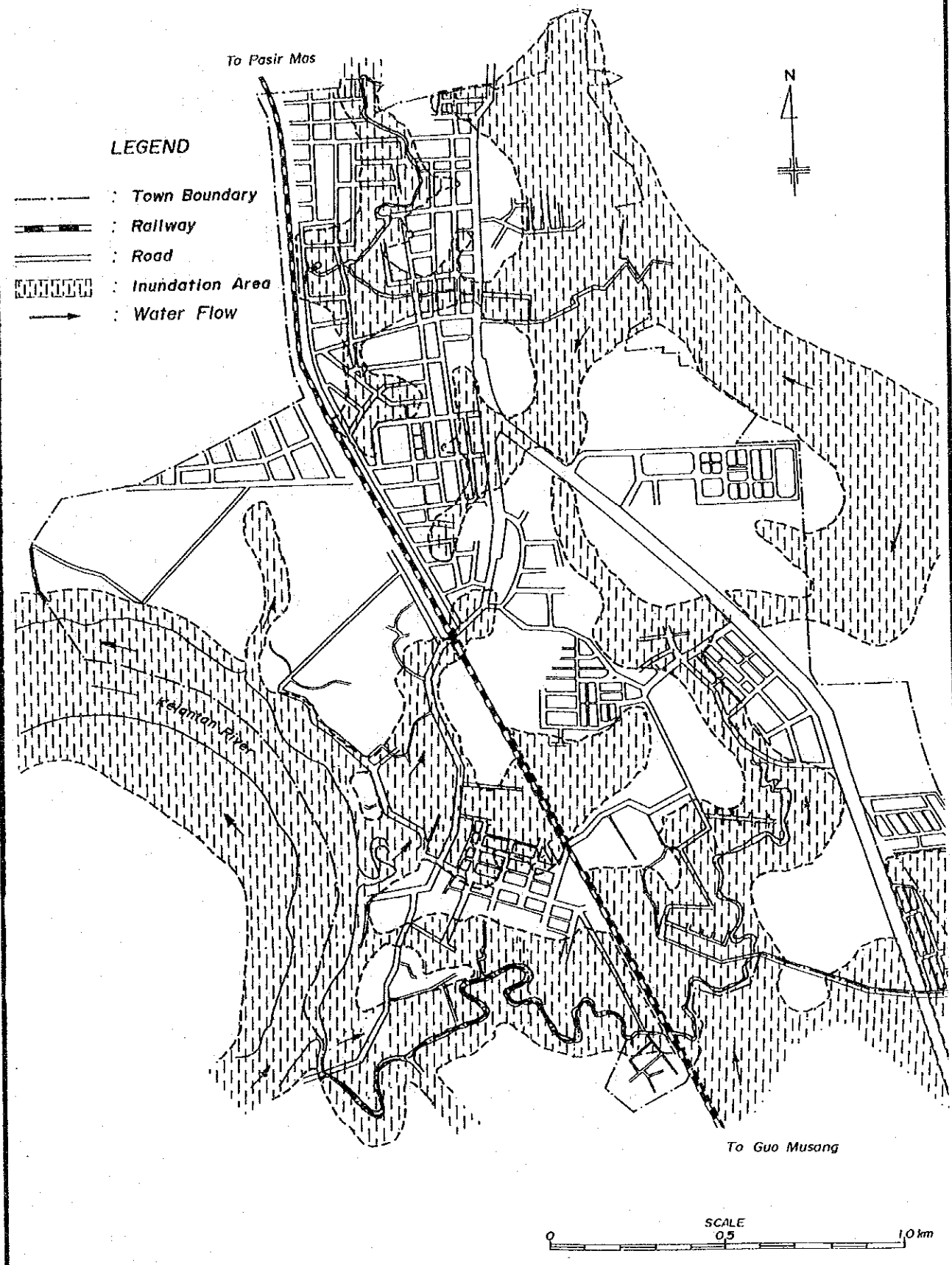

Fig.4.5

Inundation Area of the 1988 Flood in the Town Area of Kuala Krai

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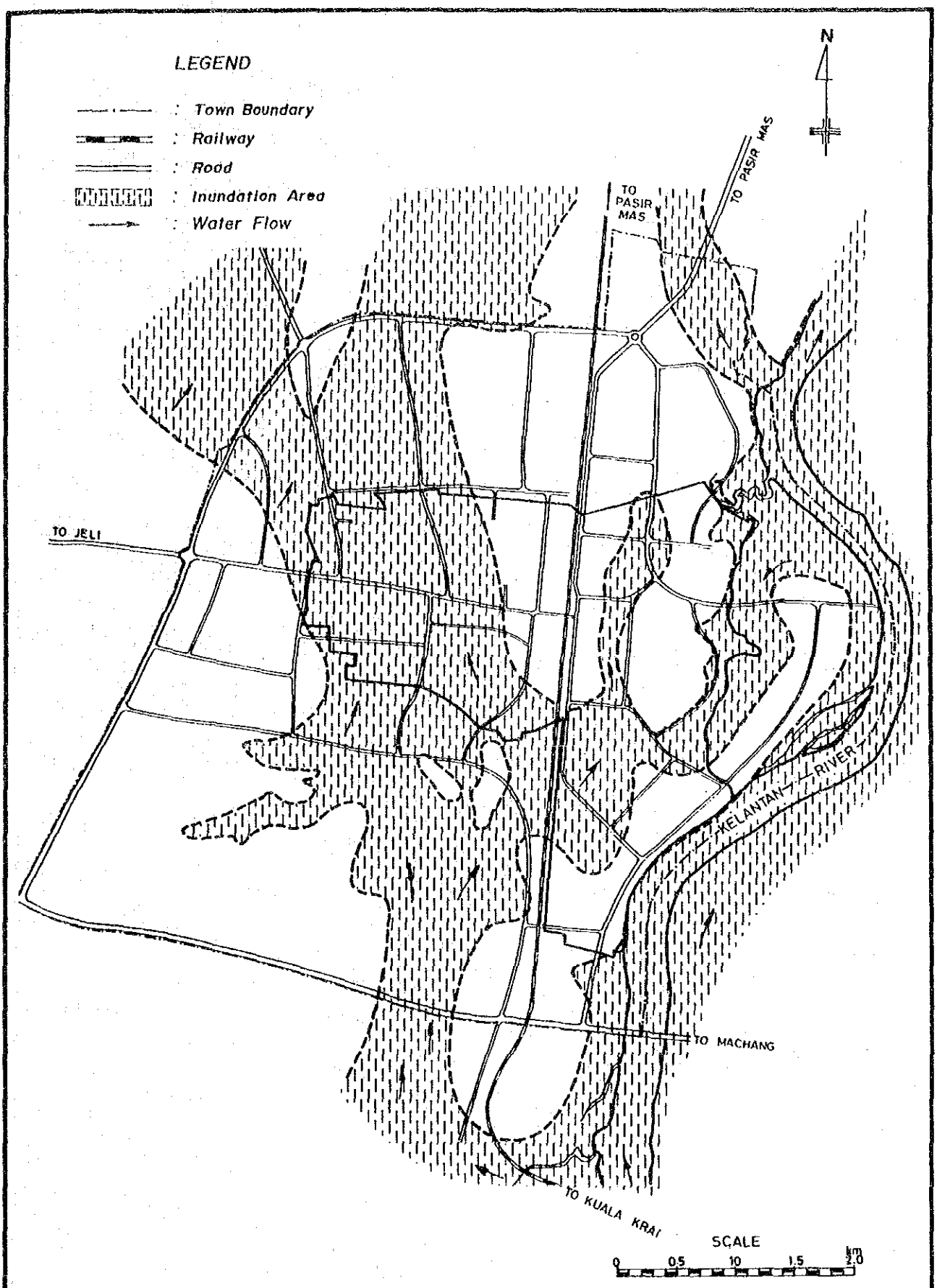

