

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

ROYAL IRRIGATION DEPARTMENT

MINISTRY OF AGRICULTURE AND COOPERATIVES

KINGDOM OF THAILAND

**THE STUDY
ON THE KOKANG-NAN WATER DIVERSION PROJECT
IN THE KINGDOM OF THAILAND**

DATABASE MAPS

(Conceptual Planning Study and Initial Environmental Examination)

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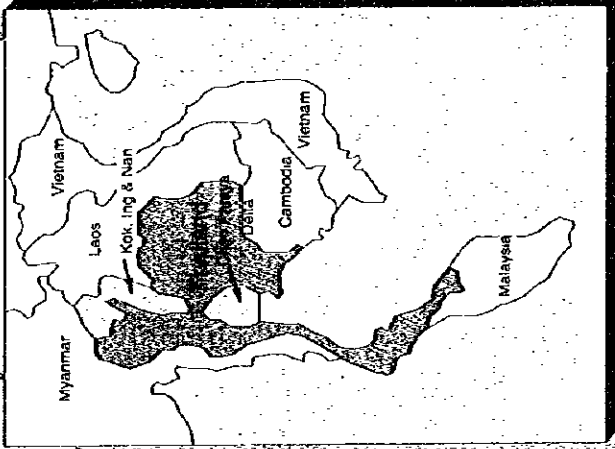
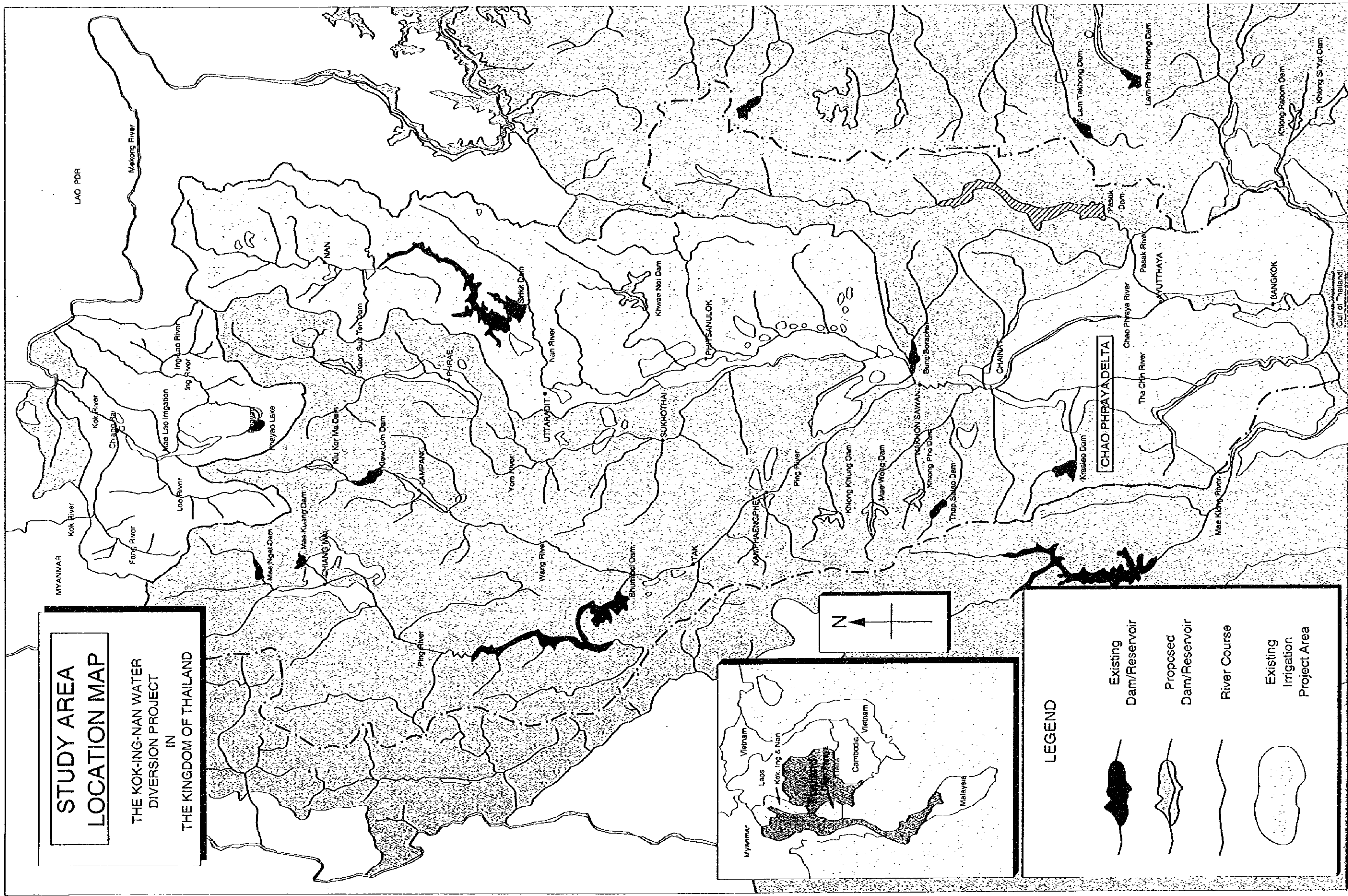
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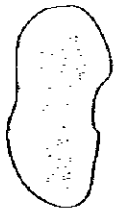
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STUDY AREA LOCATION MAP

