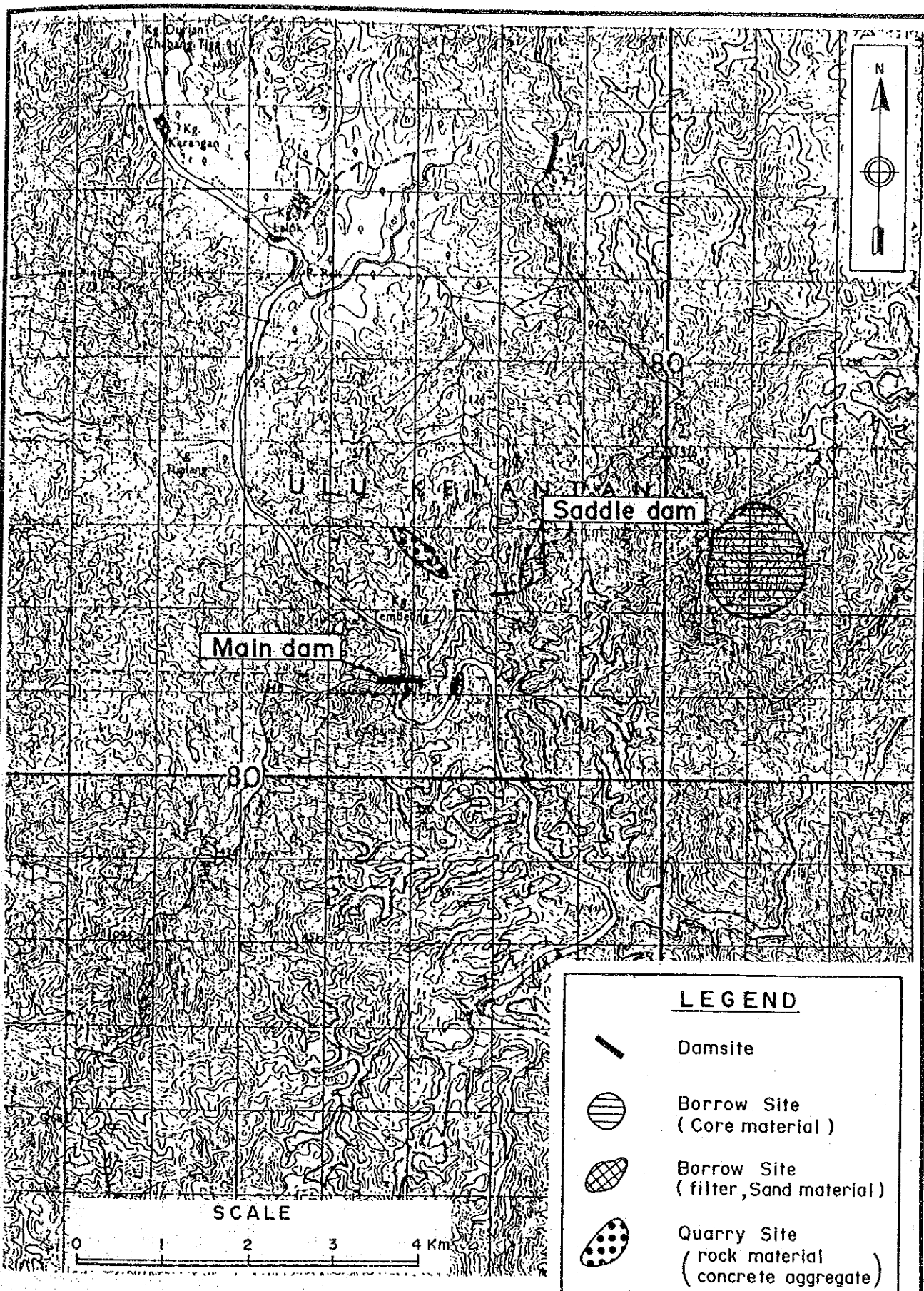
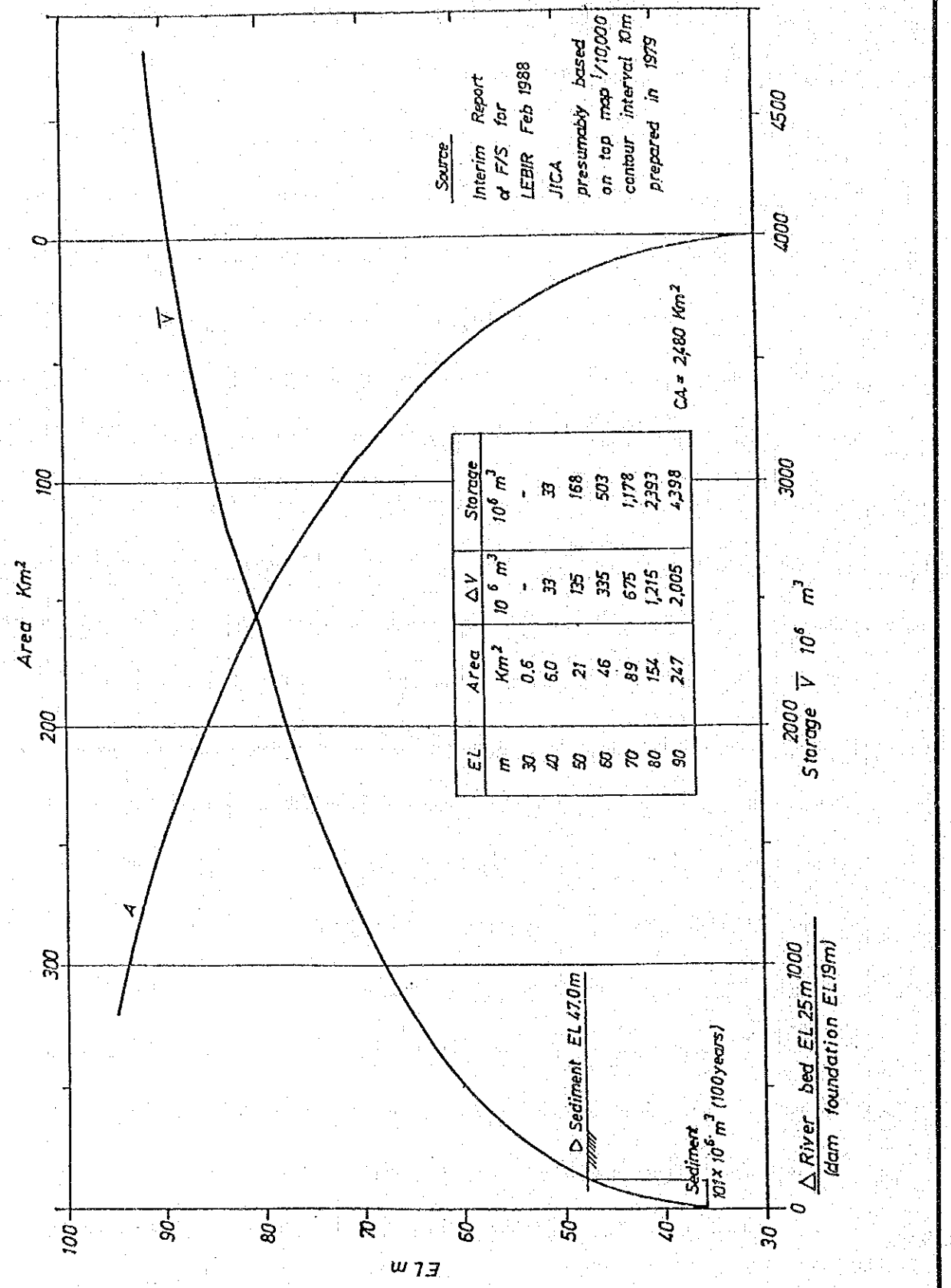


Fig.VII.4.1

Location Map of Lebir Dam

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



EL	Area	ΔV	Storage
m	Km²	10⁶ m³	10⁶ m³
30	0.6	-	-
40	6.0	33	33
50	21	135	168
60	46	335	503
70	89	675	1,178
80	154	1,215	2,393
90	247	2,005	4,398

Fig.VII.4.2

Storage Capacity, Lebir Dam

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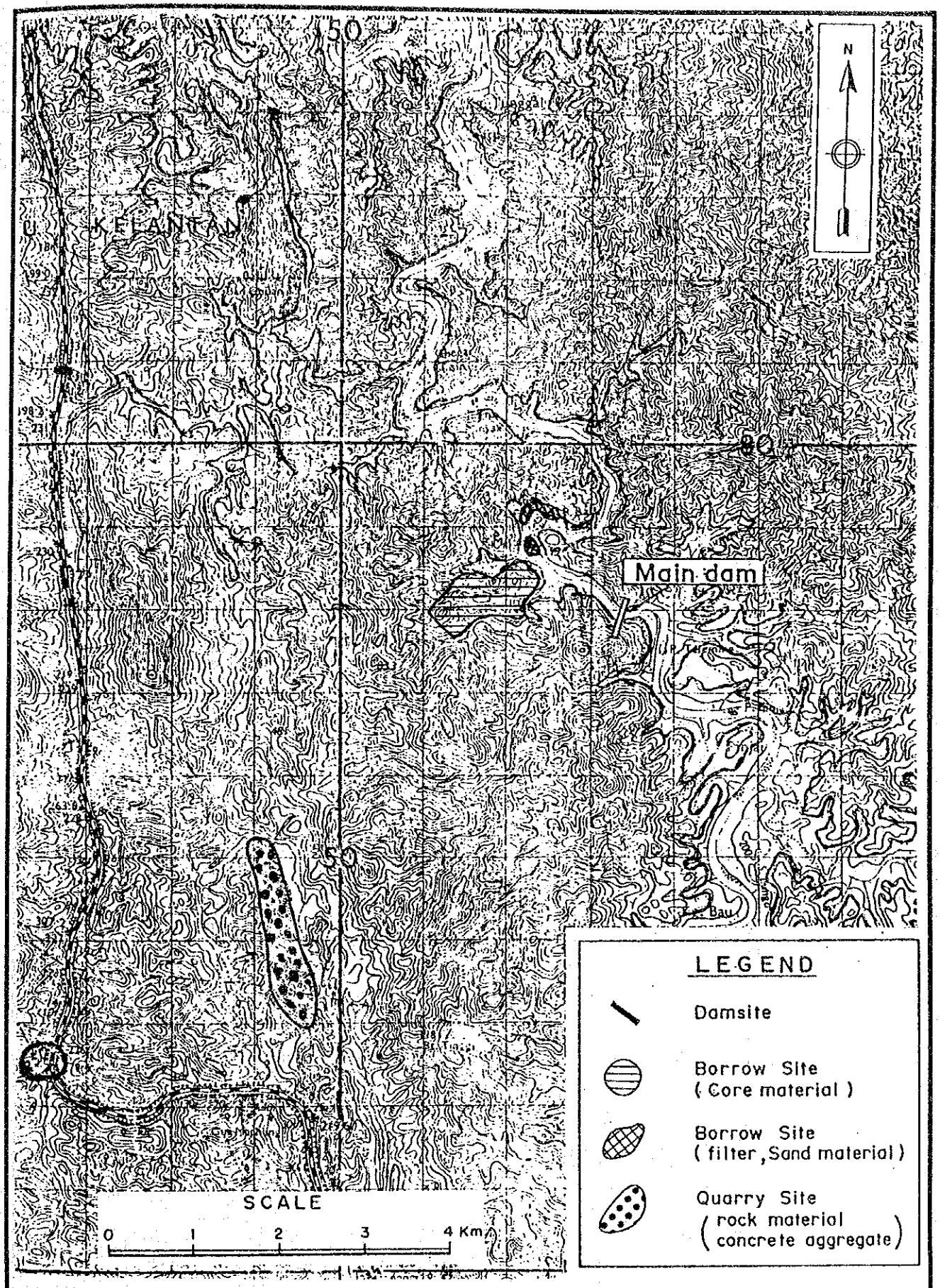