Fig.4.6

Inundation Area of the 1988 Flood in the Town Area of Tanah Merah

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ON
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JAPAN INTERNATIONAL COOPERATION AGENCY

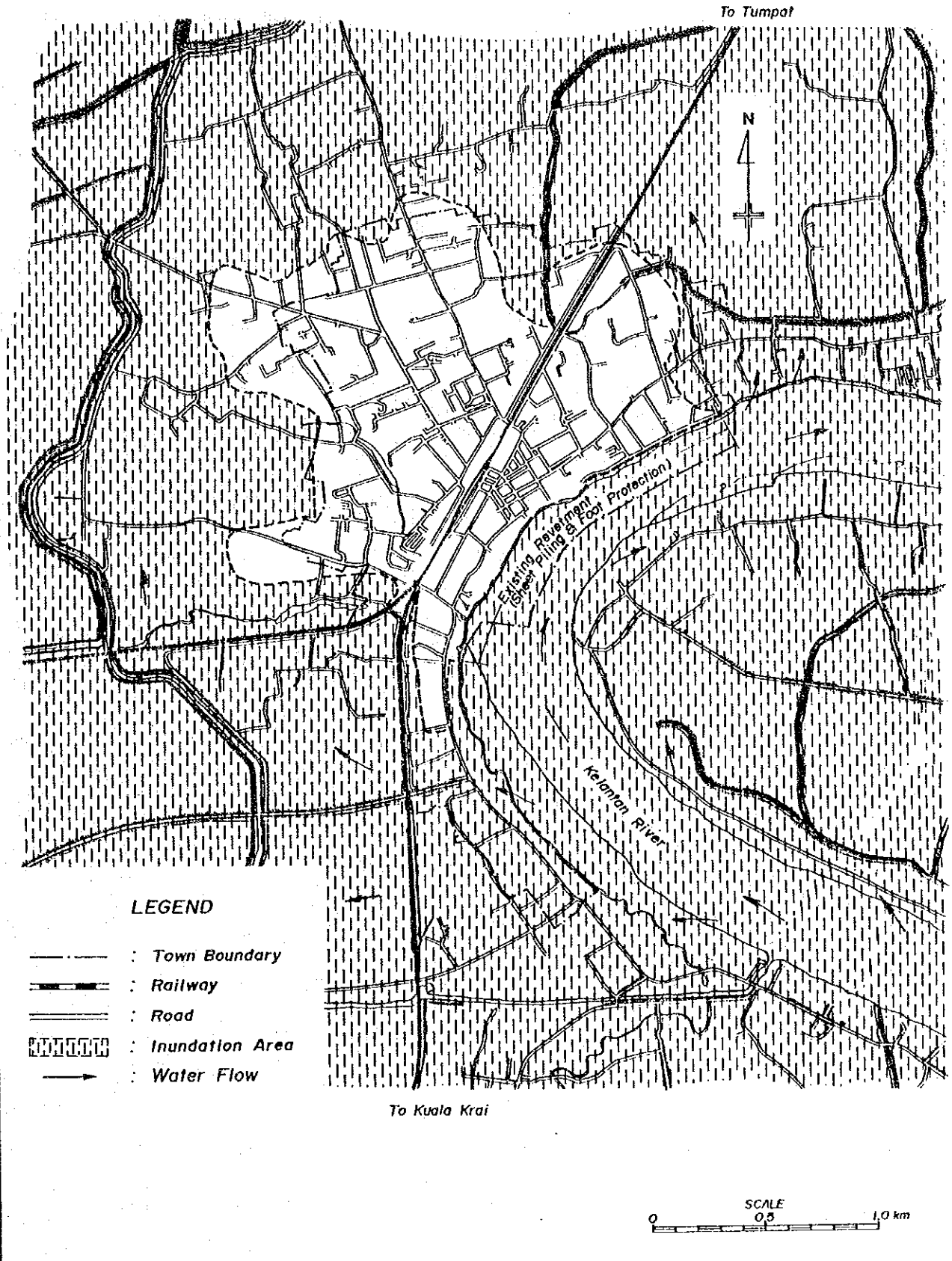

Fig.4.7

Inundation Area of the 1988 Flood in the Town Area of Pasir Mas

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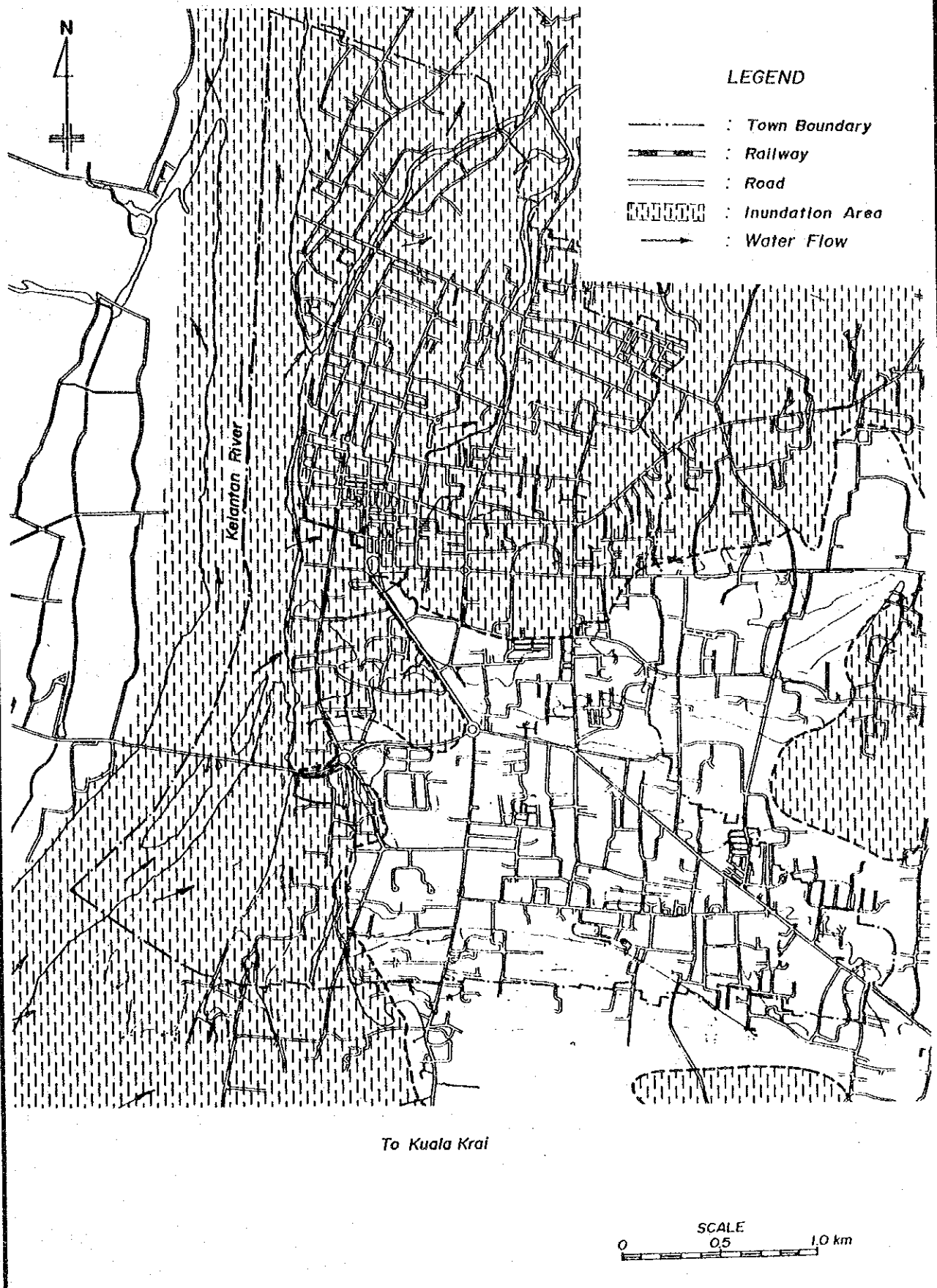