THE KOK-ING-NAN WATER
DIVERSION PROJECT
IN
THE KINGDOM OF THAILAND

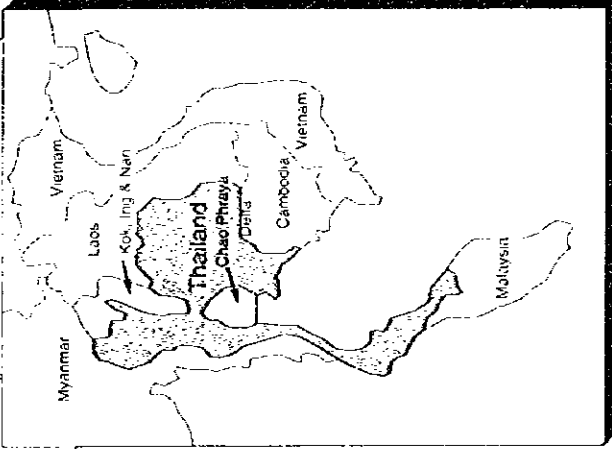
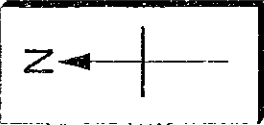
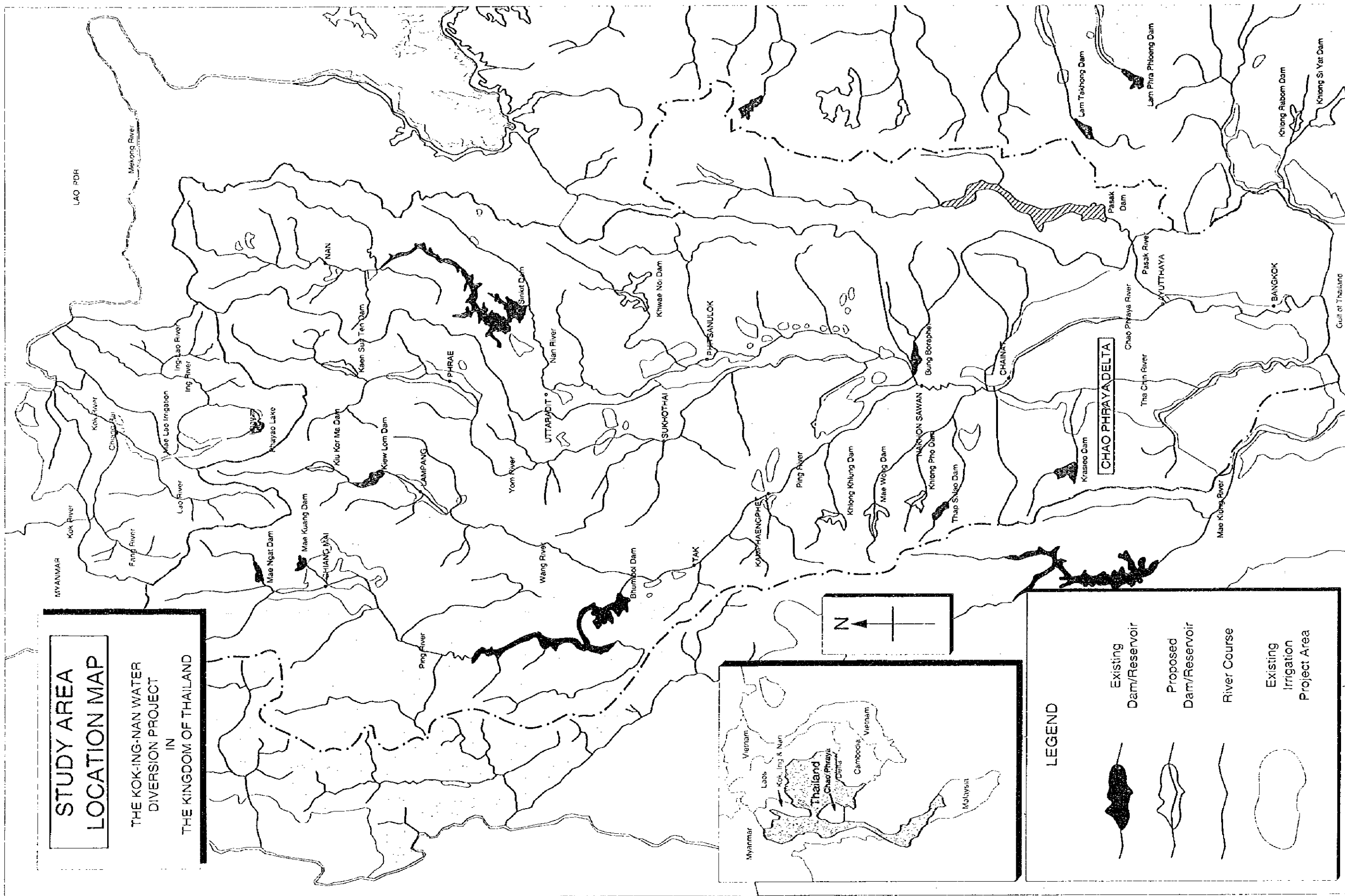


LEGEND

-  Existing Dam/Reservoir
-  Proposed Dam/Reservoir
-  River Course
-  Existing Irrigation Project Area