Fig.VII.4.3

Location Map of Kemubu Dam

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

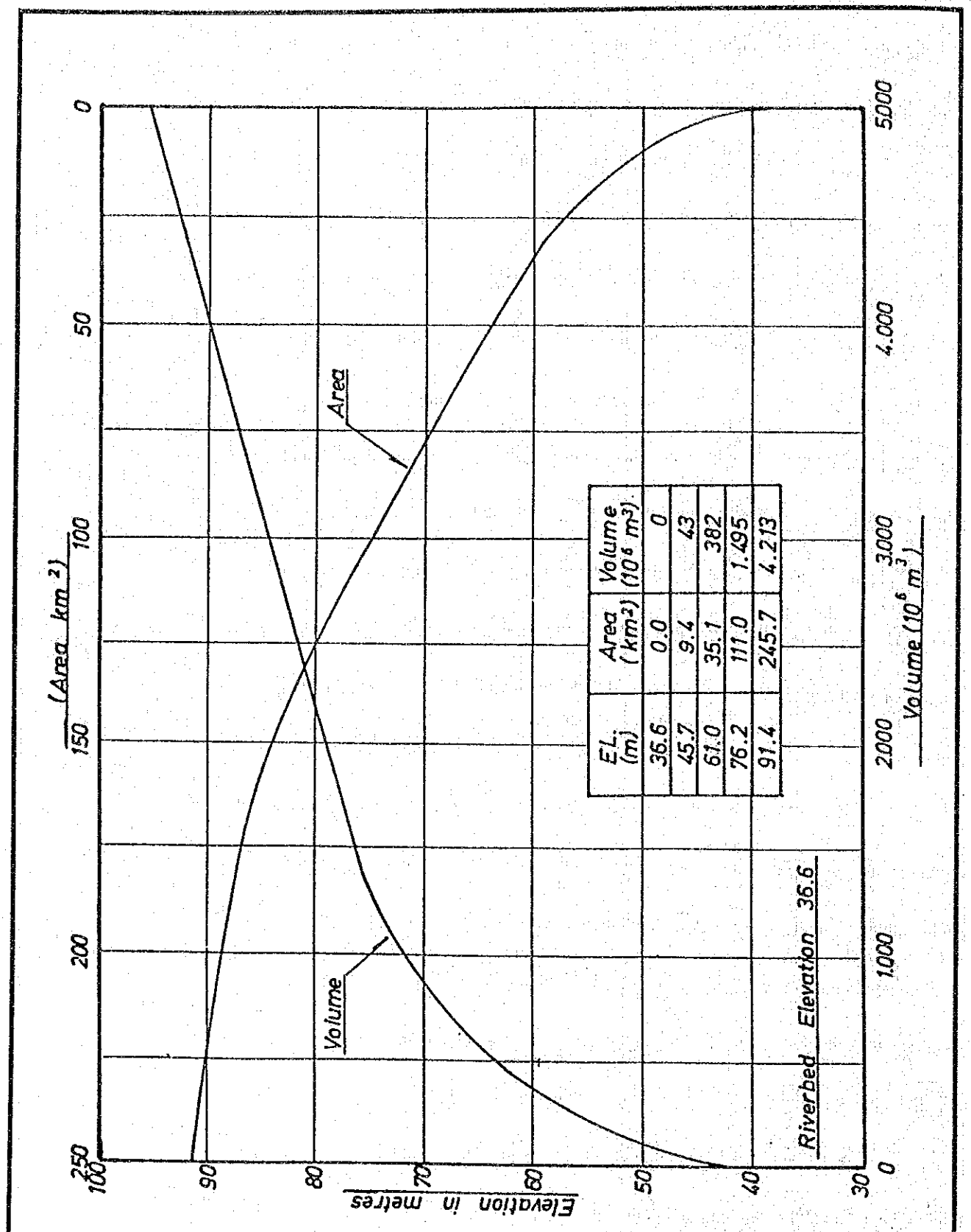

Fig.VII.4.4

Storage Capacity, Kemubu Dam

GOVERNMENT OF MALAYSIA
STUDY
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JAPAN INTERNATIONAL COOPERATION AGENCY

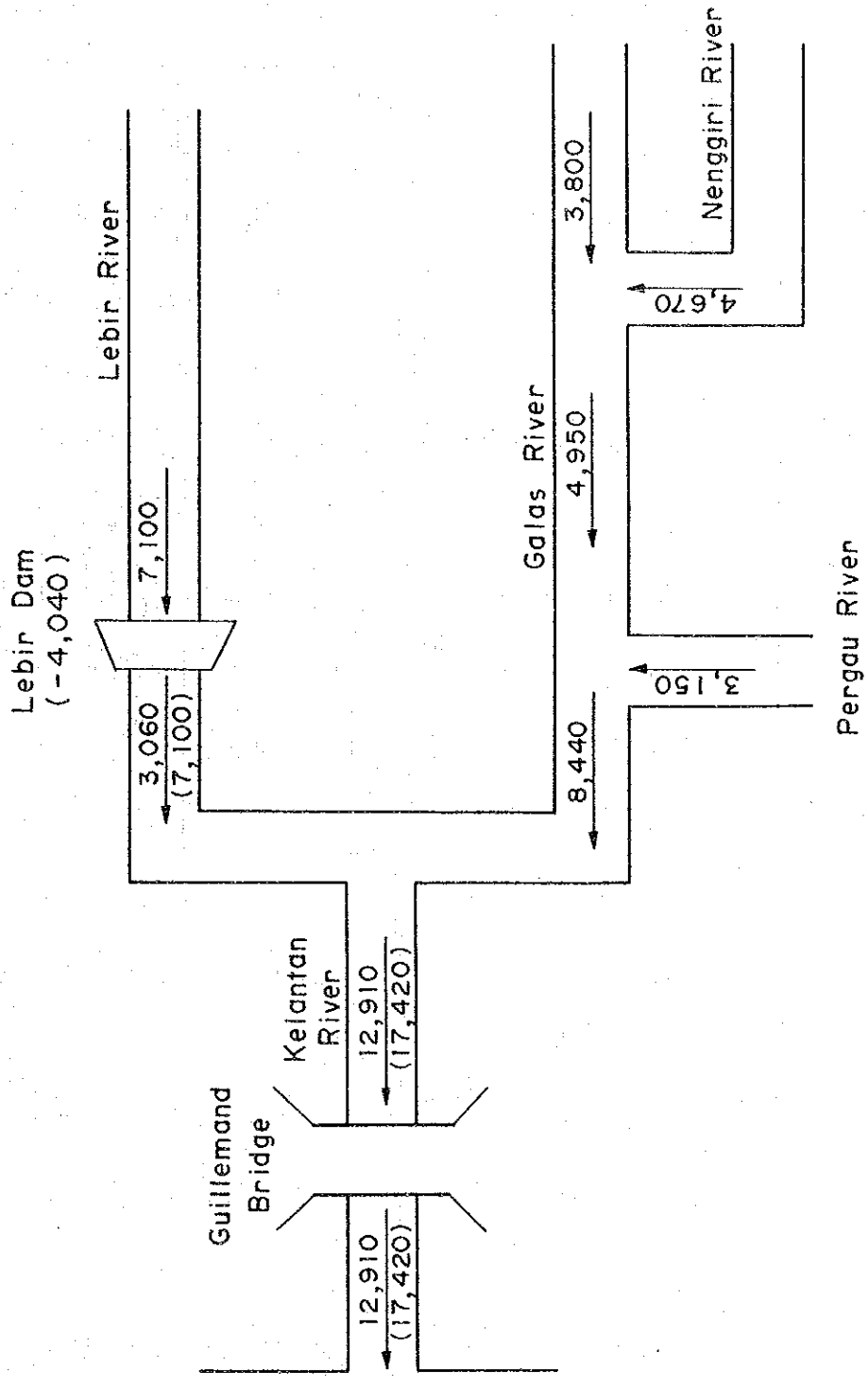

Fig.VII.4.5

50-year Flood Peak Discharges with Lebir Dam Scheme

GOVERNMENT OF MALAYSIA
STUDY
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JAPAN INTERNATIONAL COOPERATION AGENCY

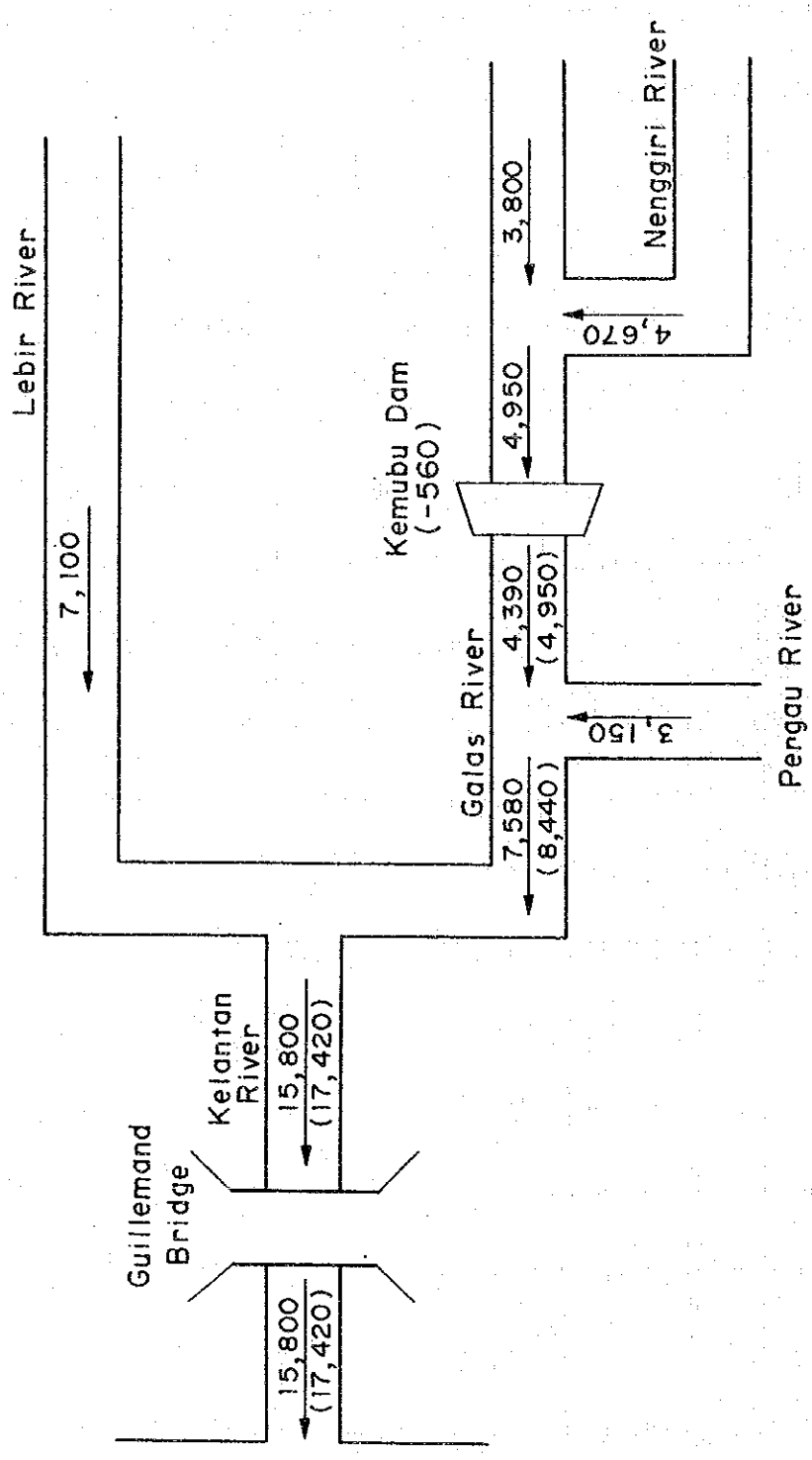

Fig.VII.4.6

50-year Flood Peak Discharges with Kemubu Dam Scheme

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

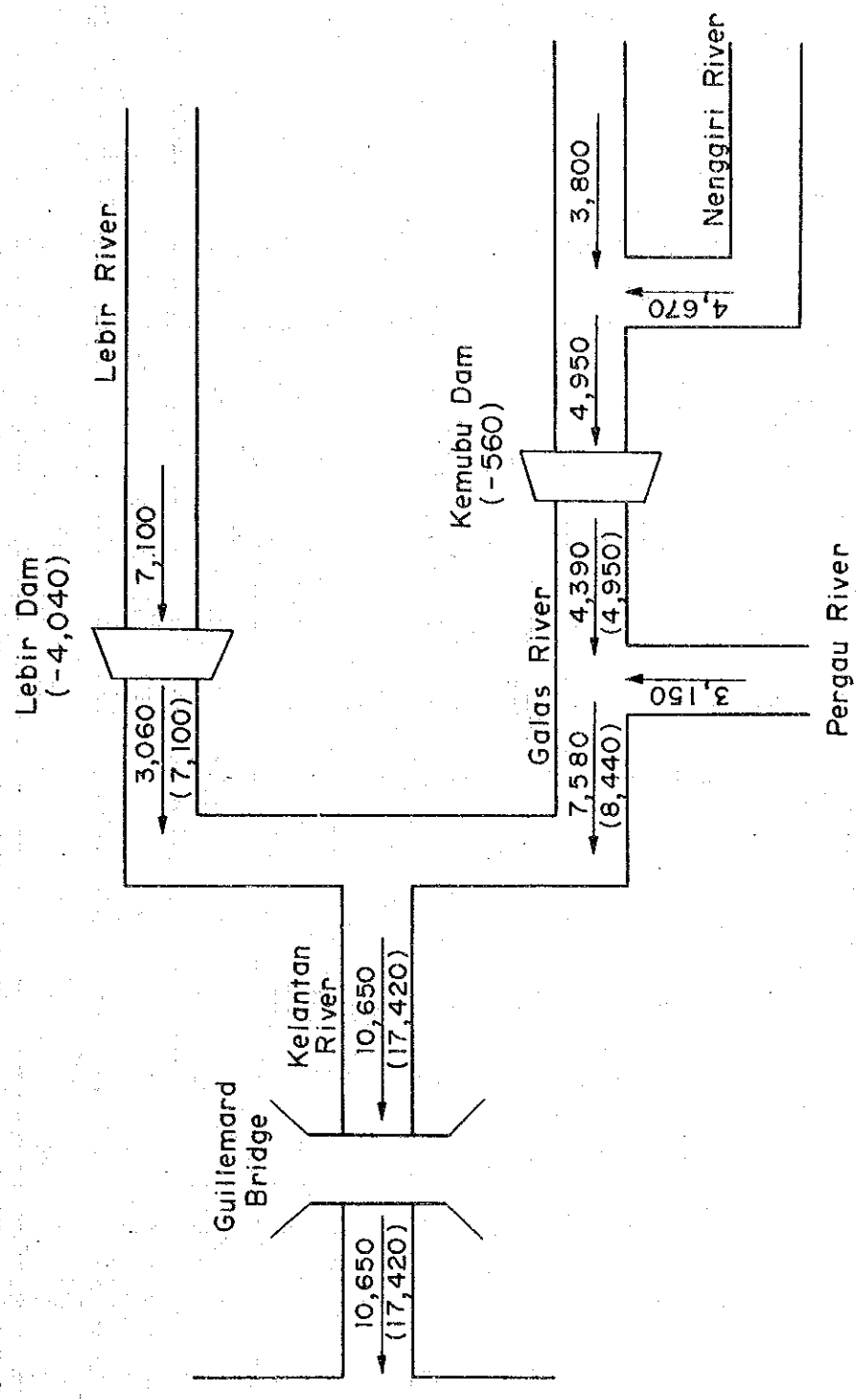

Fig.VII.4.7

50-year Flood Peak Discharges with Lebir and Kemubu Schemes

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

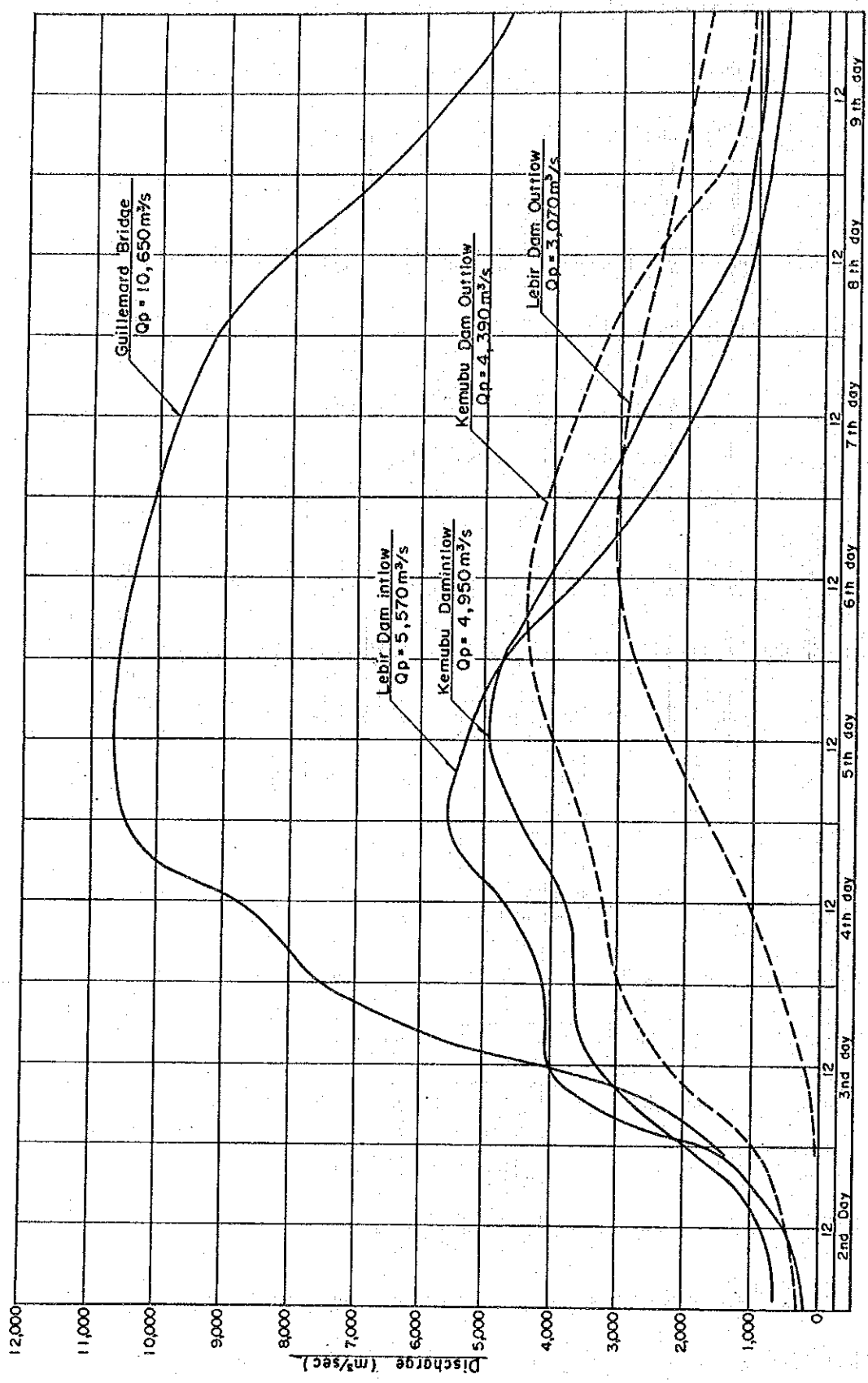

Fig.VII.4.8

50-year Flood Hydrographs with Lebir and Kemubu Schemes