Fig.4.8

Inundation Area of the 1988 Flood in the Town Area of Kota Bharu

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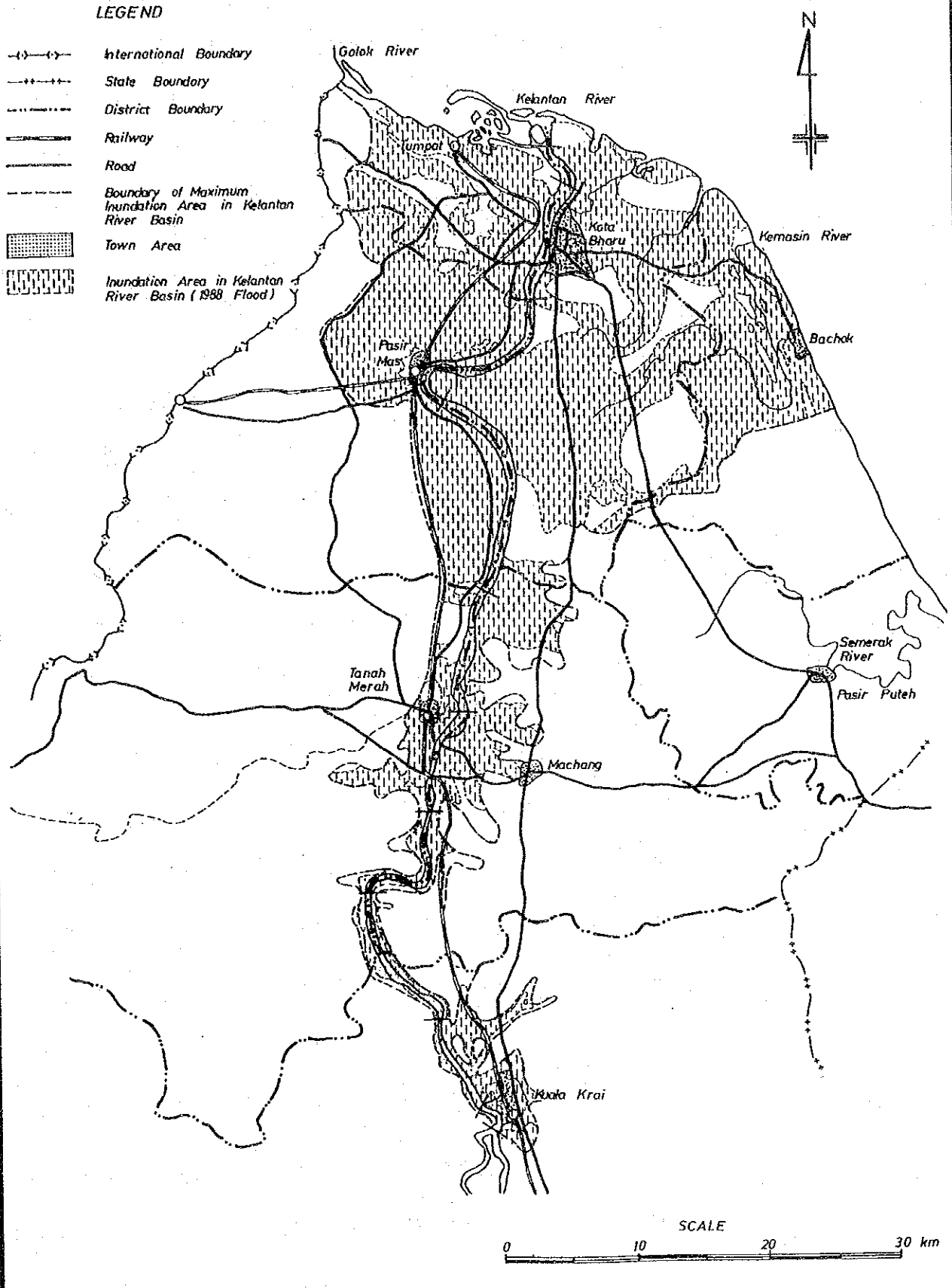

Fig.5.1

Inundation Area of the 1988 Flood in the Downstream Area of Kelantan River Basin

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JAPAN INTERNATIONAL COOPERATION AGENCY