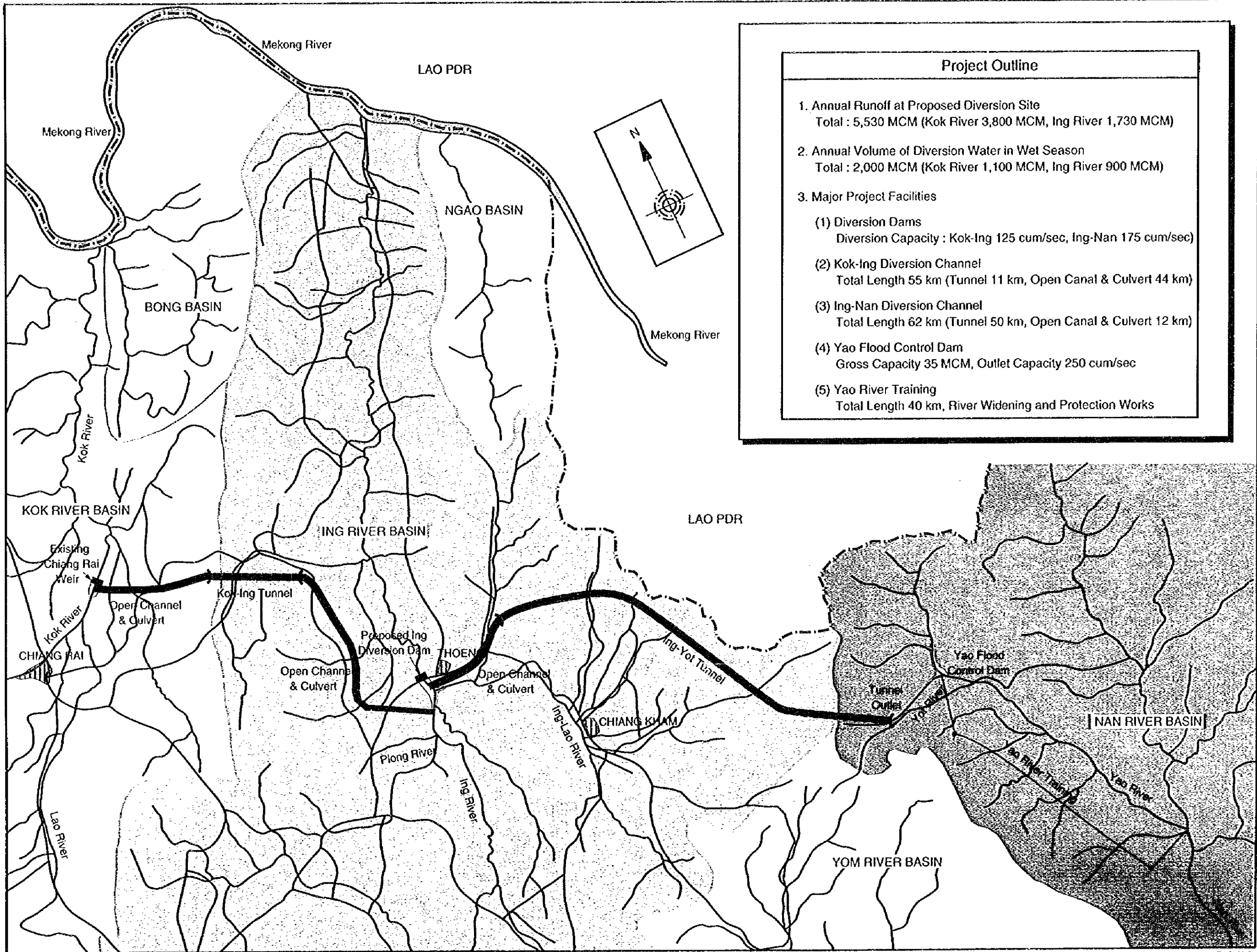
STUDY AREA LOCATION MAP

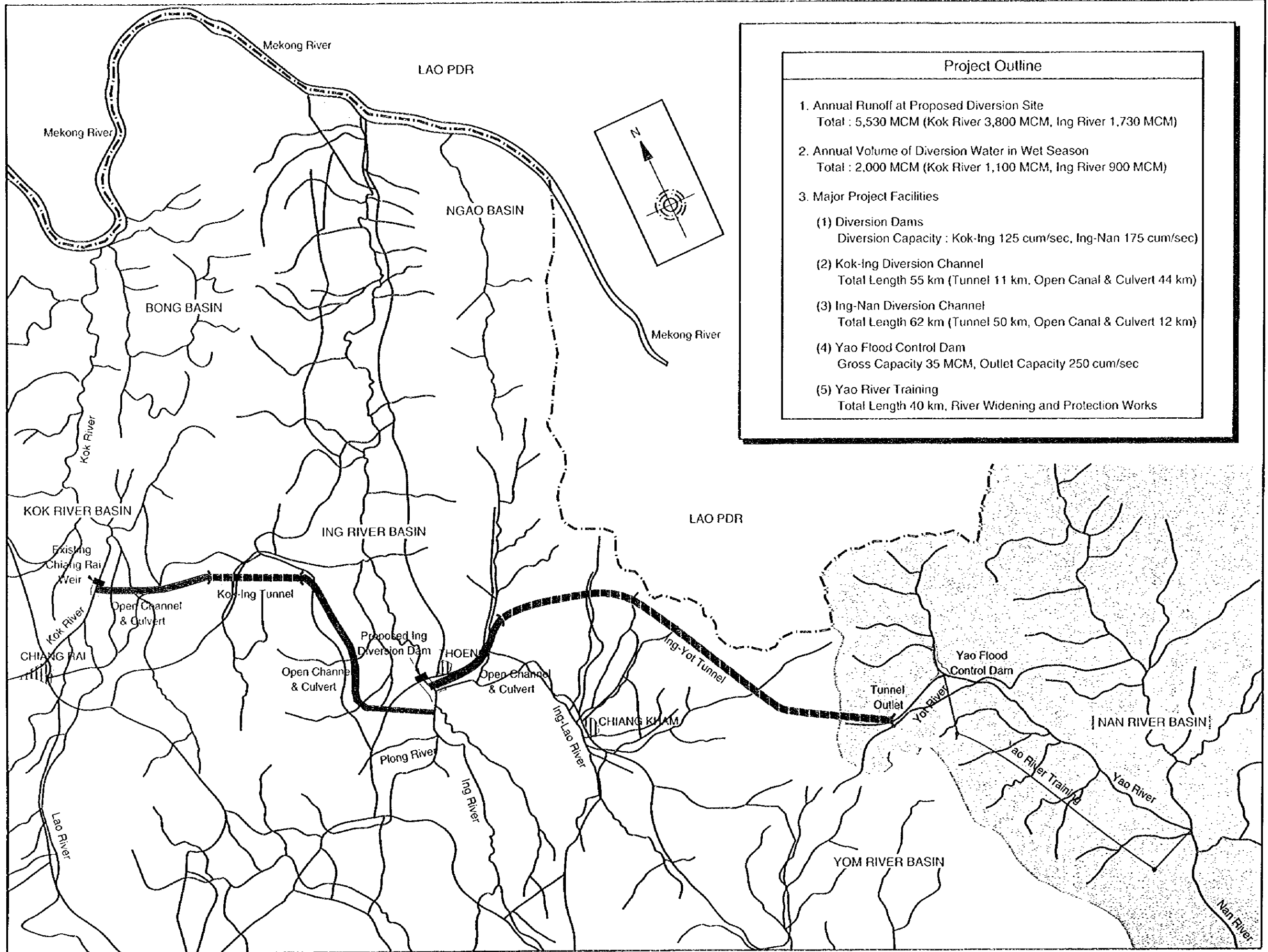
THE KOK-ING-NAN WATER
DIVERSION PROJECT
IN
THE KINGDOM OF THAILAND



LEGEND

- Existing Dam/Reservoir
- Proposed Dam/Reservoir
- River Course
- Existing Irrigation Project Area





Project Outline	
1. Annual Runoff at Proposed Diversion Site	Total : 5,530 MCM (Kok River 3,800 MCM, Ing River 1,730 MCM)
2. Annual Volume of Diversion Water in Wet Season	Total : 2,000 MCM (Kok River 1,100 MCM, Ing River 900 MCM)
3. Major Project Facilities	
(1) Diversion Dams	Diversion Capacity : Kok-Ing 125 cum/sec, Ing-Nan 175 cum/sec
(2) Kok-Ing Diversion Channel	Total Length 55 km (Tunnel 11 km, Open Canal & Culvert 44 km)
(3) Ing-Nan Diversion Channel	Total Length 62 km (Tunnel 50 km, Open Canal & Culvert 12 km)
(4) Yao Flood Control Dam	Gross Capacity 35 MCM, Outlet Capacity 250 cum/sec
(5) Yao River Training	Total Length 40 km, River Widening and Protection Works

LIST OF DATABASE MAP (1/2)