GOVERNMENT OF MALAYSIA
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JAPAN INTERNATIONAL COOPERATION AGENCY

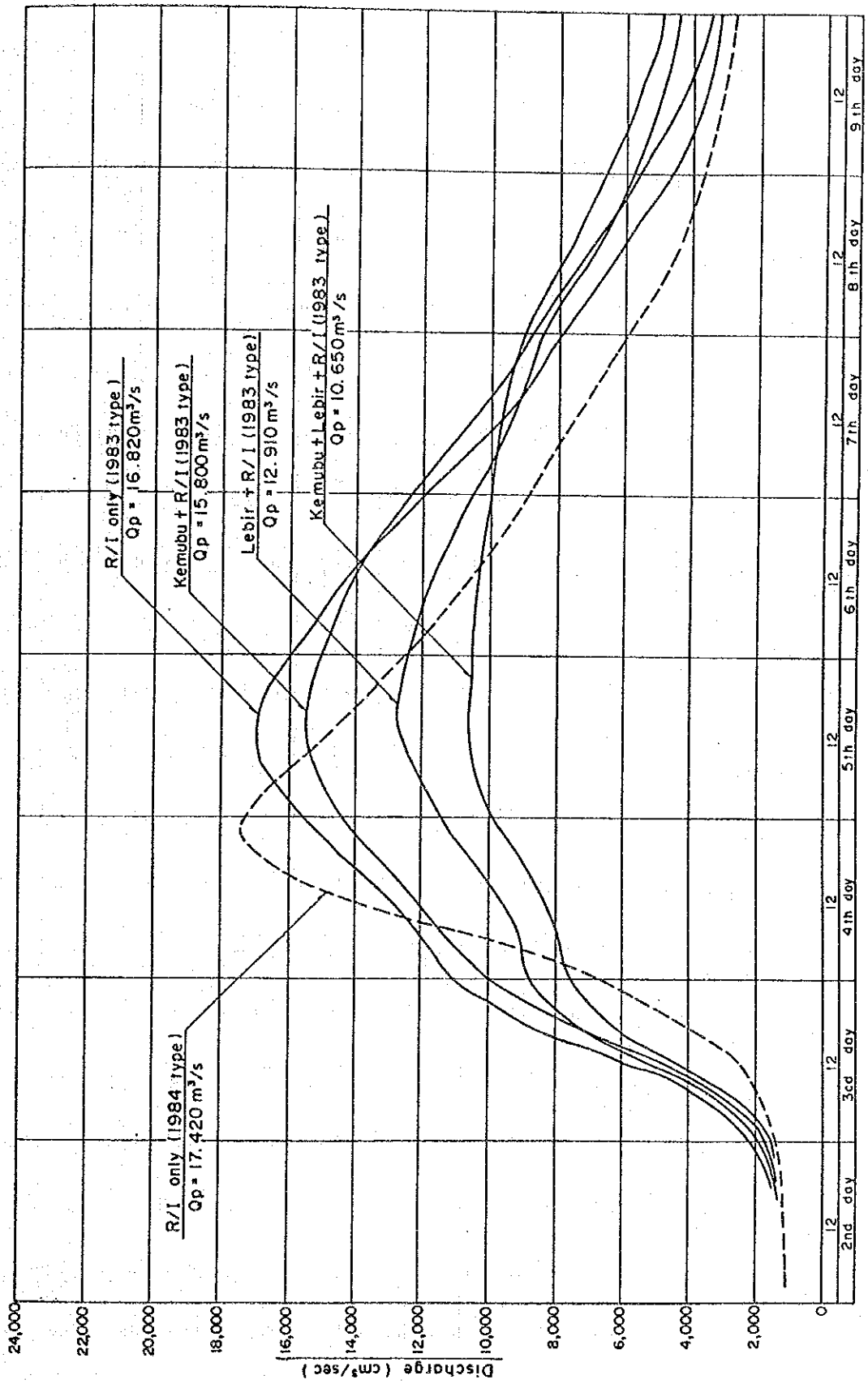

Fig.VII.4.9

Flood Mitigation Effect at Guillemard Bridge

GOVERNMENT OF MALAYSIA
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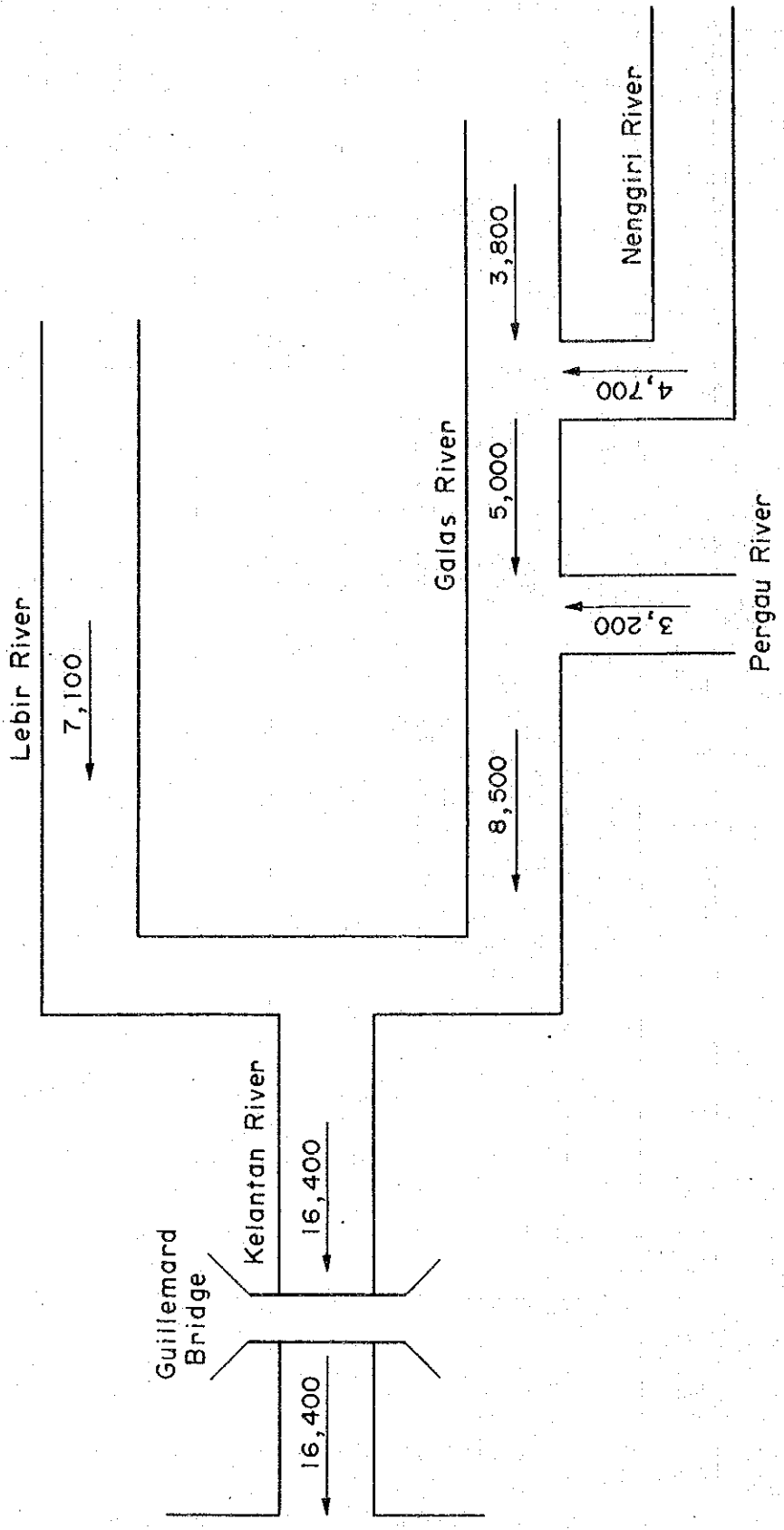

Fig.VII.4.10

50-year Flood Peak Discharges under Natural Condition

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JAPAN INTERNATIONAL COOPERATION AGENCY

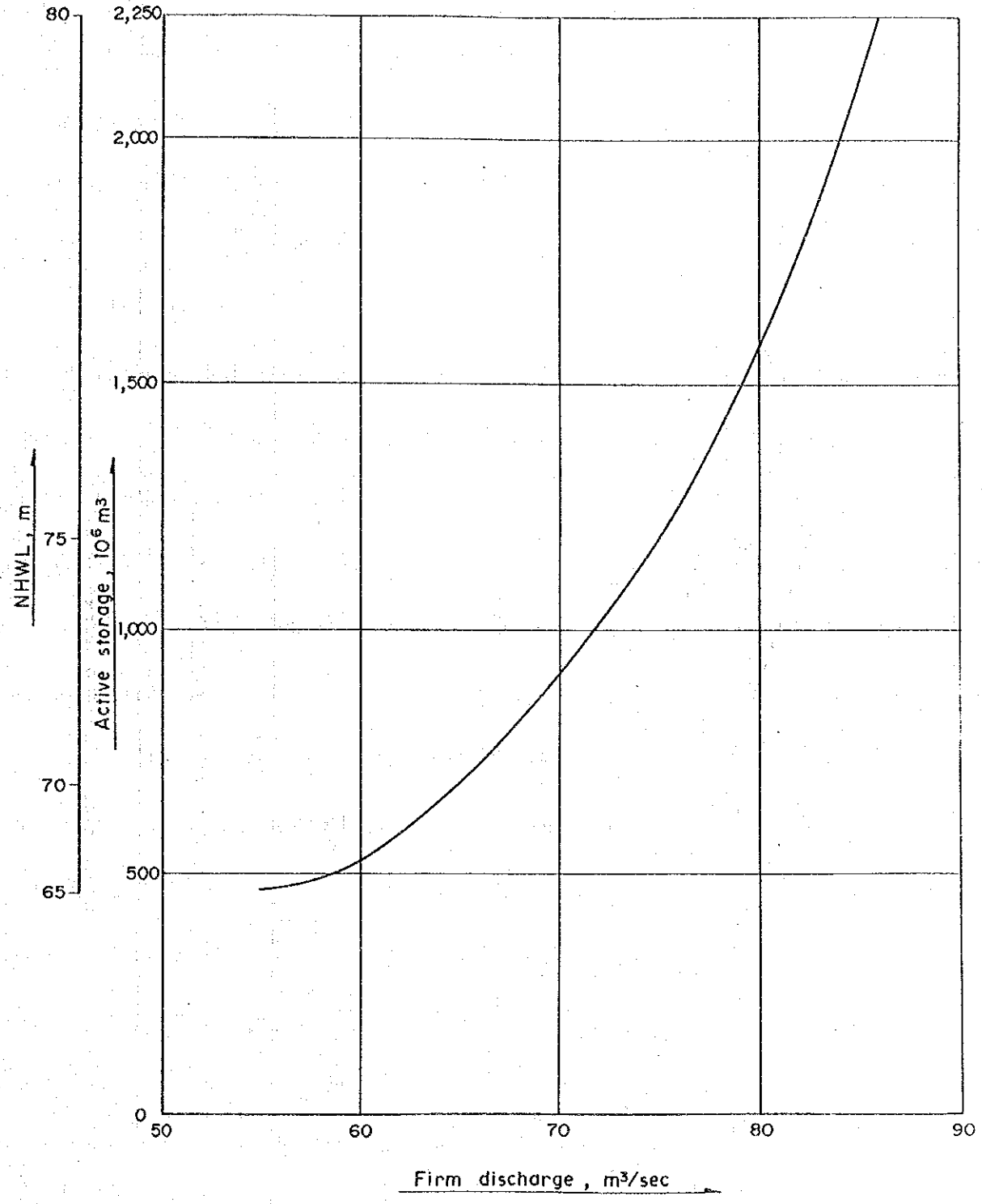


Fig.VII.4.11

Storage-draft Curve of the Lebir Dam Scheme

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

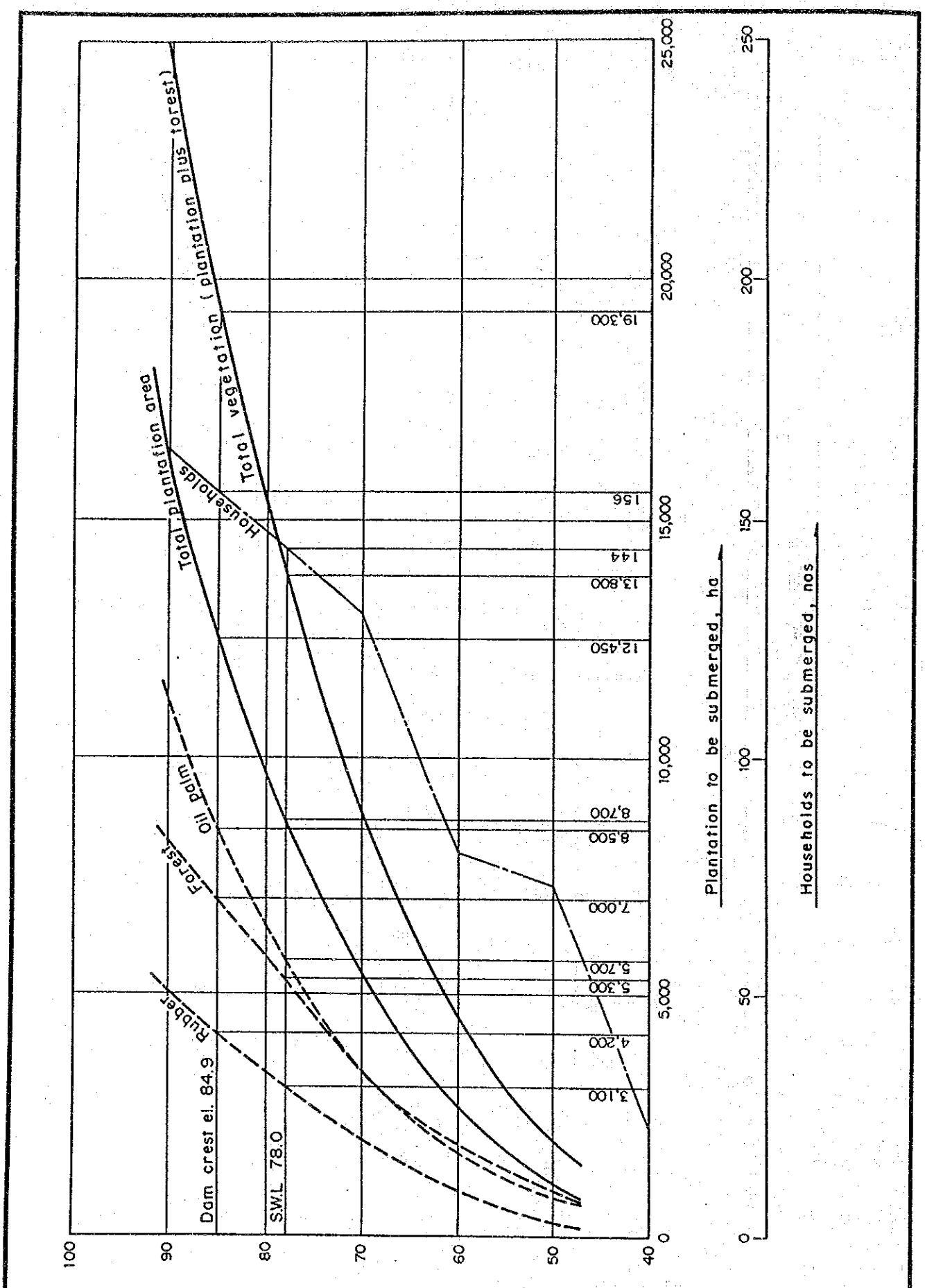


Fig.VII.4.12

Relationship between Elevation and Social Impact (Lebir Scheme)

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

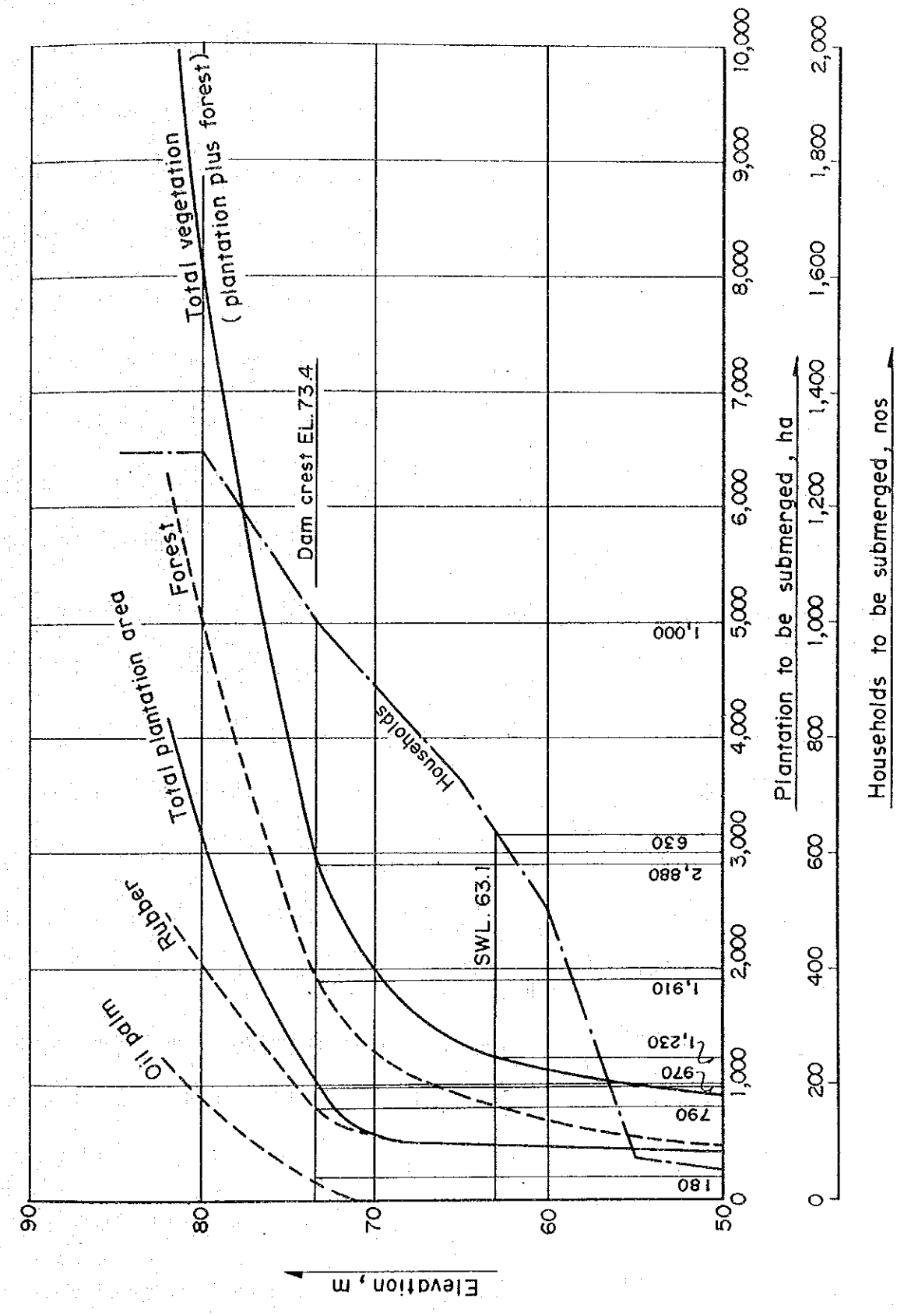


Fig.VII.4.13

Relationship between Elevation and Social Impact (Kemubu Scheme)