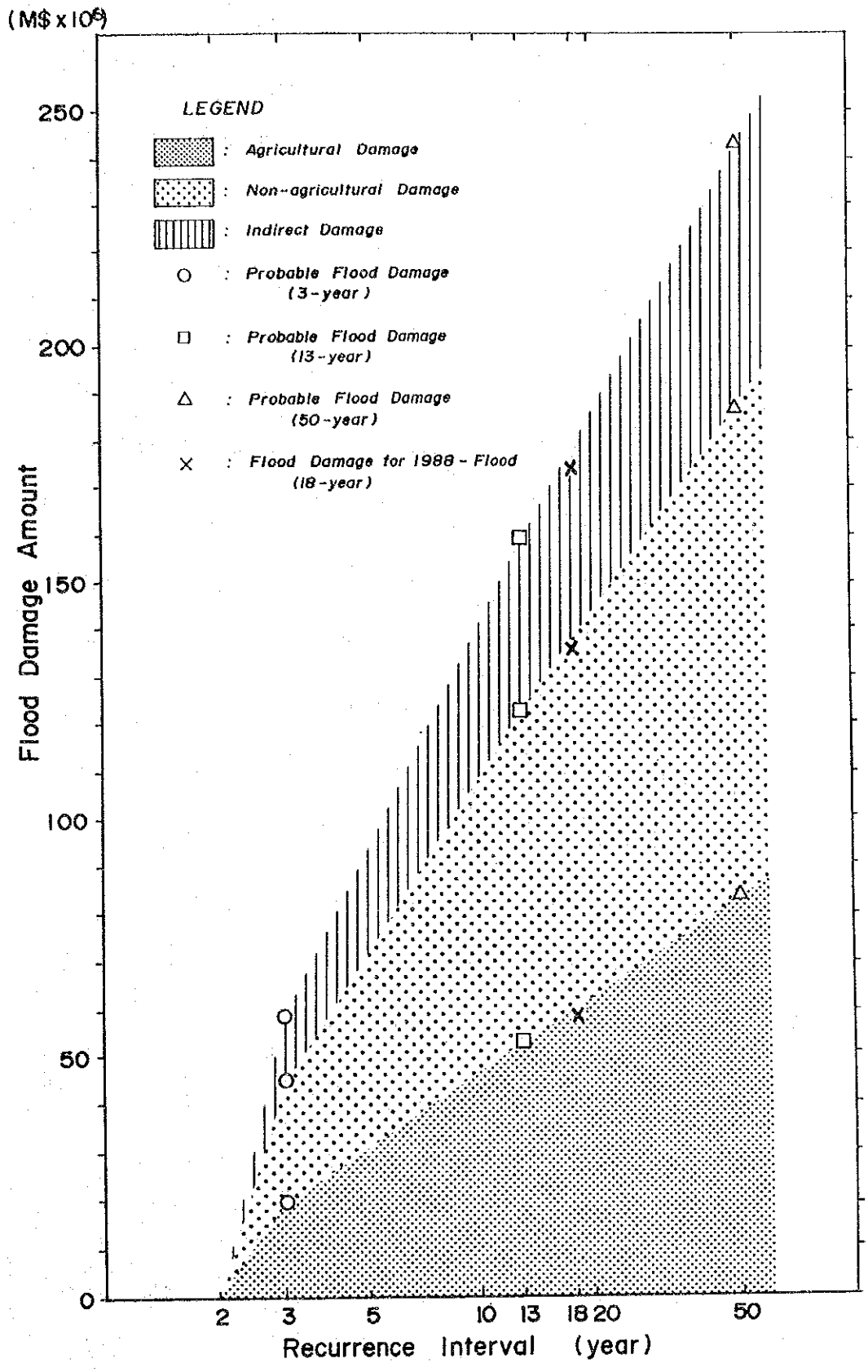

Fig.5.2

Relation between Flood Damage and its Recurrence Interval in the Kelantan River Basin

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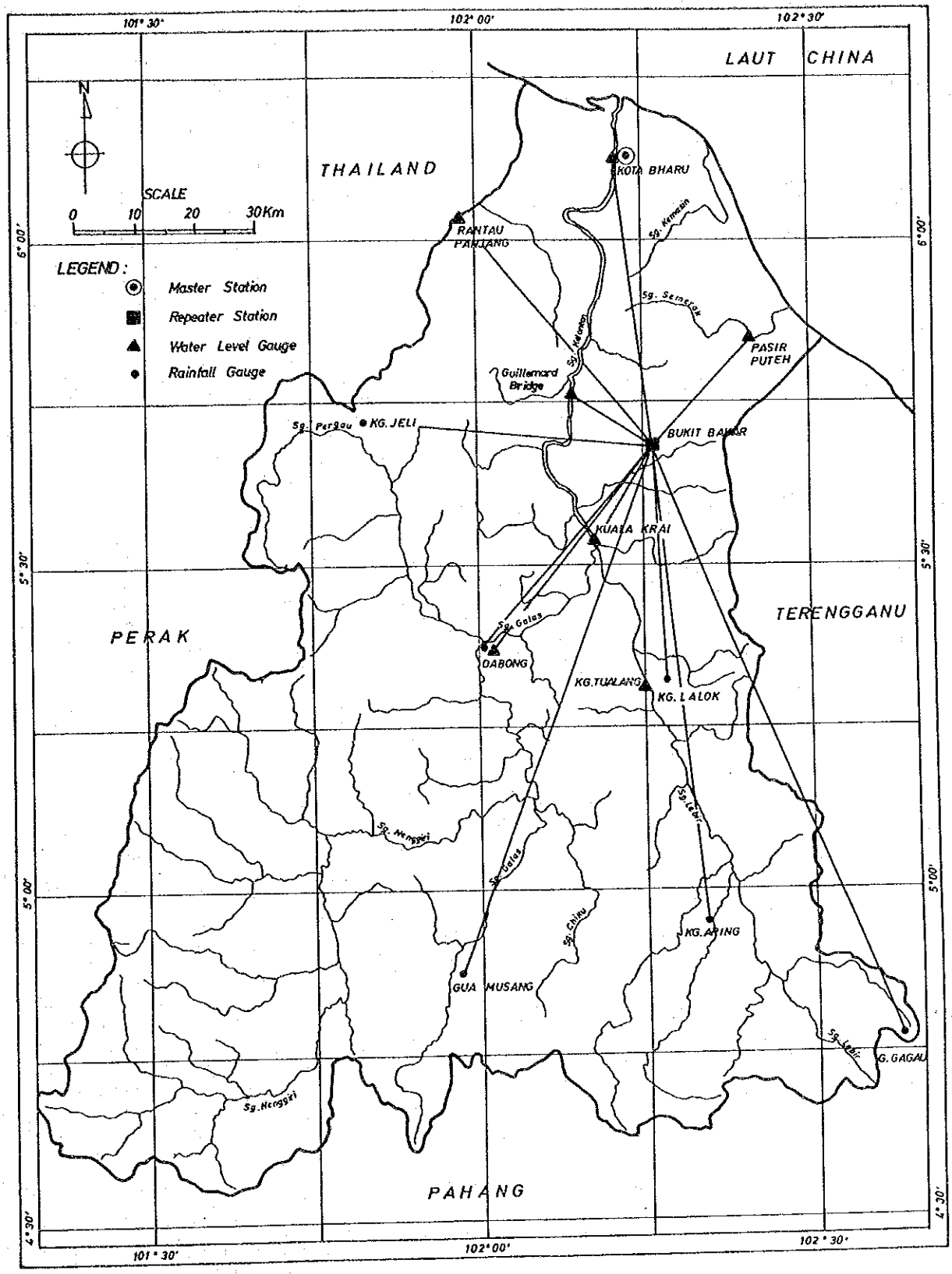