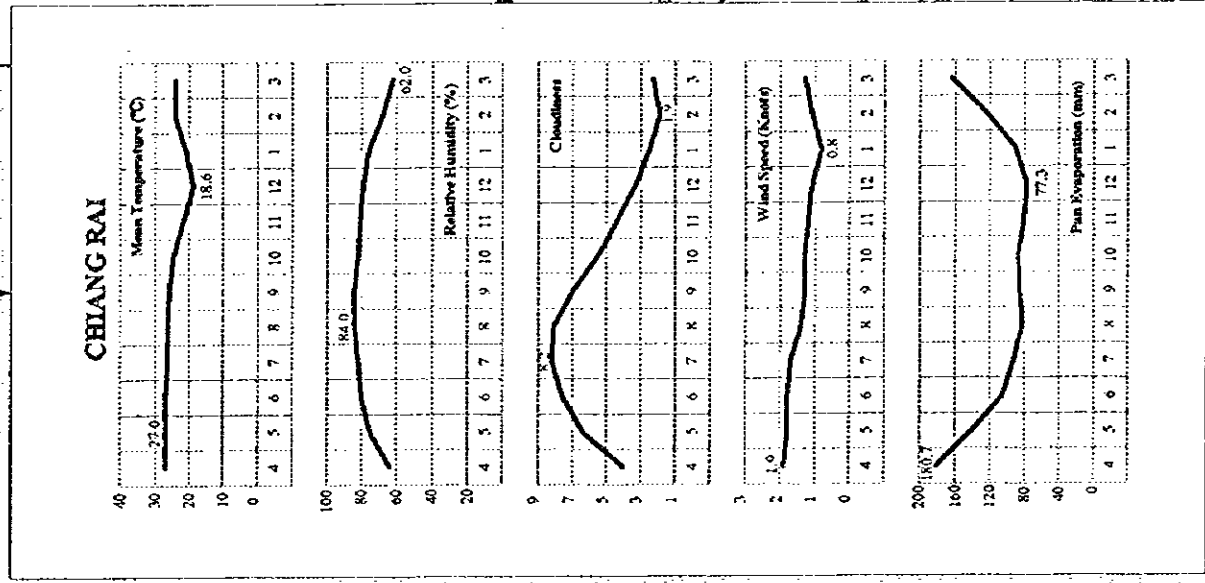
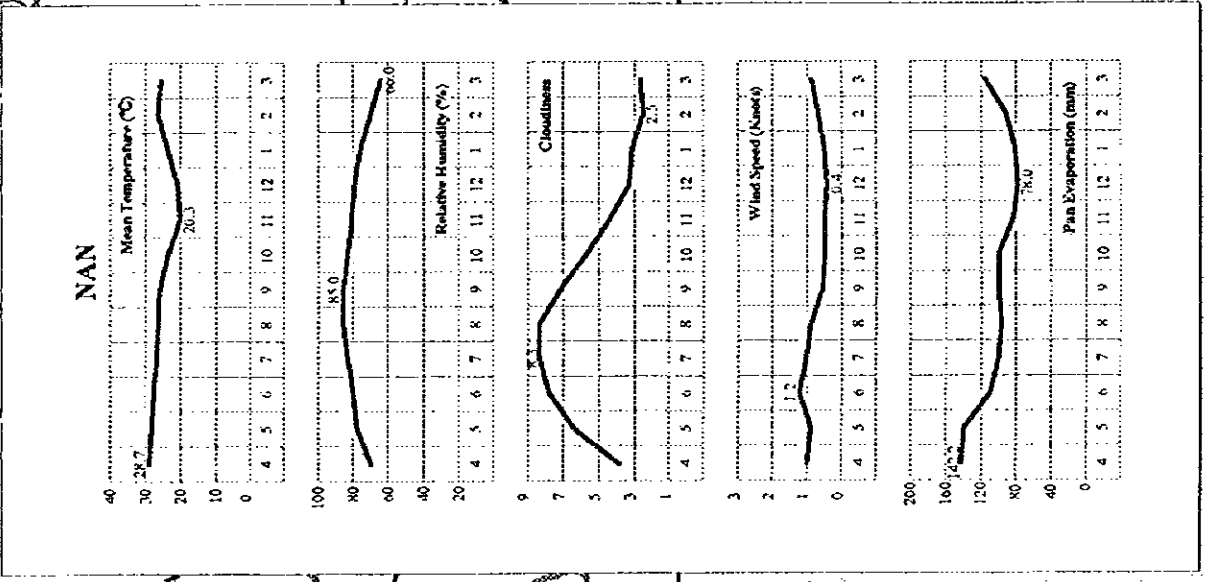
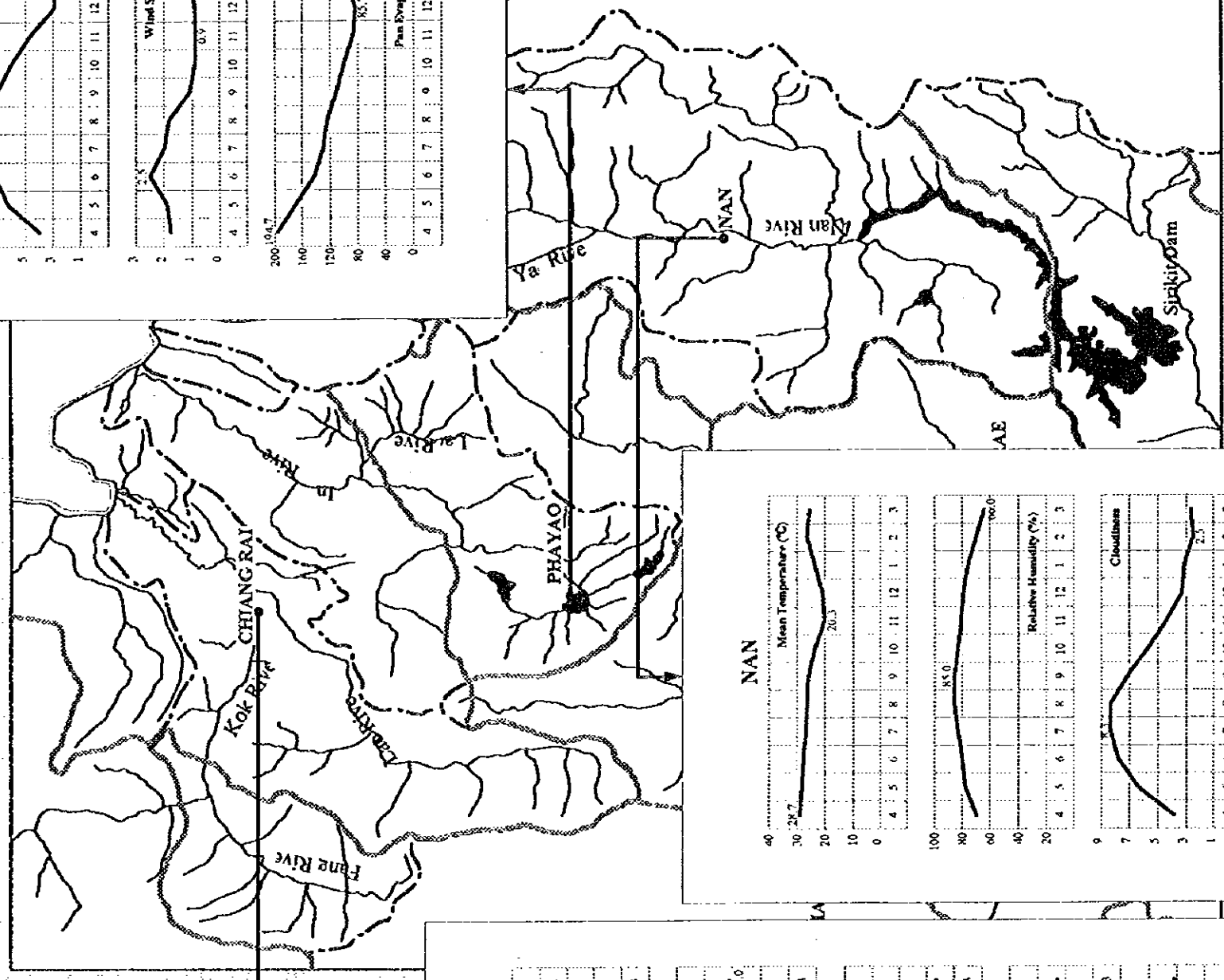