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

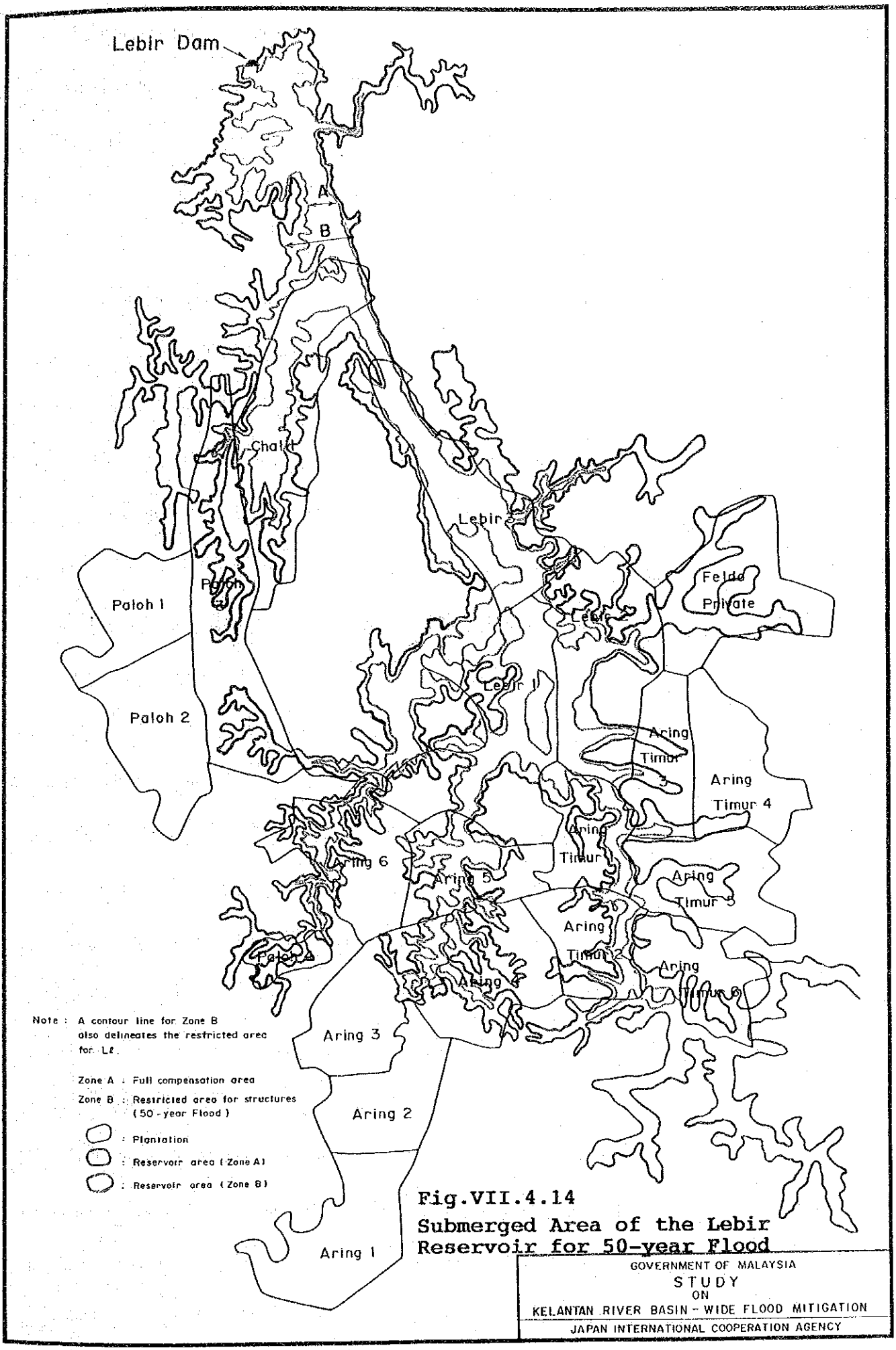


Fig.VII.4.14
Submerged Area of the Lebir Reservoir for 50-year Flood

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

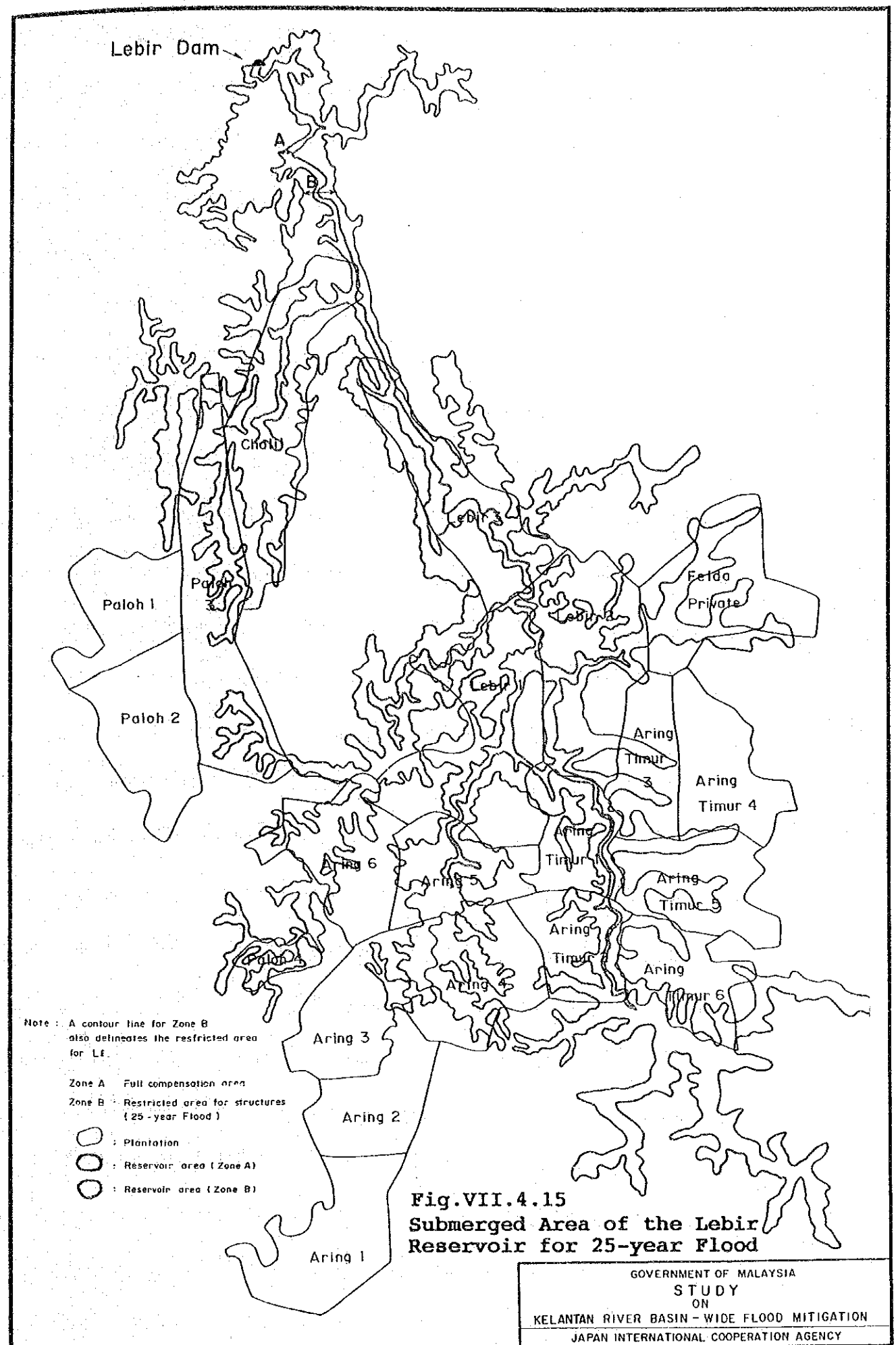
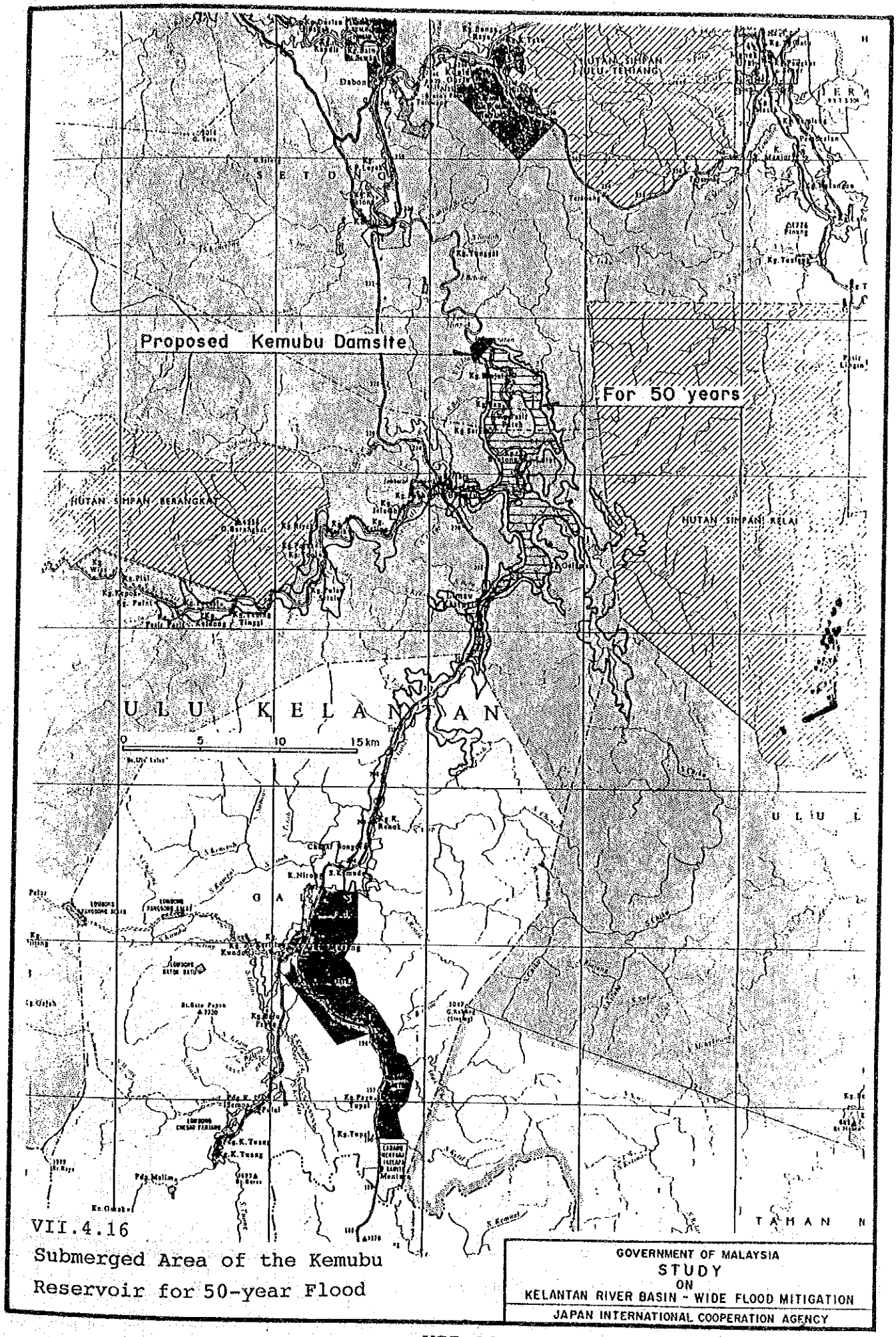


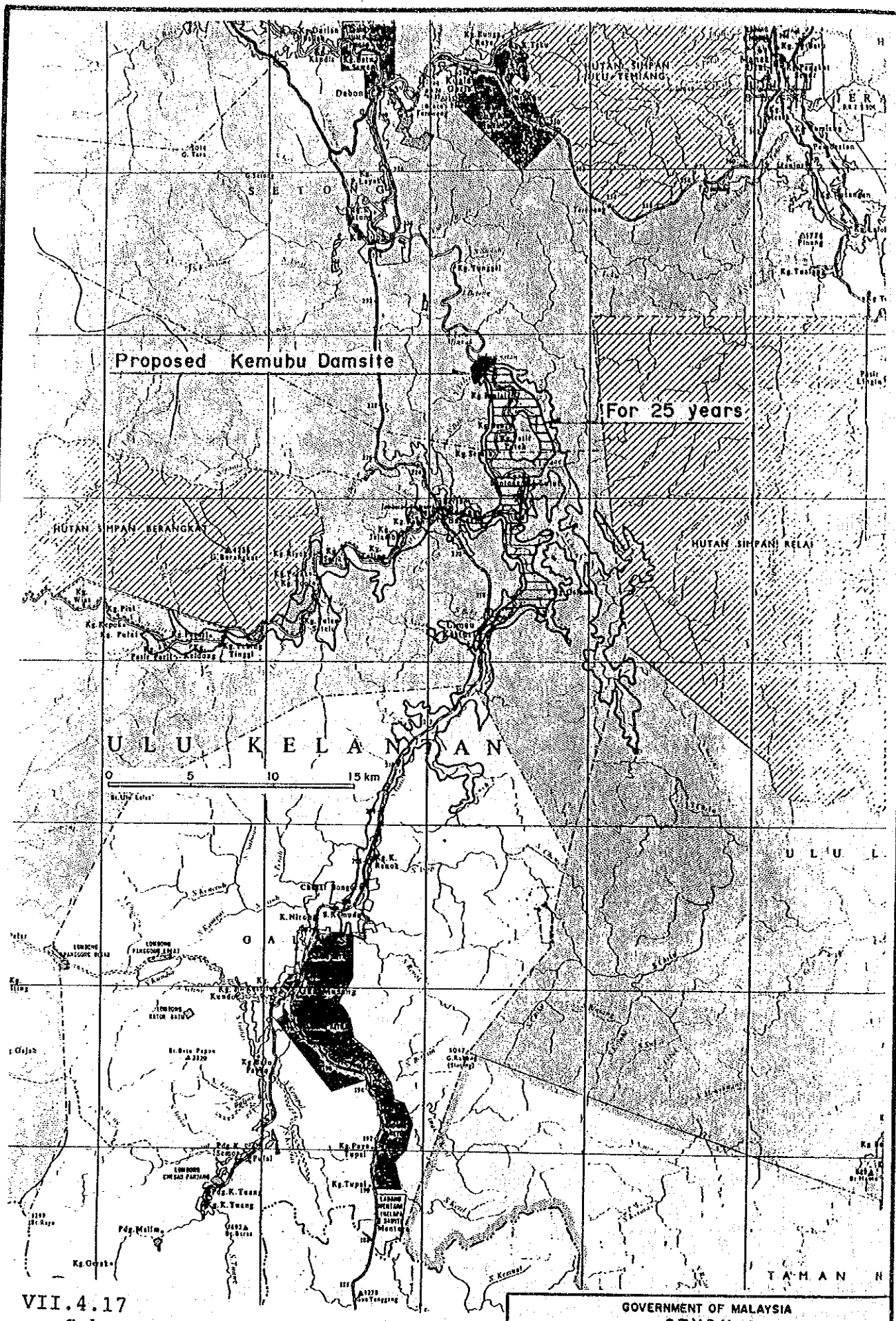
Fig.VII.4.15
Submerged Area of the Lebir Reservoir for 25-year Flood