Fig.6.1

Telemetric Network of Flood Forecasting and Warning System

GOVERNMENT OF MALAYSIA
STUDY
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JAPAN INTERNATIONAL COOPERATION AGENCY

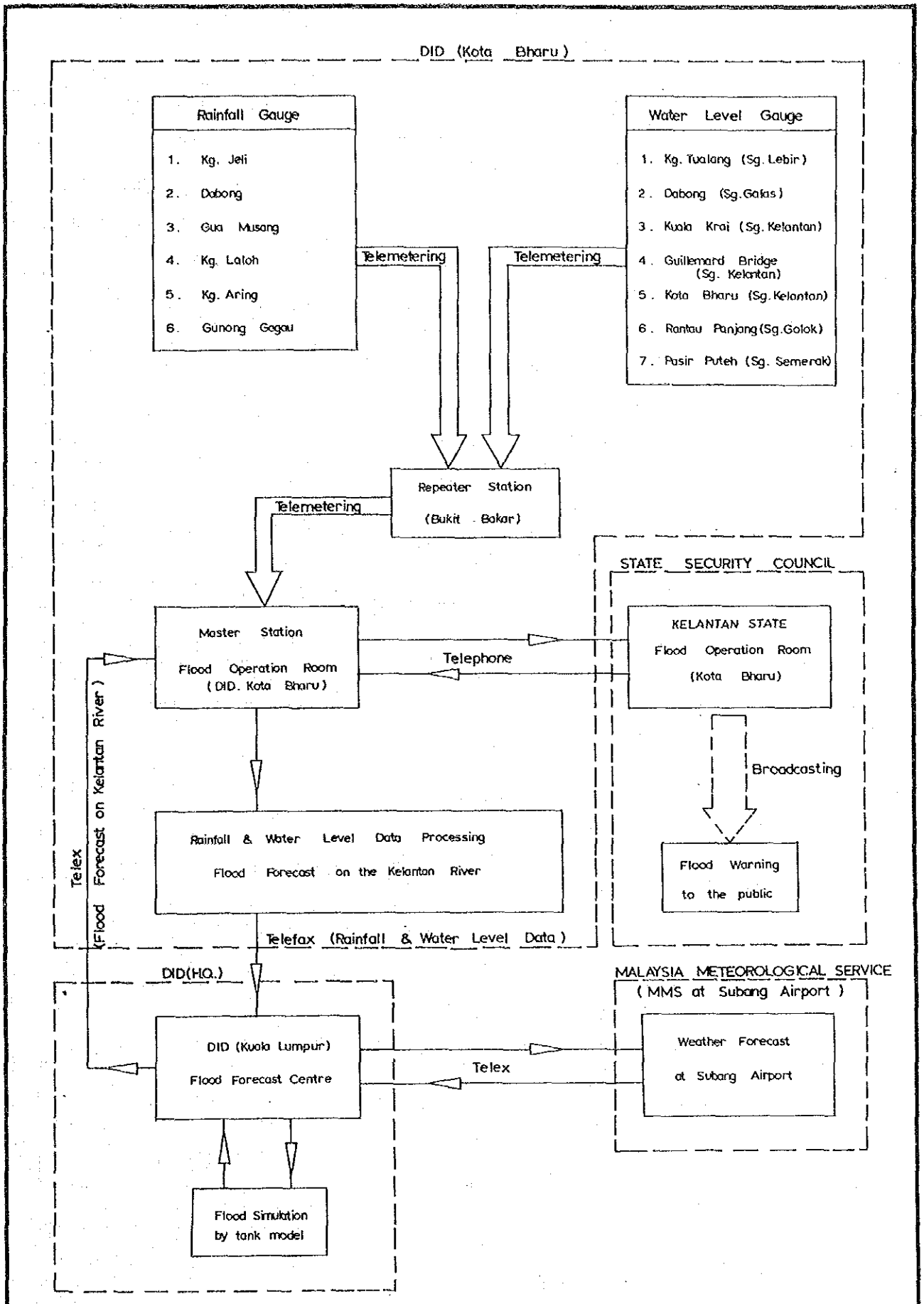

Fig.6.2

Schematic Diagram of Flood Forecasting and Warning System

GOVERNMENT OF MALAYSIA
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ON
KELANTAN RIVER BASIN - WIDE FLOOD MITIGATION
JAPAN INTERNATIONAL COOPERATION AGENCY

DATA MASUKAN UNTUK RAMALAN BANJIR

NEGERI: KELANTAN

SISTEM SUNGAI: SUNGAI KELANTAN

DATA CURAHAN HUJAN

STESEN	NOMBOR STESEN	"WEIGHT THIESSEN"	JUMLAH HUJAN (mm) SETIAP 6 JAM				JUMLAH
			1400	2000	0200	0800	
Kg. Jeli	5718033	0.10					
Dabong	5320038	0.20					
Gua Musang	4819027	0.27					
Kg. Lalok	5322044	0.15					
Kg. Aring	4923001	0.16					
Gunung Gagau	4726001	0.03					
Gunung Brincang	4513033	0.09					
PURATA HUJAN/Cara Thiessen							

DATA PARAS AIR SUNGAI

STESEN	NOMBOR STESEN	BACAAN PARAS AIR (M) SETIAP 6 JAM			
		1400	2000	0200	0800
Sg. Kelantan di Jam. Guillemard	5721442				
Sg. Kelantan di Kuala Krai	5521444				
Sg. Kelantan di Jetti Kastam	6122441				
Sg. Lebir di Kg. Tualang	5222452				
Sg. Galas di Dabong	5320443				
Sg. Golok di Rantau Panjang	6019411				
Sg. Semerak di Pasir Putih	-				

Fig. 6.3

Typical Data Sheet of Telemetric Data

GOVERNMENT OF MALAYSIA
STUDY
ON
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JAPAN INTERNATIONAL COOPERATION AGENCY

PER: WEATHER OUTLOOK FOR PERIOD 16 NOV. 1988 VALID TILL 22 NOV. 1988.

PENINSULAR MALAYSIA	SABAH AND SARAWAK
WEATHER CONDITION ARE EXPECTED TO BECOME WETTER FOR THE WHOLE PENINSULAR FOR THE NEXT ONE WEEK. THERE IS A HIGH POSSIBILITY OF A HEAVY RAIN SPELL OCCURRING IN THE EAST COAST STATES ESPECIALLY IN KELANTAN, TERENGGANU AND EASTER PAHANG AND NORTH EASTERN JOHORE FROM ABOUT 17 NOV. LASTING FOR 3 - 4 DAYS. PERLIS, KEDAH AND PENANG MAY BECOME DRIER TOWARDS THE END OF THE ONE WEEK PERIOD.	THE WEATHER CONDITIONS WILL REMAIN TO BE WET THROUGHOUT THE WEEK AS THE PAST WEEK. THERE IS A POSSIBILITY OF HEAVY THUNDERSTORMS IN LOCAL AREAS IN SARAWAK.

SEKIAN.

SUBJECT: WEATHER ADVISORY AND OUTLOOK

FURTHER TO THE ADVISORY ISSUED ON 20TH NOVEMBER 1988, THE CURRENT WIDESPREAD HEAVY RAIN IN KELANTAN, PERLIS AND KEDAH IS EXPECTED TO GRADUALLY EASE OFF FROM TONIGHT 21.11.88. HOWEVER, CLOUDY WITH MORNING INTERMITTENT SLIGHT RAIN IN KELANTAN, PARTICULARLY OVER THE COASTAL AREA, IS EXPECTED TO PERSIST TILL 23.11.88 MORNING WHEREAS PERLIS AND KEDAH ARE EXPECTED TO BE CLOUDY WITH OCCASIONAL SLIGHT RAIN TILL 22.11.88. FROM 21.11.88 TILL 24.11.88 OTHER EAST AND WEST COAST STATES ARE EXPECTED TO EXPERIENCE AFTERNOON AND EVENING SHOWERS/THUNDERSTORMS IN MANY PLACES. MEANWHILE MANY PLACES IN SARAWAK ARE STILL EXPECTED TO HAVE EVENING AND EARLY MORNING HEAVY THUNDERSTORMS.

ANOTHER SPELL OF MONSOON RAIN MAY OCCUR ALONG THE EAST COAST STATES OF PENINSULAR MALAYSIA AROUND 24.11.88 AND ADVISORY/WARNING WILL BE ISSUED WHENEVER NECESSARY.

ISSUED BY PKB AND PPP AT 2.30 P.M. ON 21.11.88.

Fig. 6.4

Samples of Weather Report (Nov.16 and 21, 1988)

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JAPAN INTERNATIONAL COOPERATION AGENCY