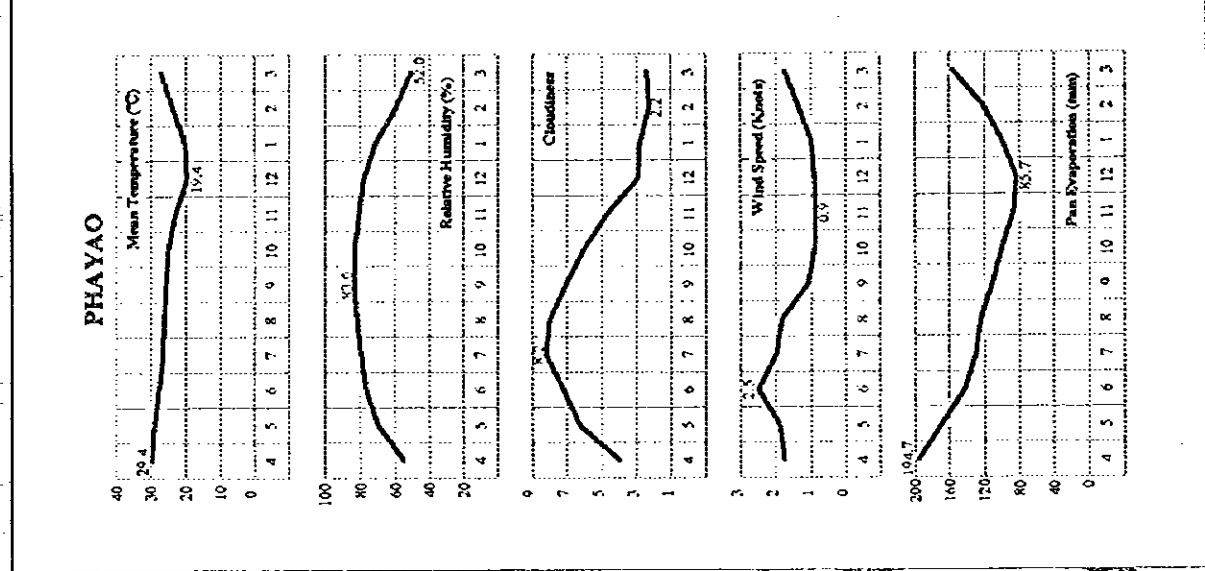
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LIST OF DATABASE MAP (2/2)