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



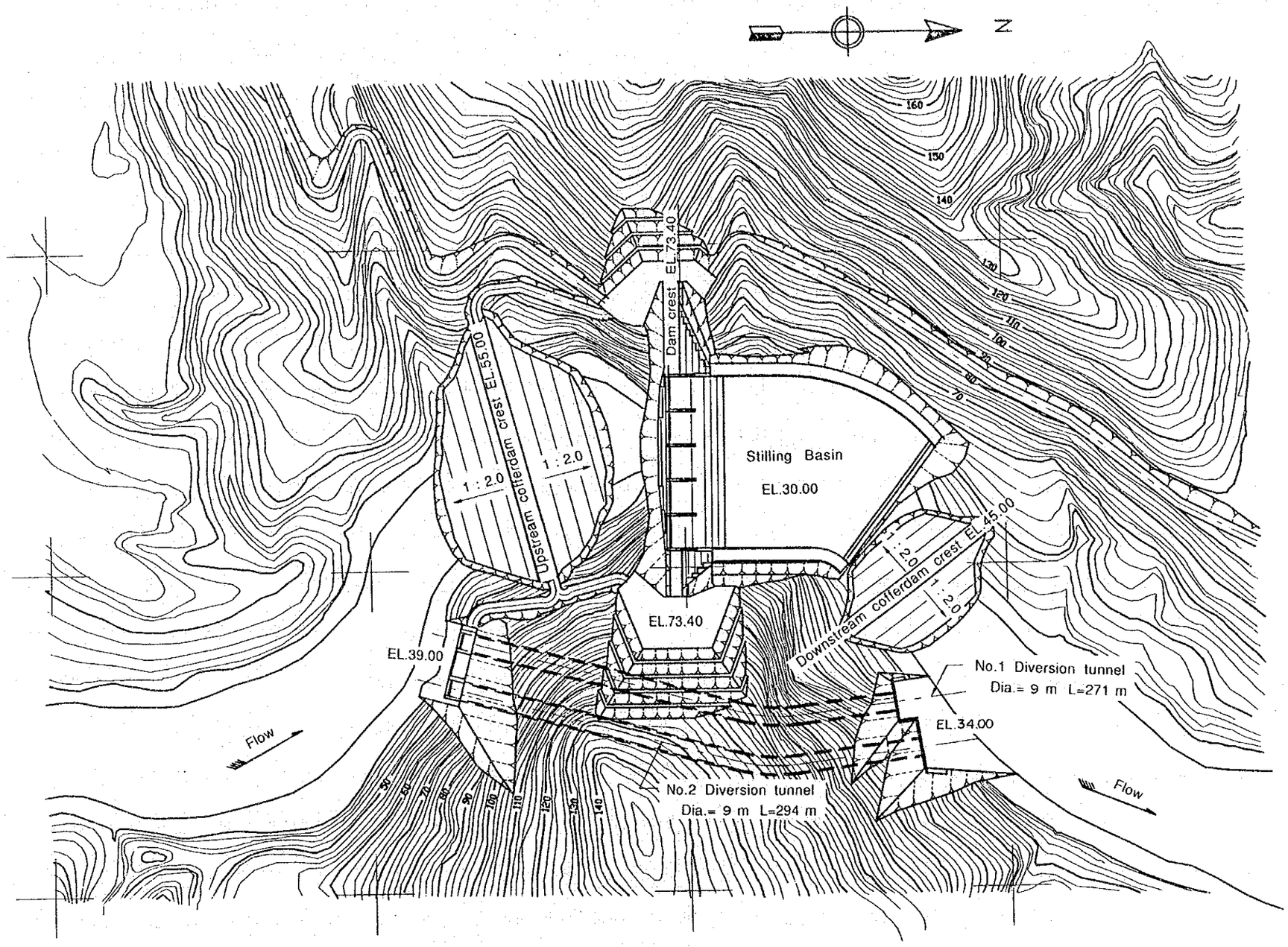
VII.4.16
Submerged Area of the Kemubu Reservoir for 50-year Flood