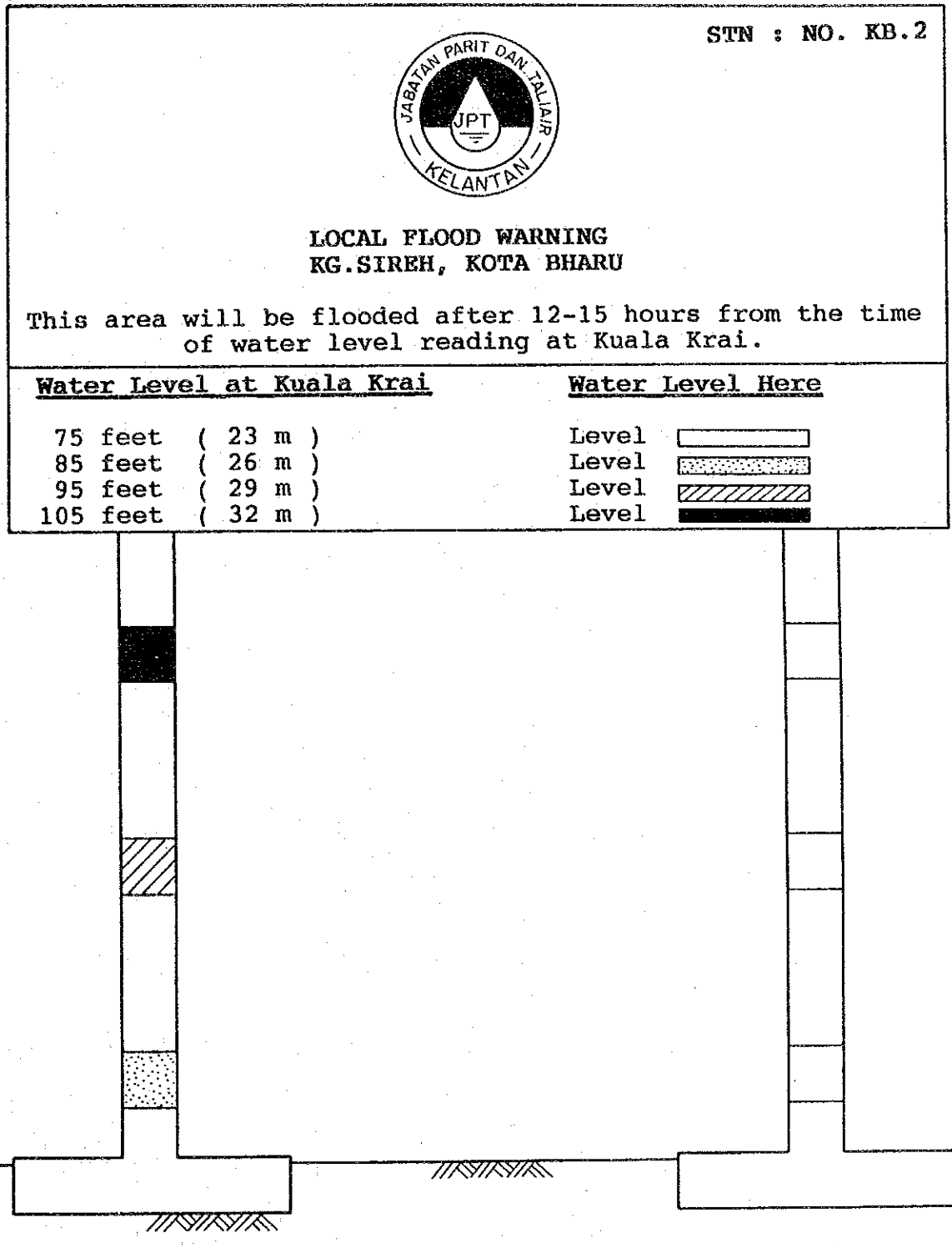

Fig. 6.5

Typical Flood Warning Board (FWB)

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STUDY
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JAPAN INTERNATIONAL COOPERATION AGENCY