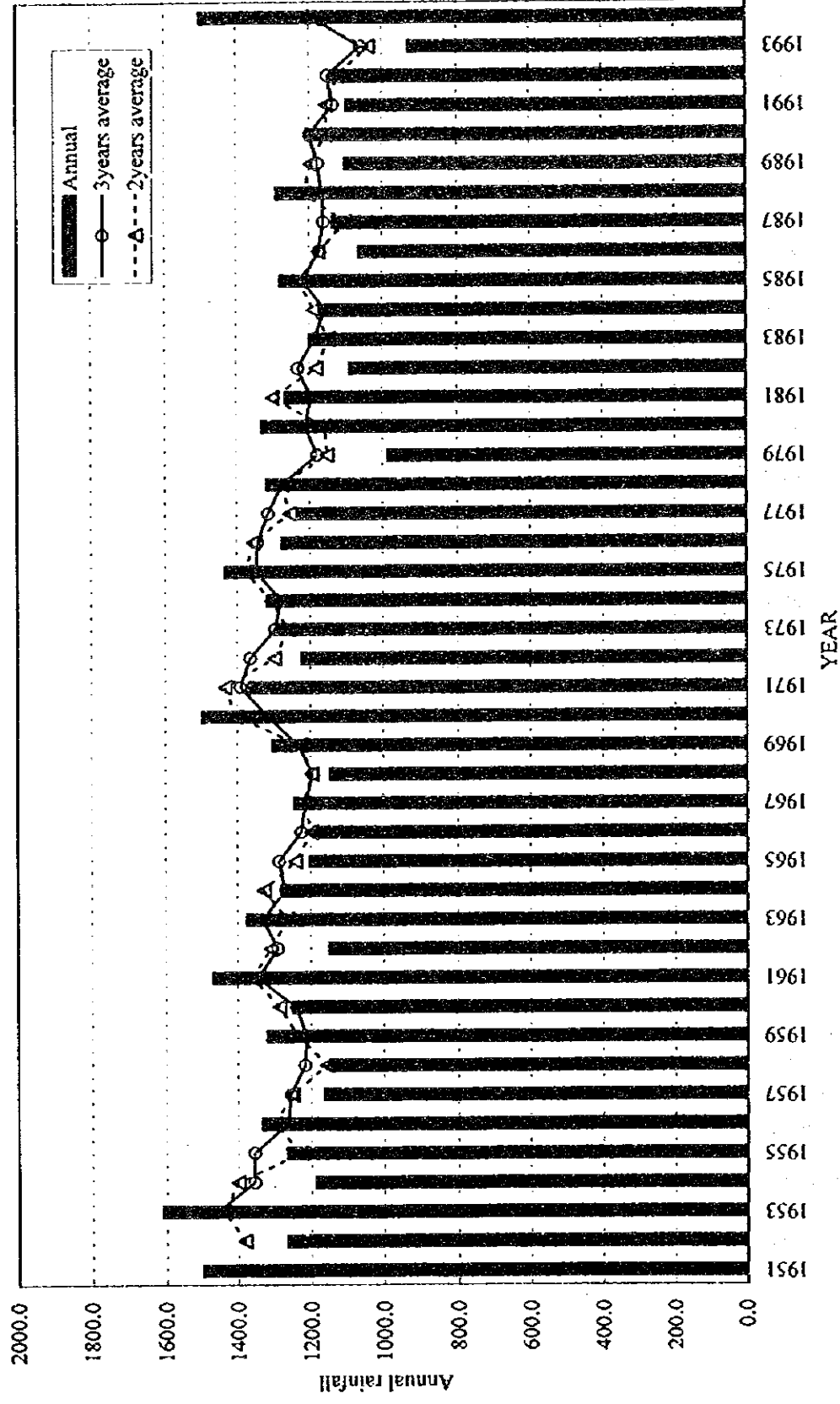
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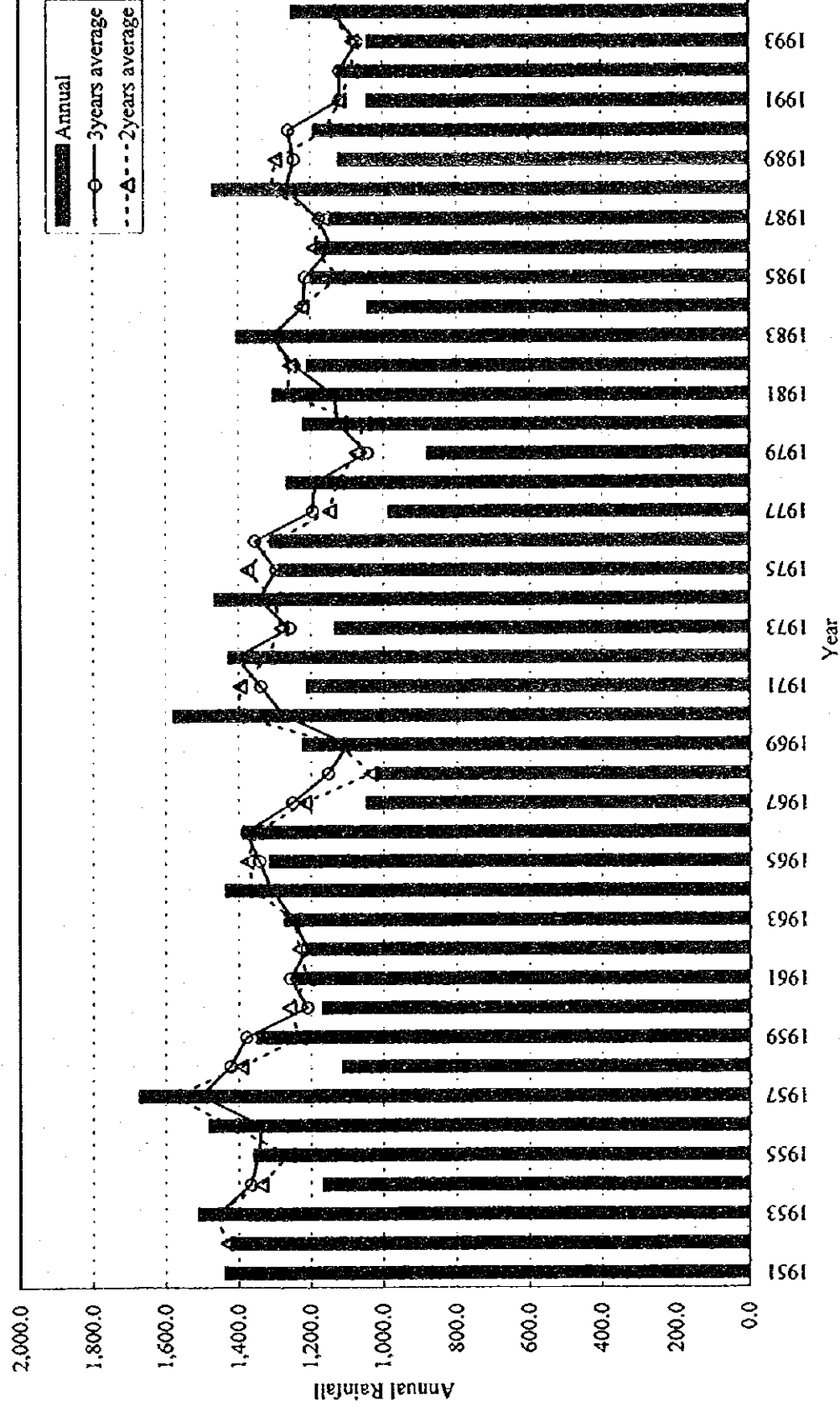
PART I	HYDROLOGY
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Figure H-2	Long Term Rainfall in the Project Area and Chao Phraya Basin