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



VII.4.17
Submerged Area of the Kemubu Reservoir for 25-year Flood

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

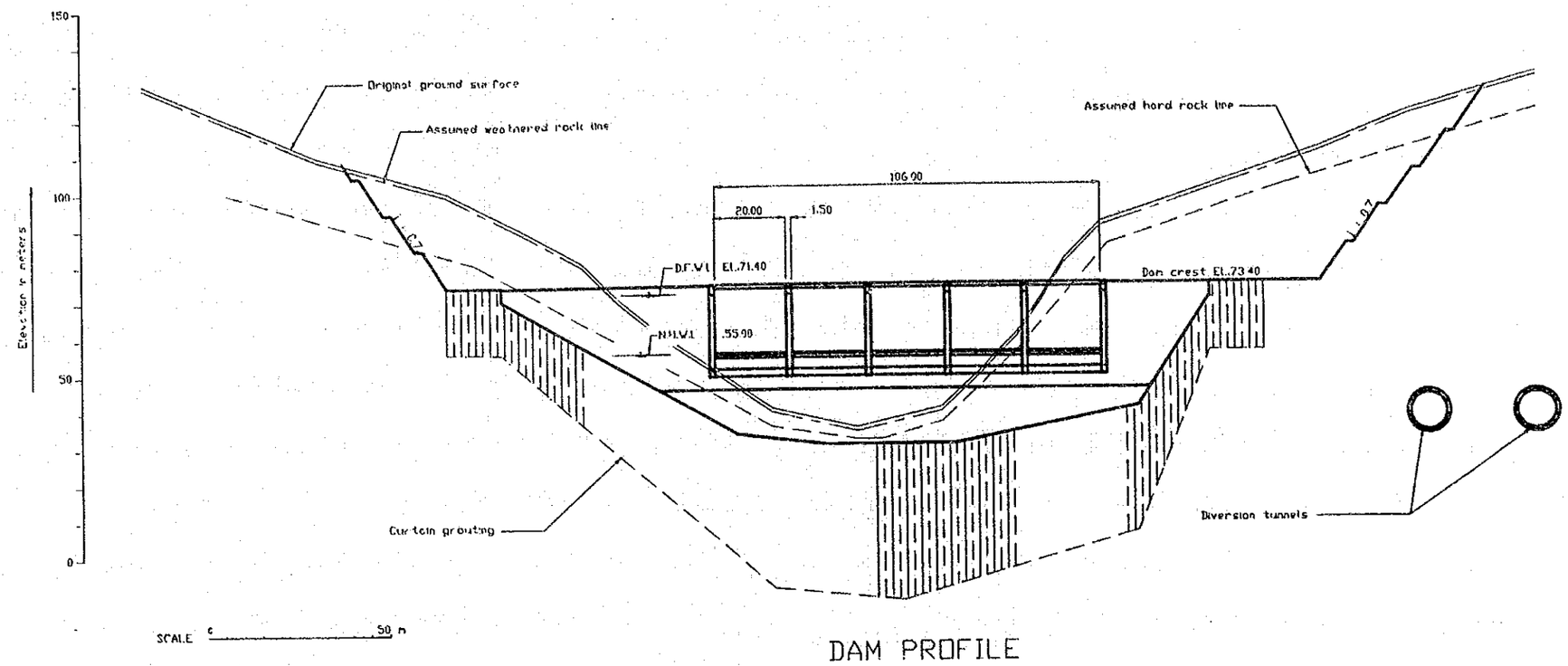


GENERAL PLAN

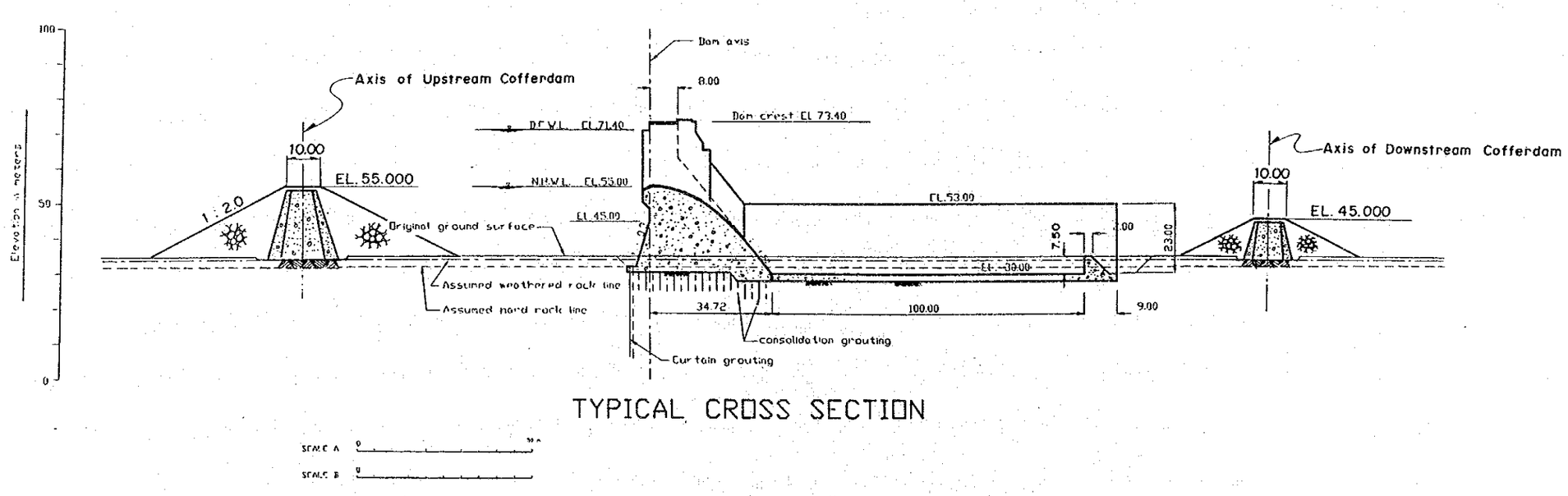
Fig.VII.4.18

General Plan of Kemubu Dam

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



DAM PROFILE



TYPICAL CROSS SECTION

Fig.VII.4.19

Profile and Typical Cross Section of Kemubu Dam

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

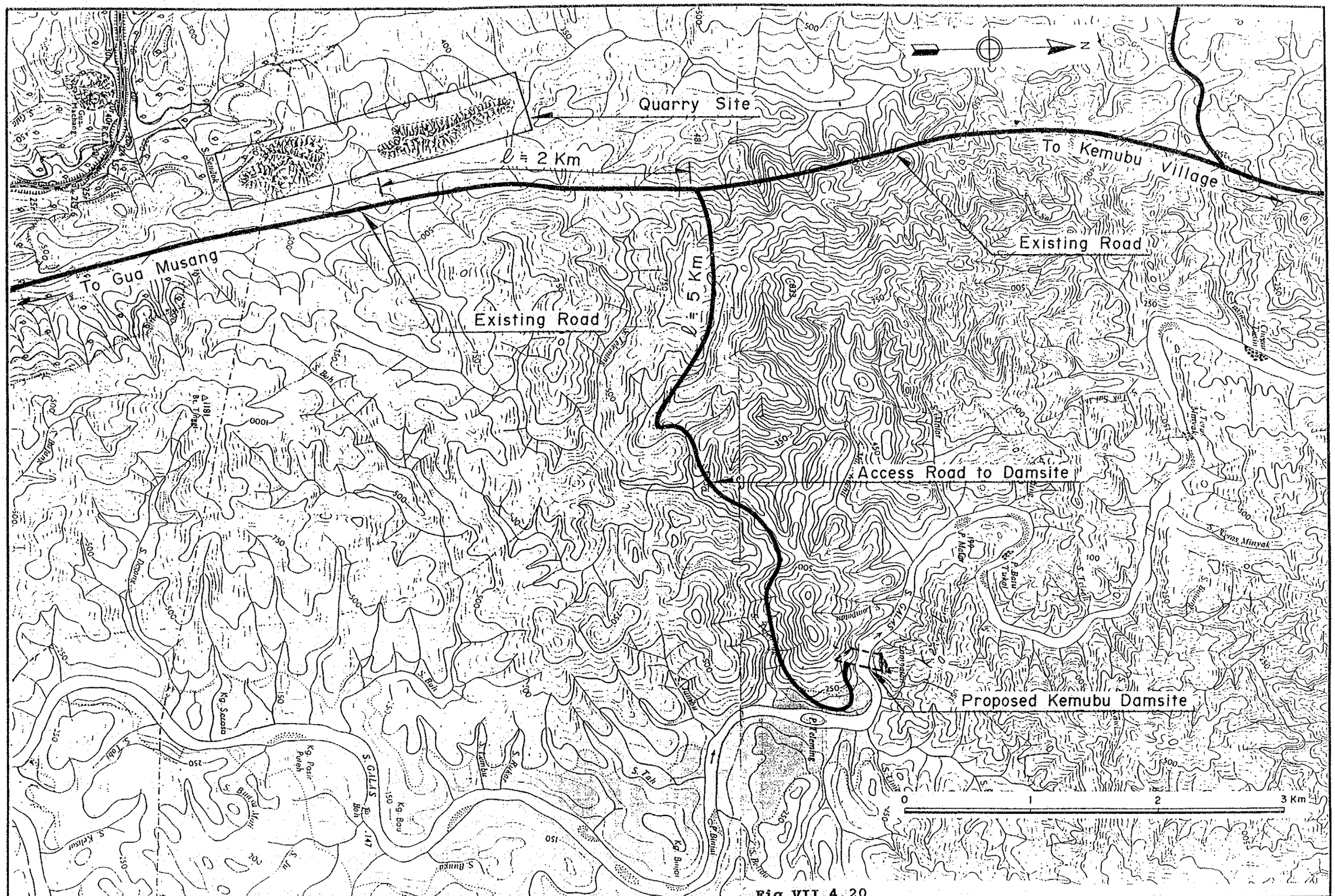


Fig.VII.4.20

Access Road to the Damsite and Quarry Site of Kemubu Dam

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

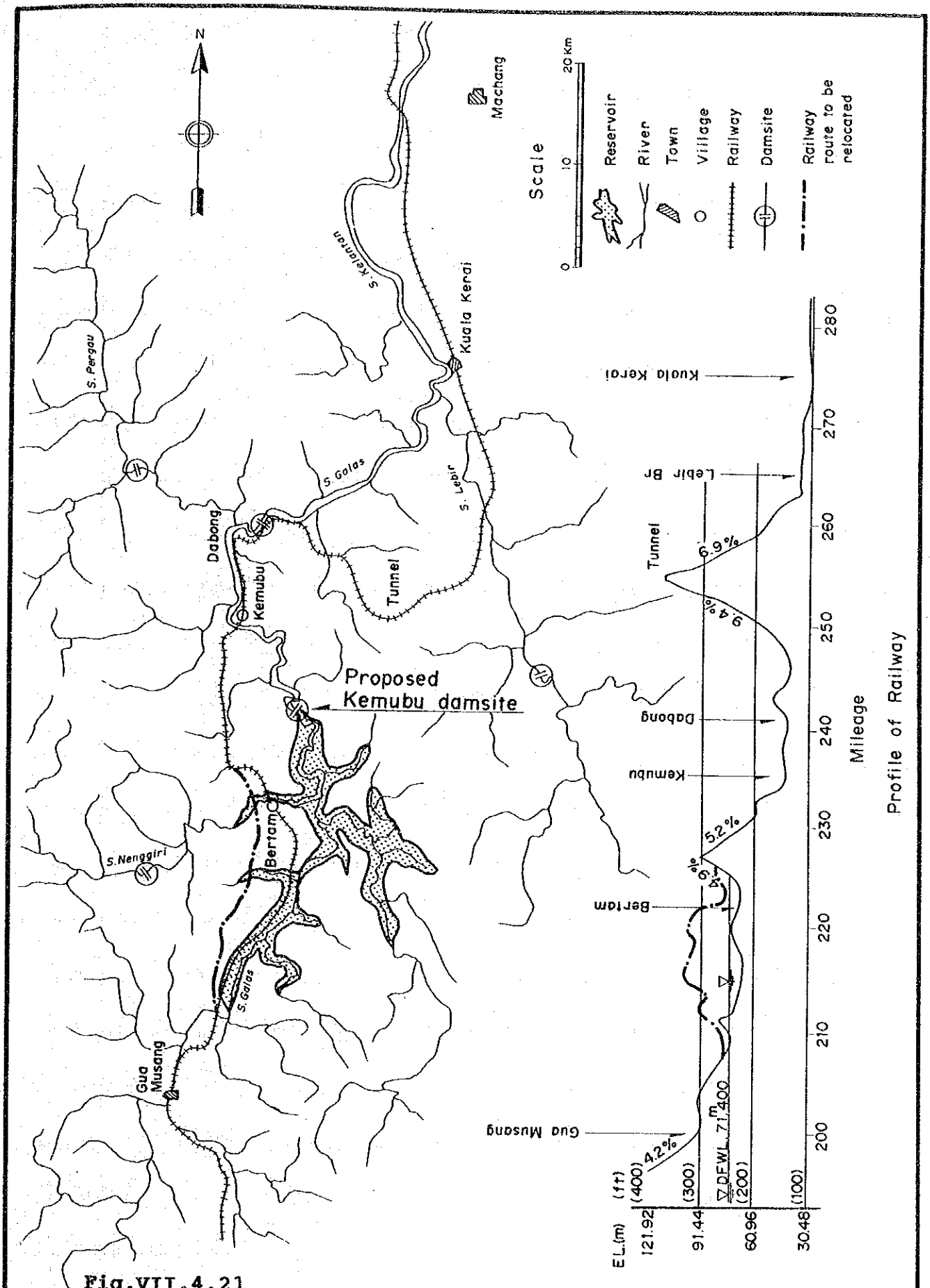
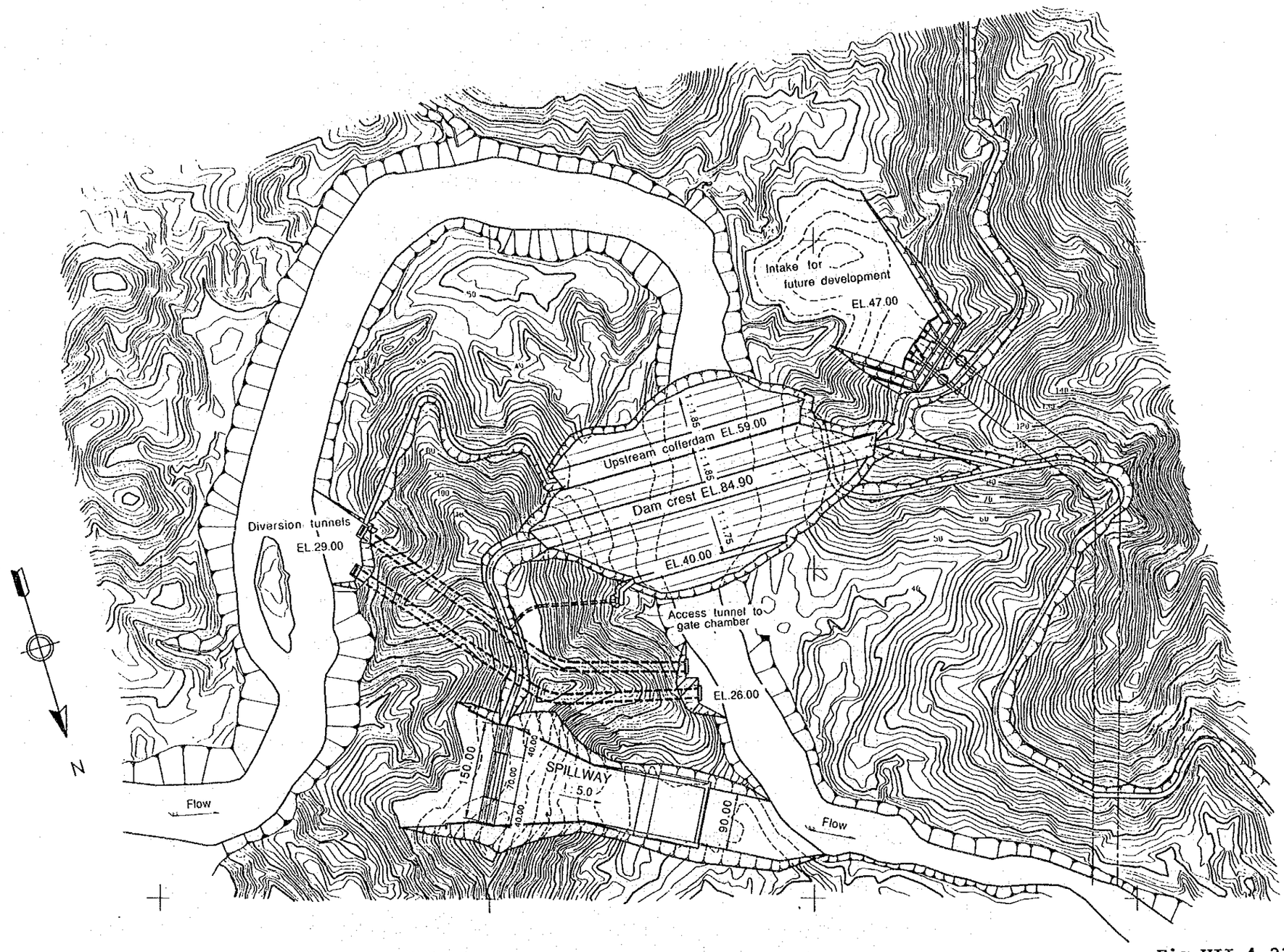


Fig.VII.4.21

Proposed Relocation Route of Railway

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

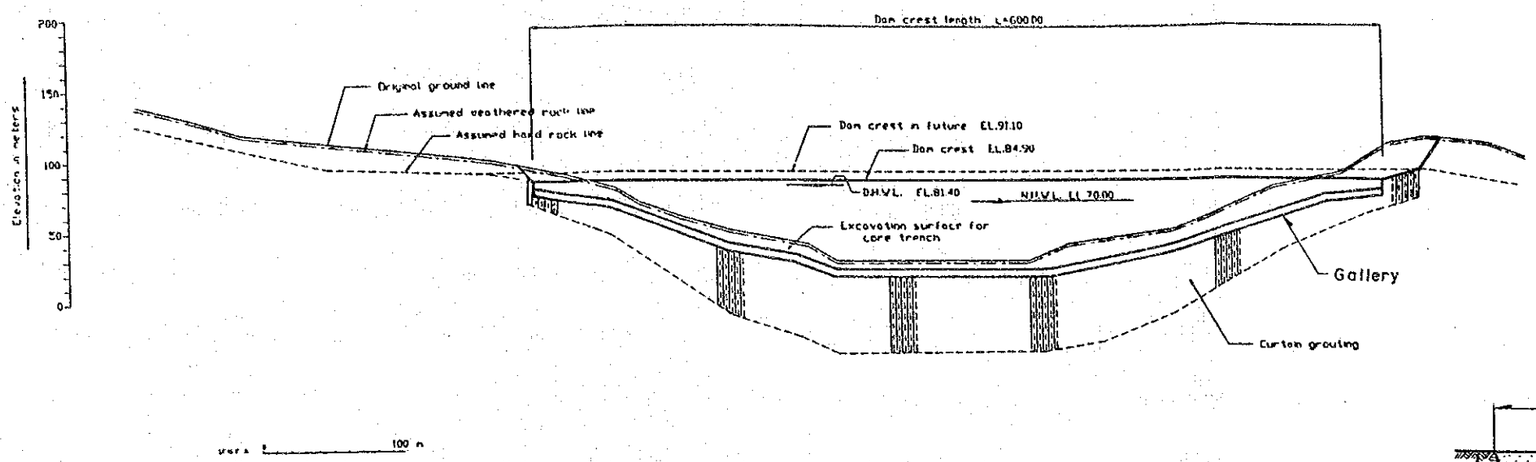


GENERAL PLAN

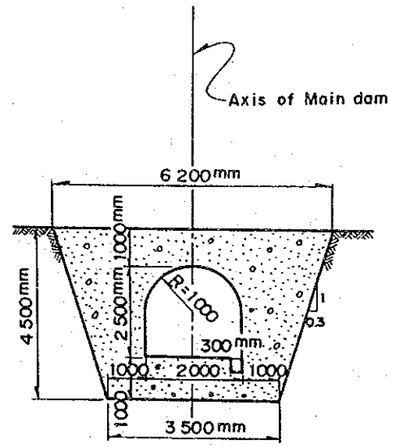
Fig.VII.4.22

General Plan of Lebir Dam

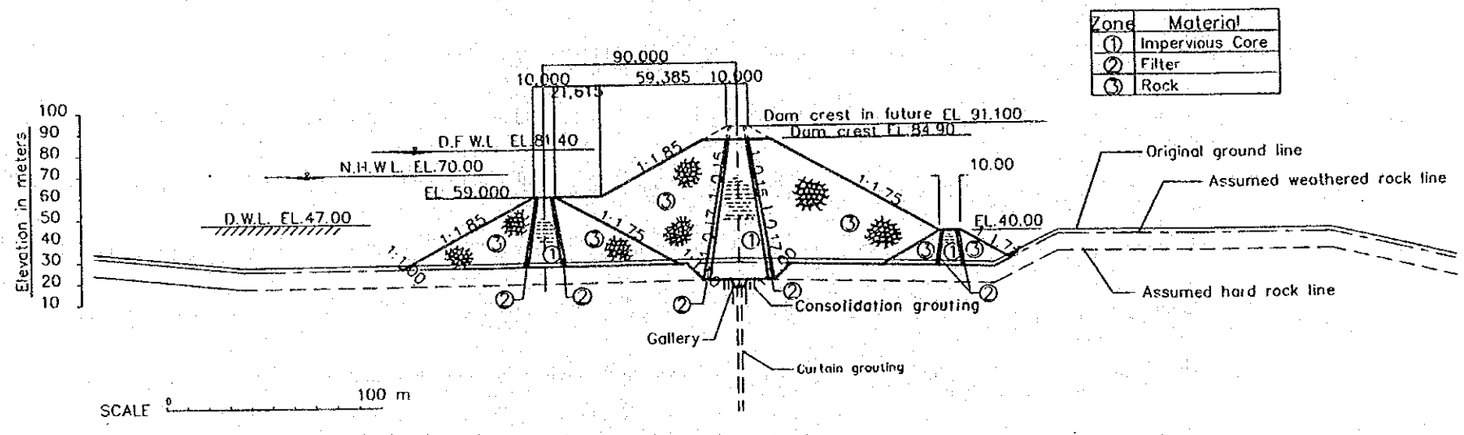
GOVERNMENT OF MALAYSIA
STUDY
ON
KELANTAN RIVER BASIN - WIDE FLOOD MITIGATION
JAPAN INTERNATIONAL COOPERATION AGENCY