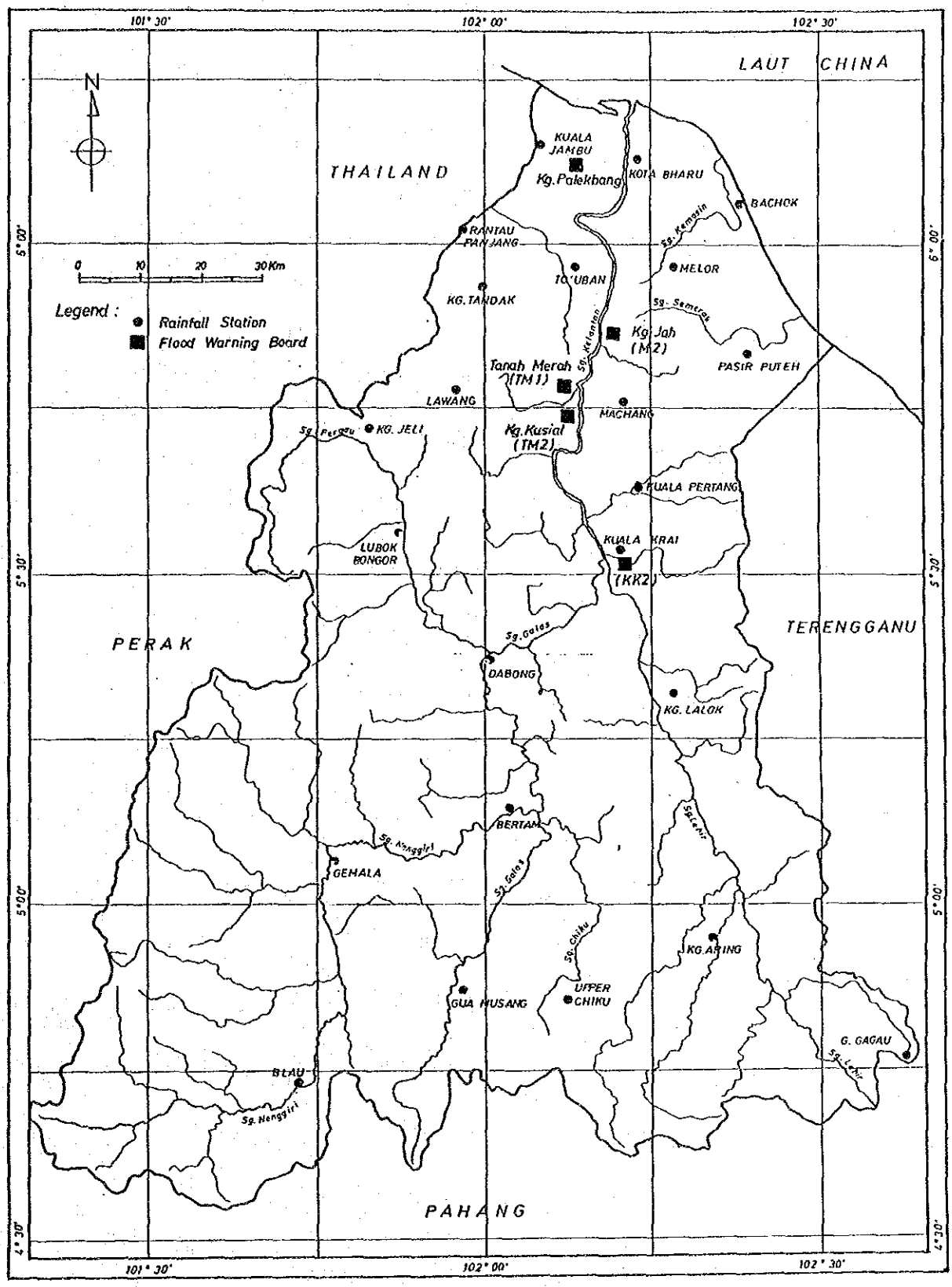

Fig. 6.6

Location Map of Flood Warning Board outside the Town of Kota Bharu

GOVERNMENT OF MALAYSIA
STUDY
ON
KELANTAN RIVER BASIN - WIDE FLOOD MITIGATION
JAPAN INTERNATIONAL COOPERATION AGENCY

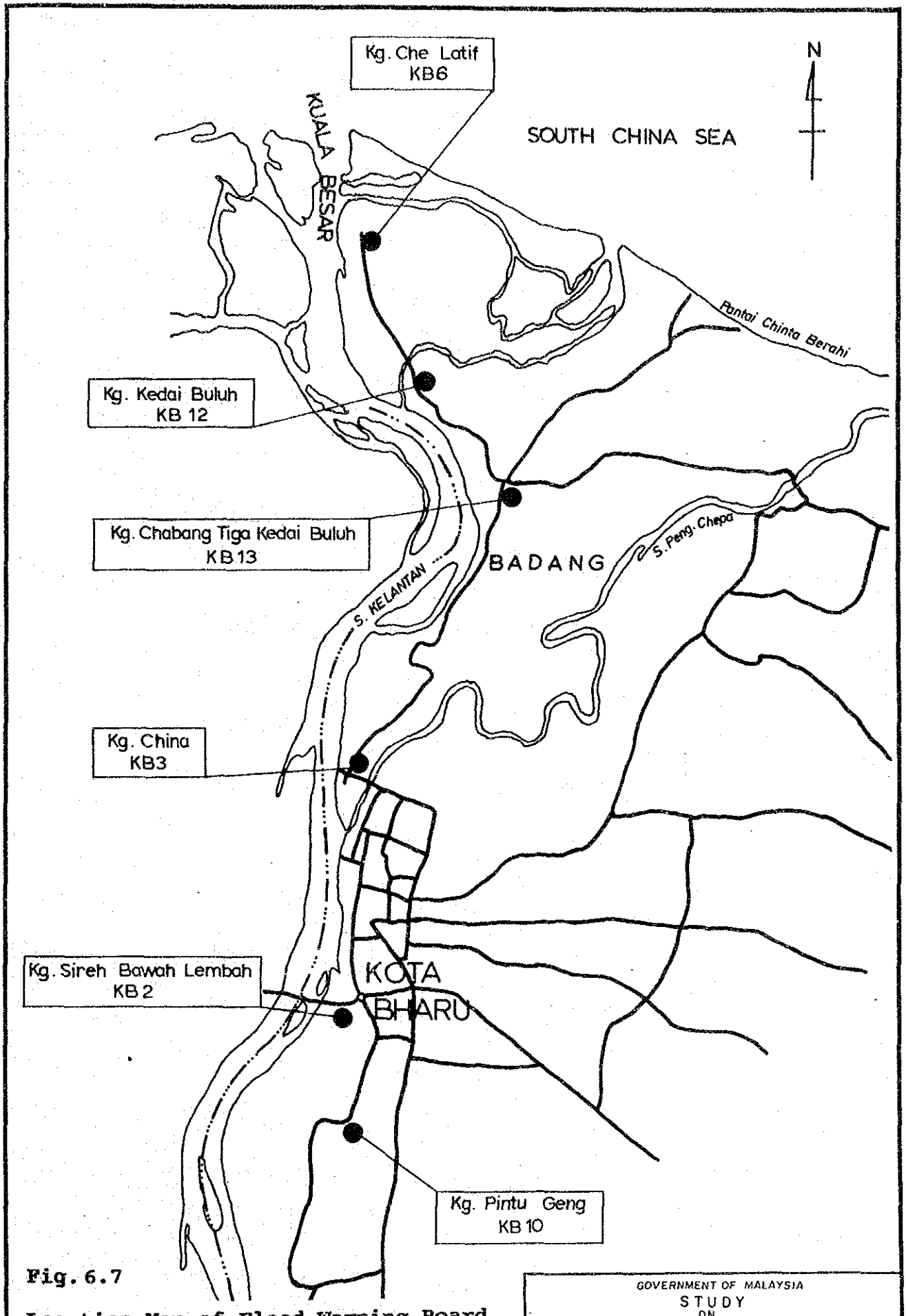

Fig. 6.7

Location Map of Flood Warning Board in the Town of Kota Bharu

GOVERNMENT OF MALAYSIA
STUDY
ON
KELANTAN RIVER BASIN - WIDE FLOOD MITIGATION
JAPAN INTERNATIONAL COOPERATION AGENCY

APPENDIX I

PHOTOGRAPH

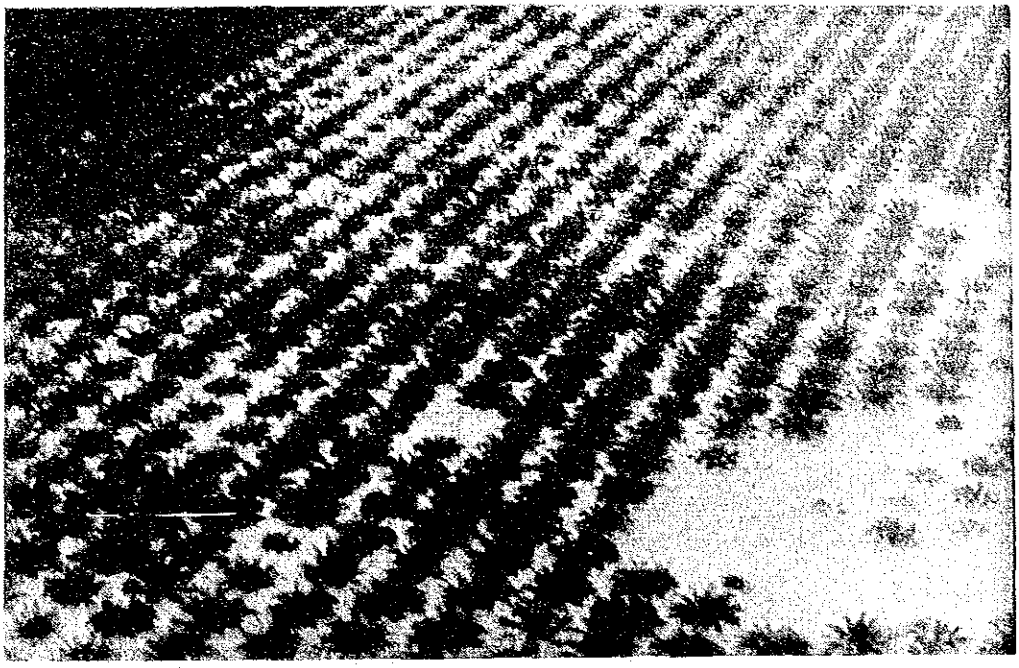

Photo.1 Kuala Krai District (Oil Palm Estate)