PROFILE OF LEBIR DAM



TYPICAL CROSS SECTION OF GALLERY

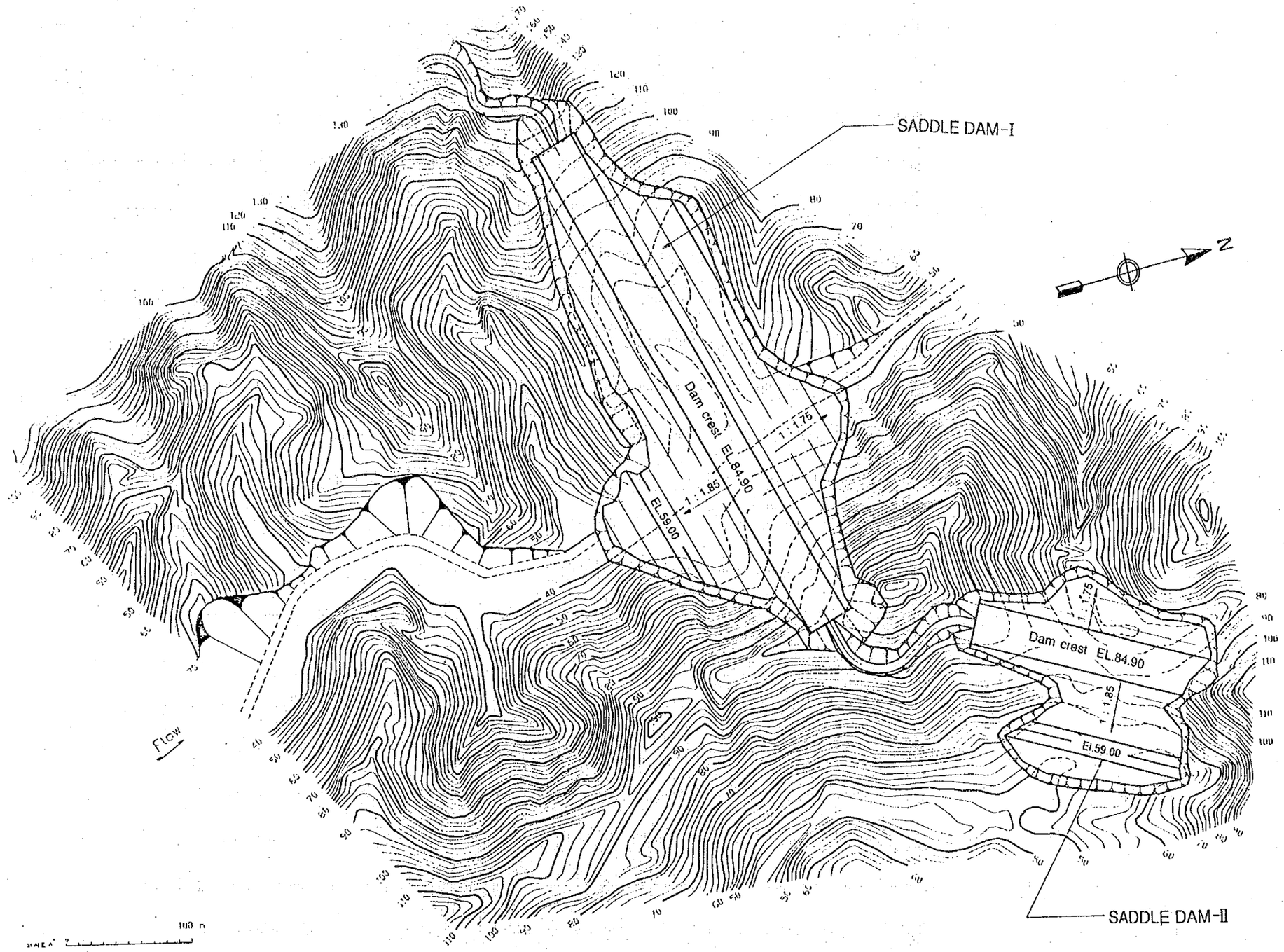


TYPICAL CROSS SECTION OF MAIN DAM

Fig.VII.4.23

Profile and Typical Cross Section of Lebir Dam

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

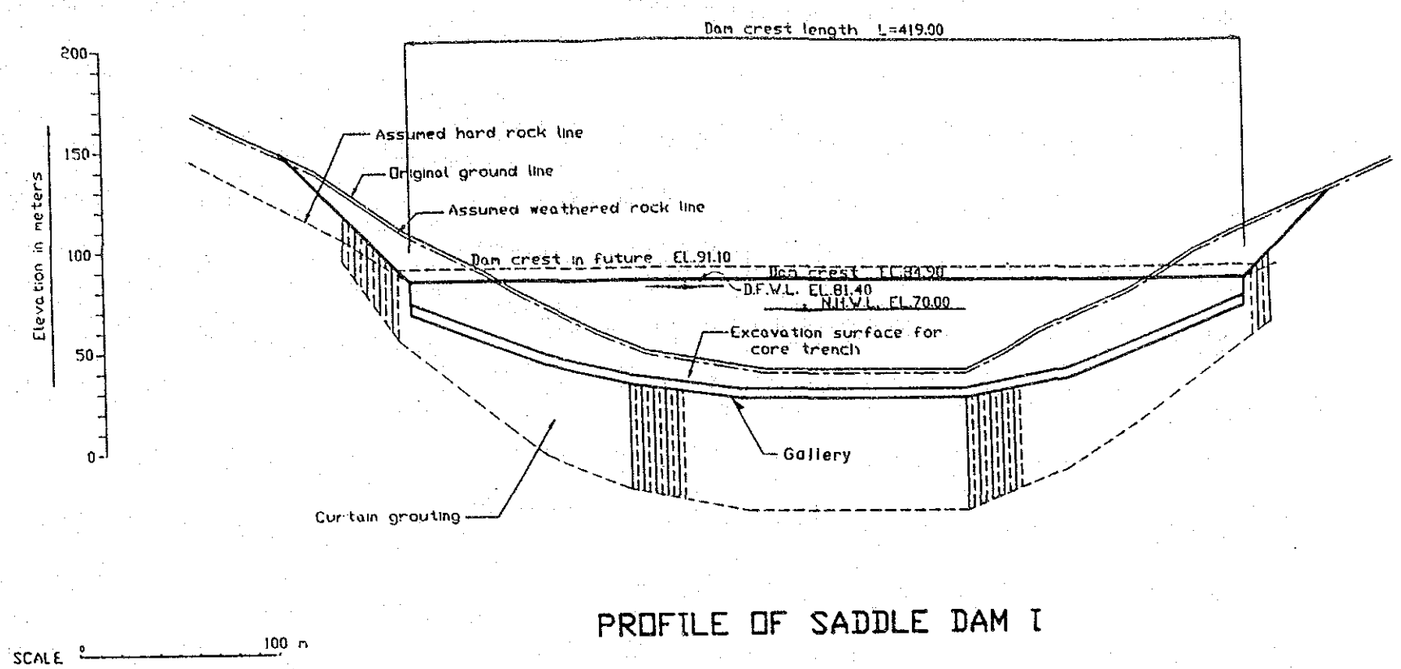


GENERAL PLAN OF SADDLE DAM I AND II

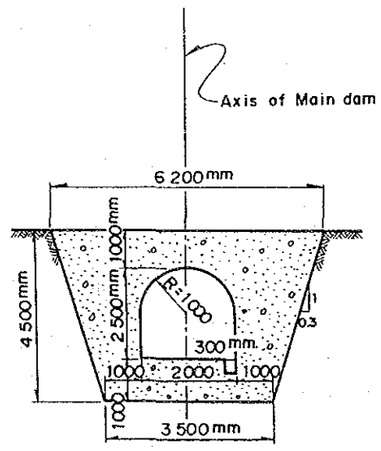
Fig.VII.4.24

General Plan of Saddle Dams I and II

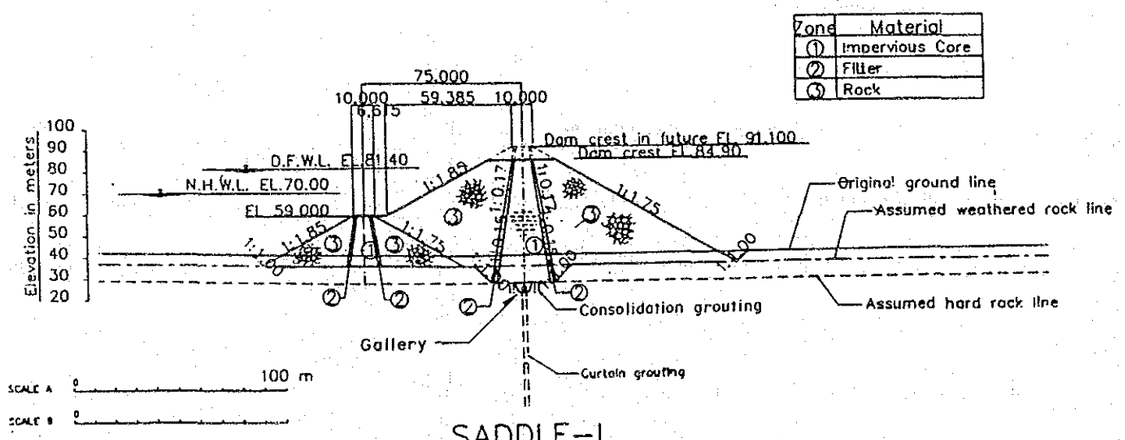
GOVERNMENT OF MALAYSIA
STUDY
ON
KELANTAN RIVER BASIN - WIDE FLOOD MITIGATION
JAPAN INTERNATIONAL COOPERATION AGENCY



PROFILE OF SADDLE DAM I



TYPICAL CROSS SECTION OF GALLERY

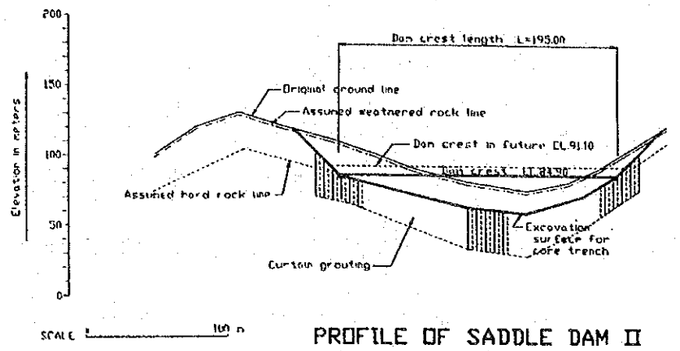


SADDLE-I

Fig.VII.4.25

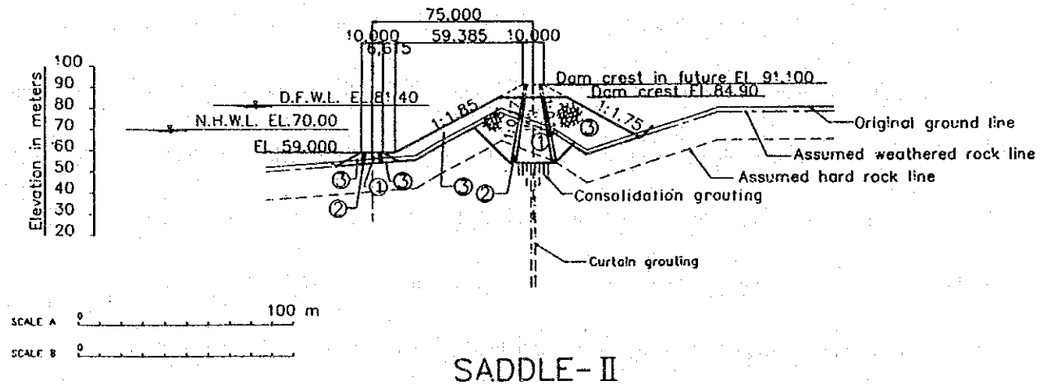
Profile and Cross Section of Saddle Dam I of Lebir Scheme

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



PROFILE OF SADDLE DAM II

Zone	Material
①	Impervious Core
②	Filter
③	Rock



SADDLE-II

Fig.VII.4.26

Profile and Cross Section of Saddle Dam II of Lebir Scheme

GOVERNMENT OF MALAYSIA
STUDY
ON
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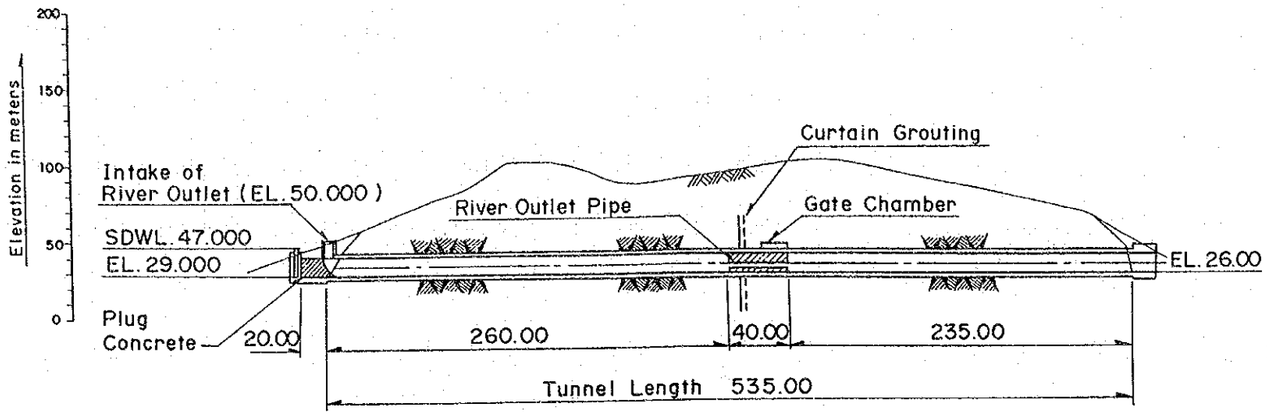
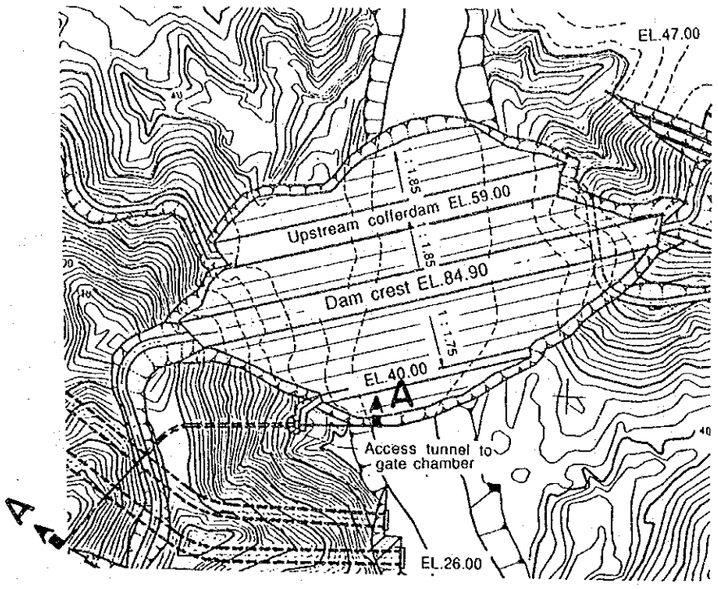
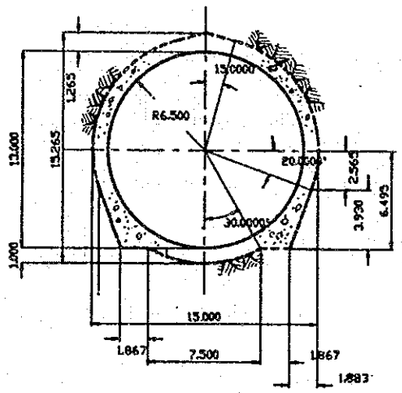
JAPAN INTERNATIONAL COOPERATION AGENCY



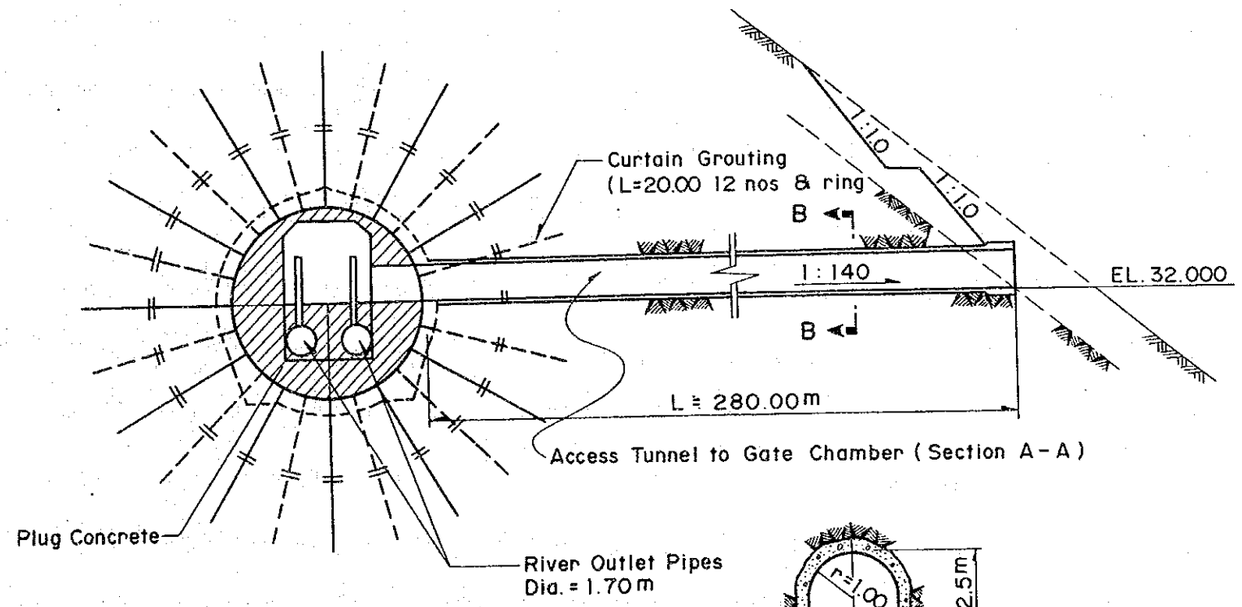
PROFILE OF DIVERSION TUNNEL SCALE A





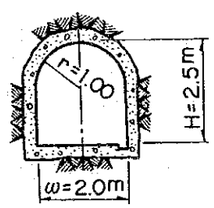
TYPICAL CROSS SECTION

SCALE B



PLUG CONCRETE PART

SCALE B



TYPICAL CROSS SECTION OF ACCESS TUNNEL
(SECTION B-B)

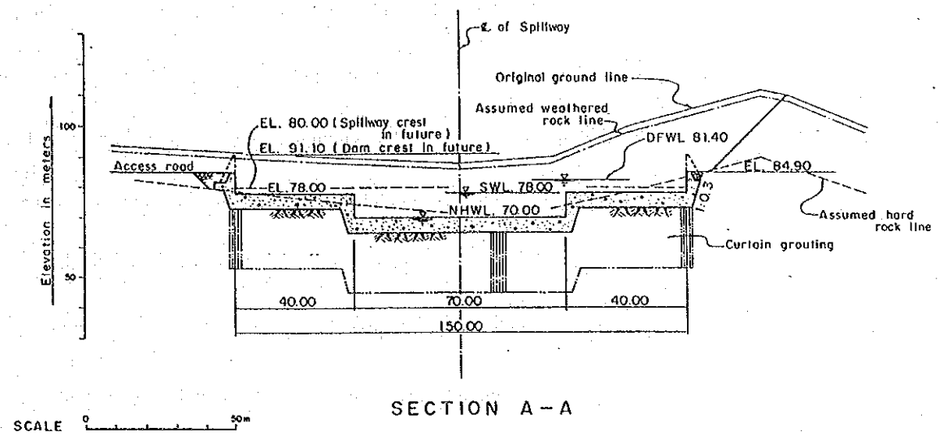
SCALE A 0 200 m

SCALE B 0 20 m

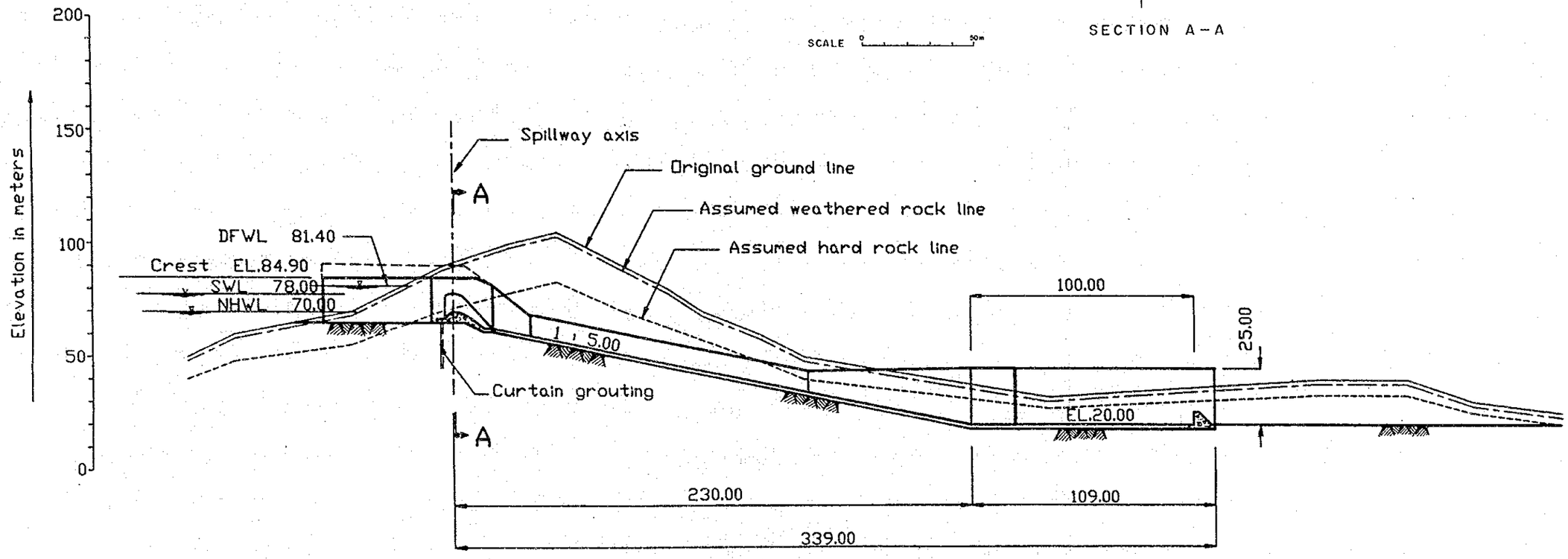
Fig.VII.4.27

Diversion and River Outlet of Lebir Dam

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



SECTION A-A

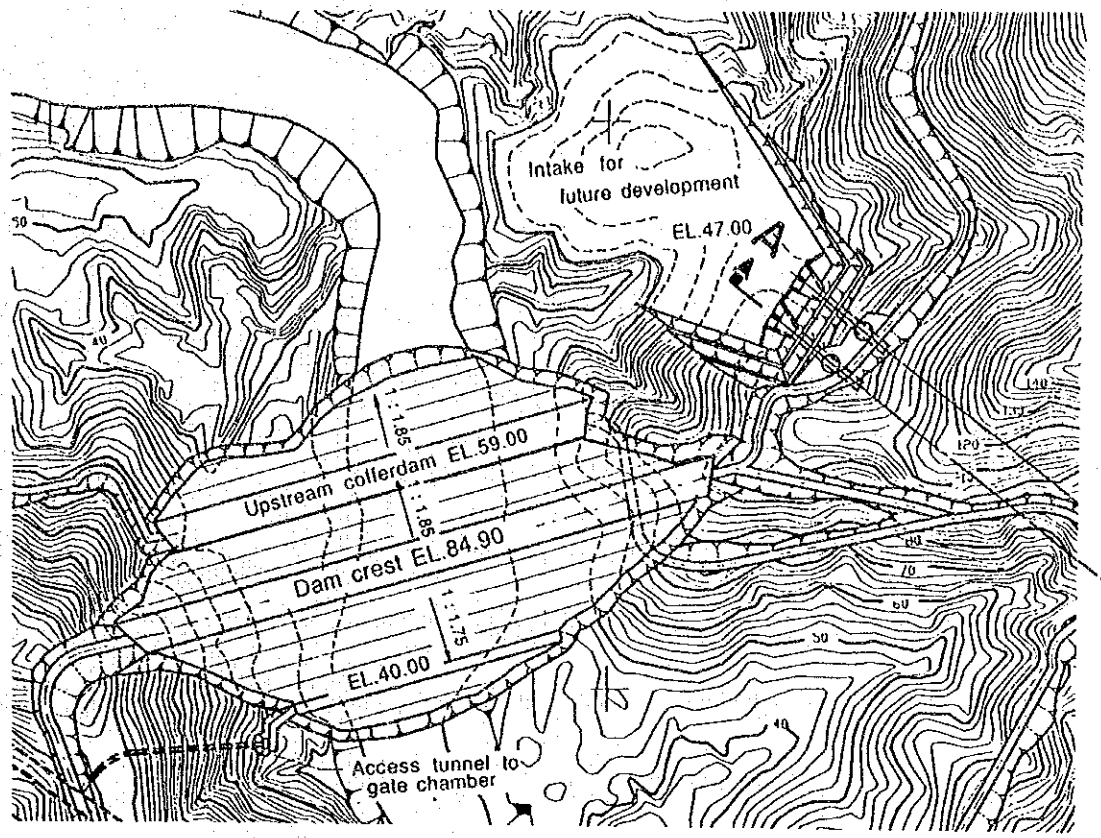


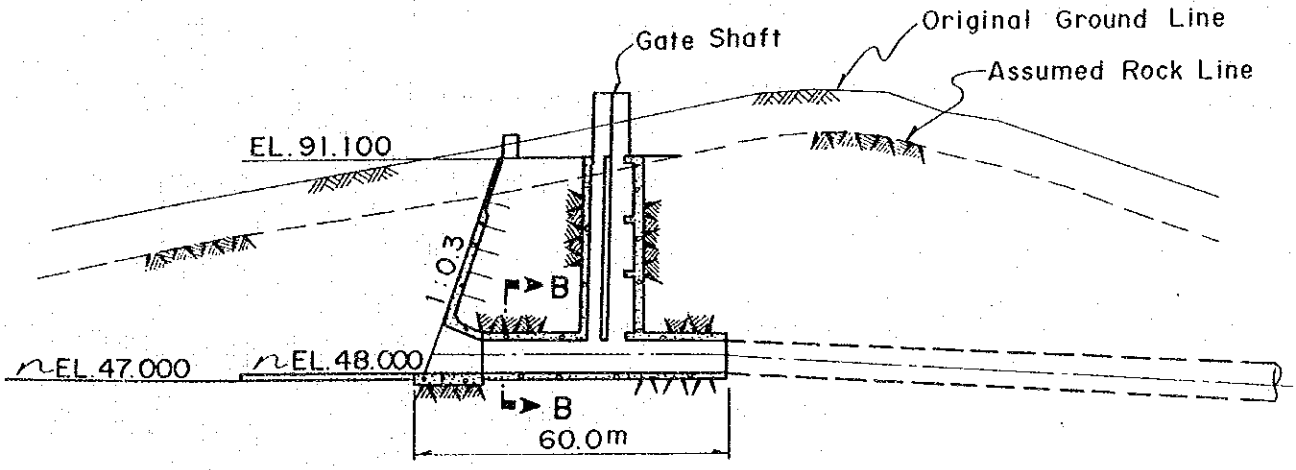
SPILLWAY PROFILE

Fig.VII.4.28

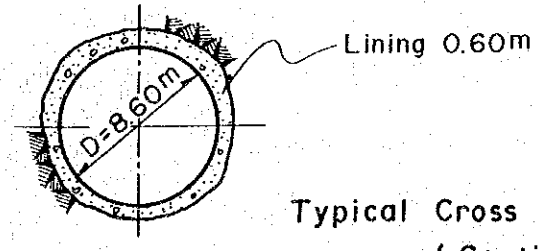
Profile and Cross Section of Spillway of Lebir Dam

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





Longitudinal Section of Power Intake (Section A - A)



Typical Cross Section of Power Intake Tunnel
(Section B - B)

Fig.VII.4.29

Power Intake Construction Scheme to be Proposed at First Stage

GOVERNMENT OF MALAYSIA
STUDY
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JAPAN INTERNATIONAL COOPERATION AGENCY

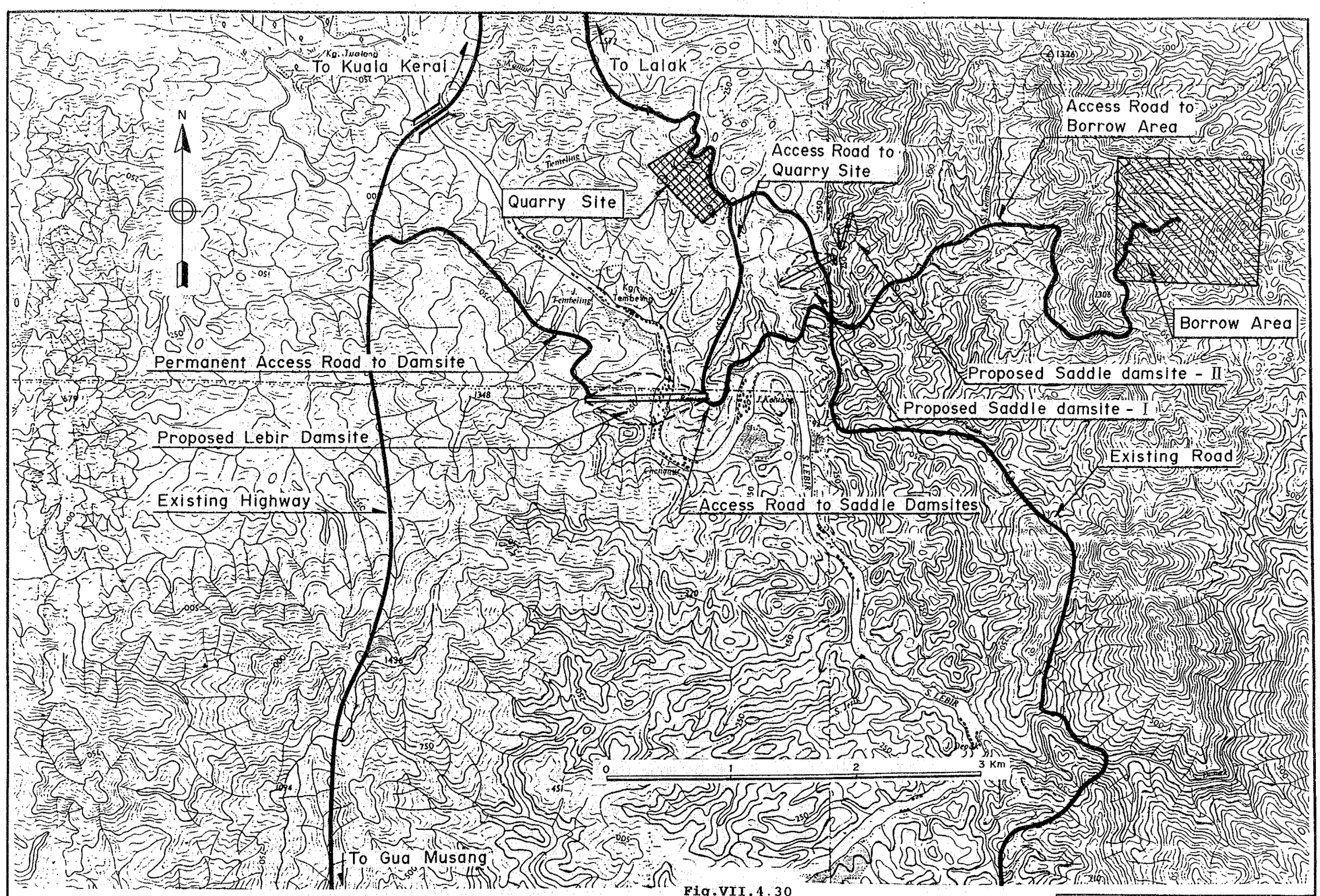

Fig.VII.4.30

Access Roads to Damsites, Quarry Site and Borrow Area

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

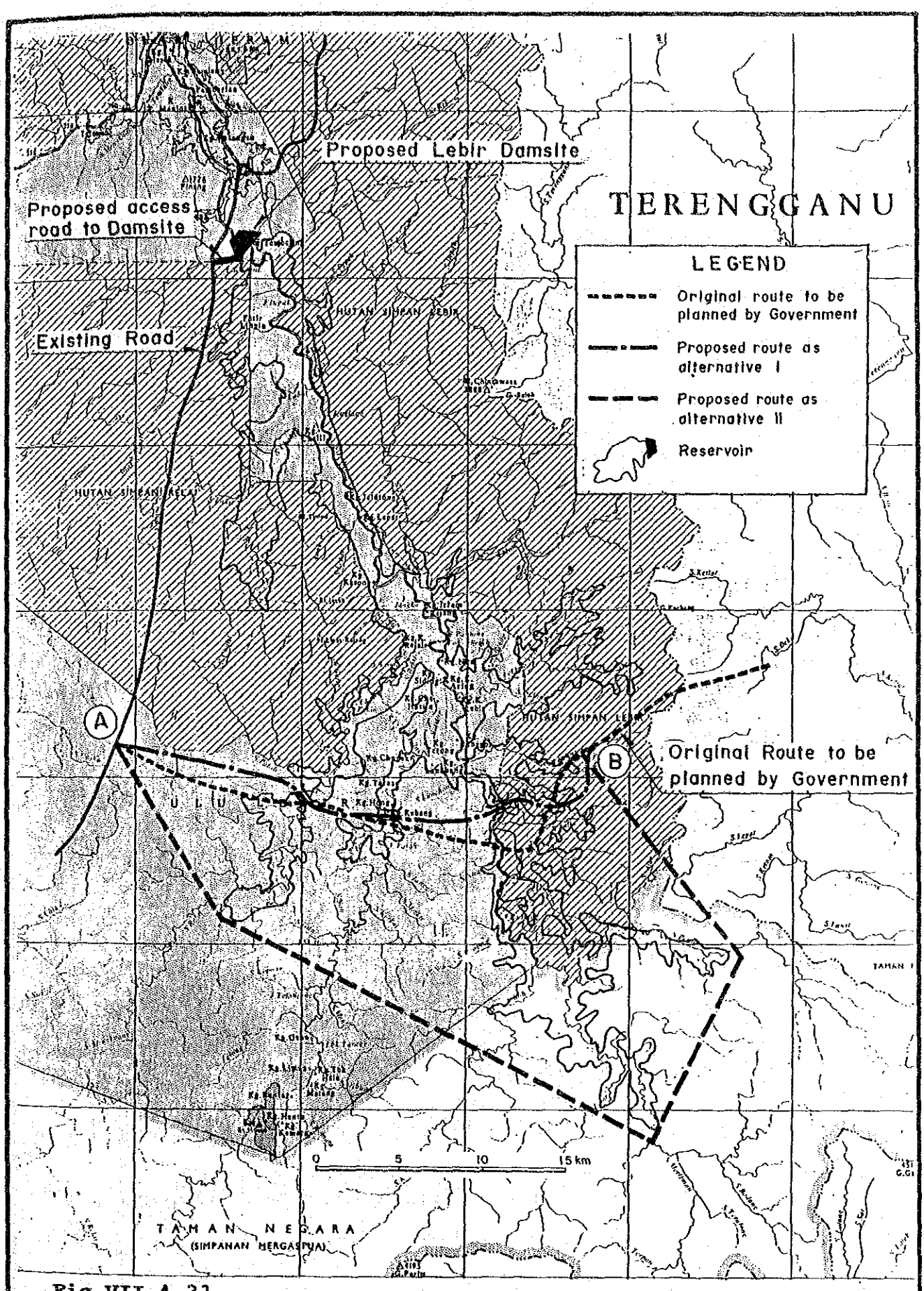

Fig.VII.4.31

Alternative Plan of Highway Route around Lebir Reservoir

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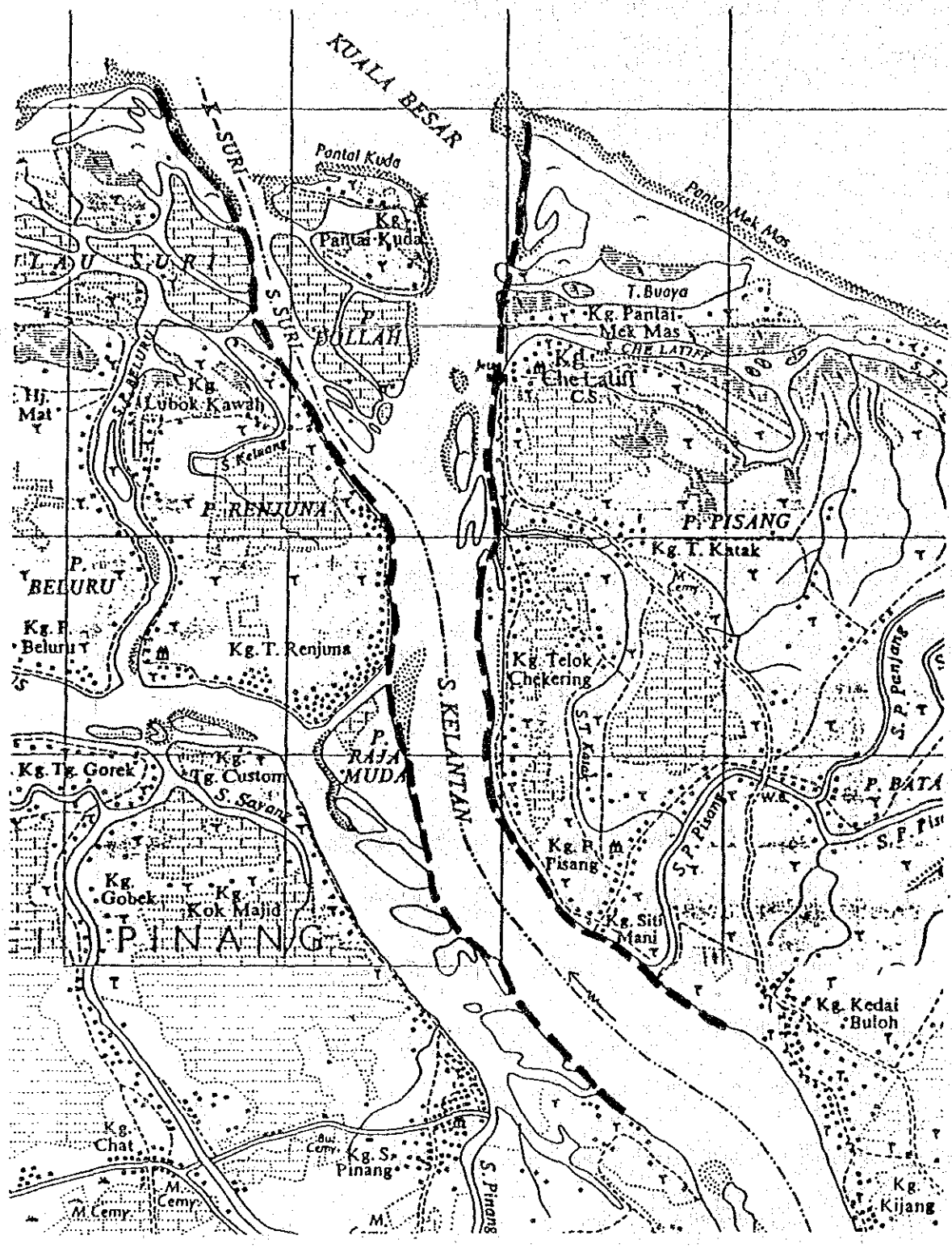

— — — — :BOUNDARY OF PREDOMINANT FLOW AT THE FLOOD TIME

Fig.VII.5.1

Predominant Flow Condition for the Flood Time

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