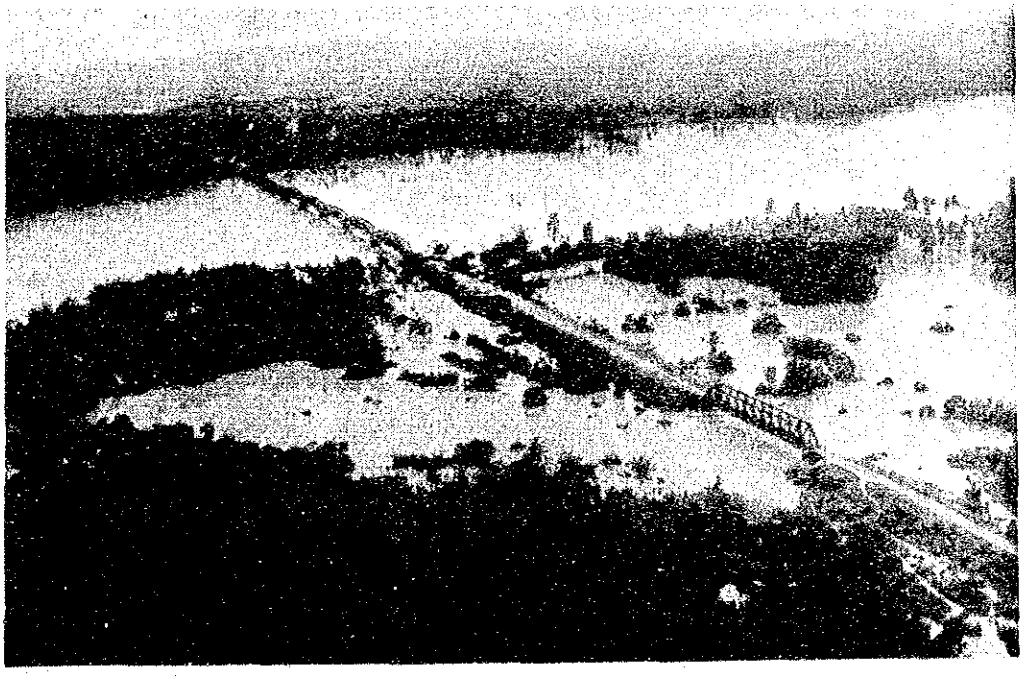

Photo.2 Guillemard Bridge

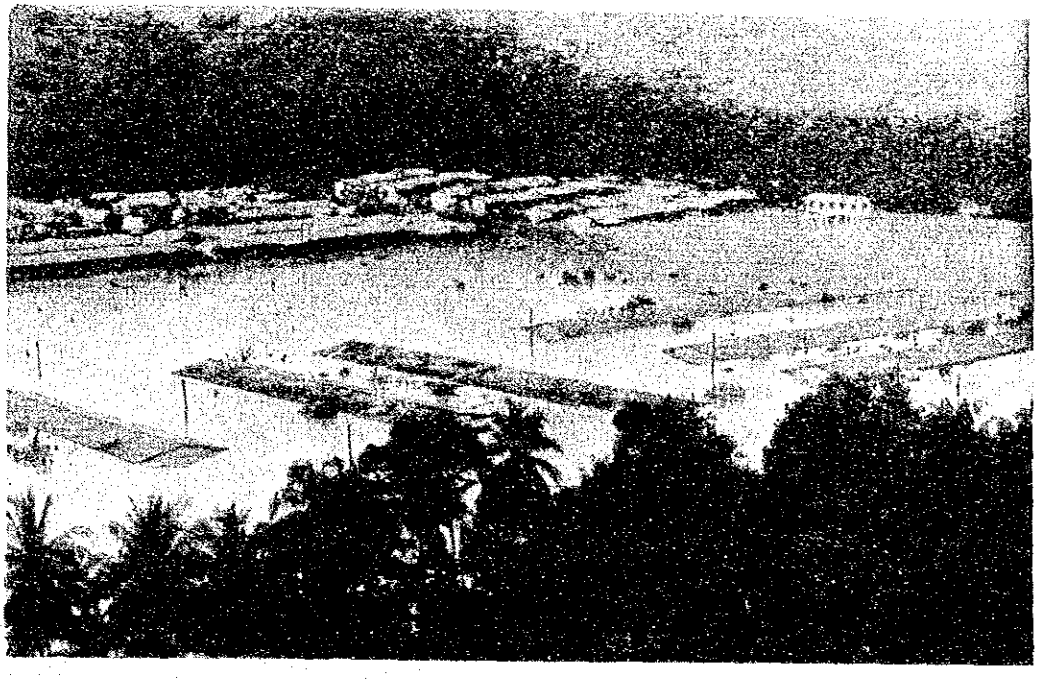

Photo.3 Tanah Merah District (Manal)

Photo.4 Kota Bharu District

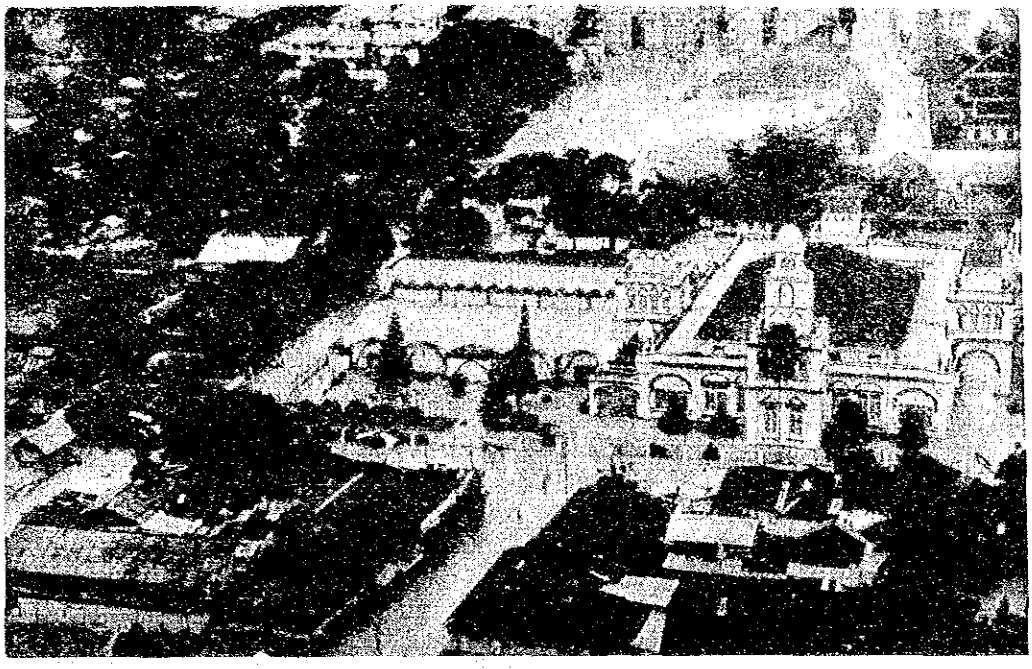

Photo.5 Kota Bharu Town

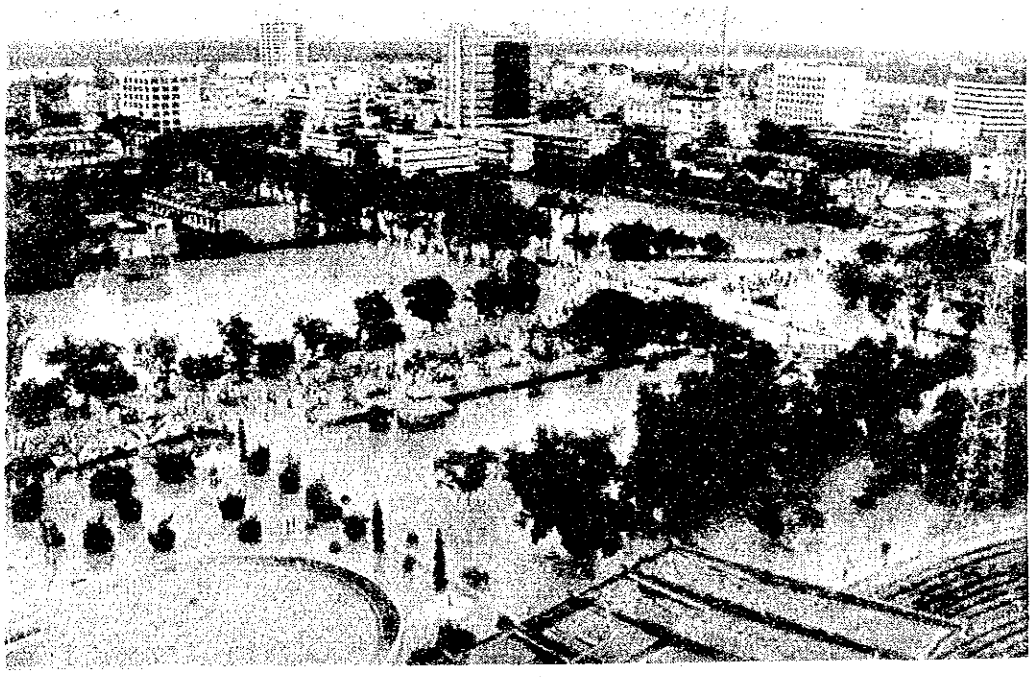

Photo.6 Kota Bharu Town