Figure H-3	Isolines of Rainfall in Kok, Ing and Upper Nan Basin
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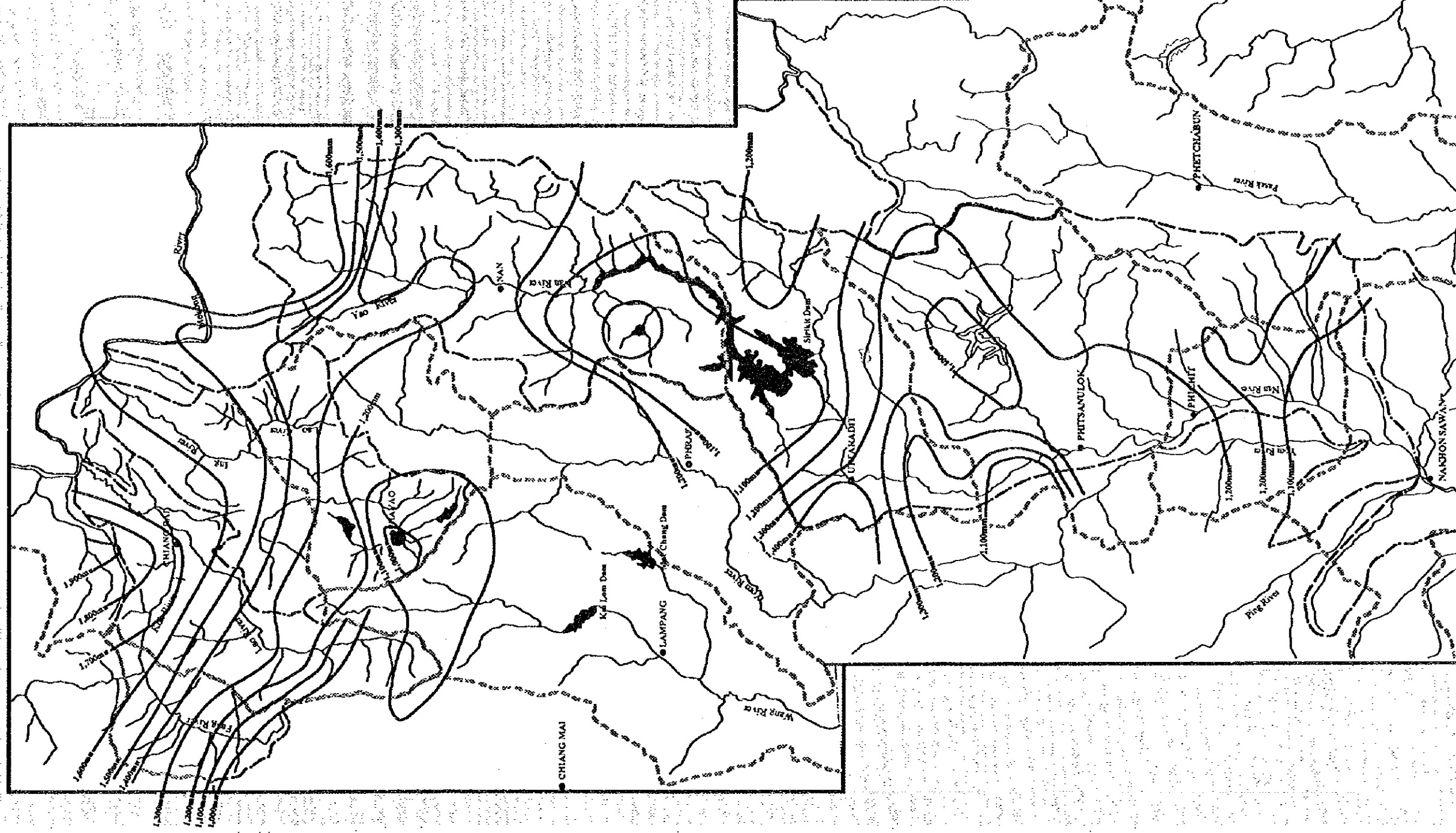


Annual Distribution of Rainfall in North Region



Annual Distribution of Rainfall in Central Region

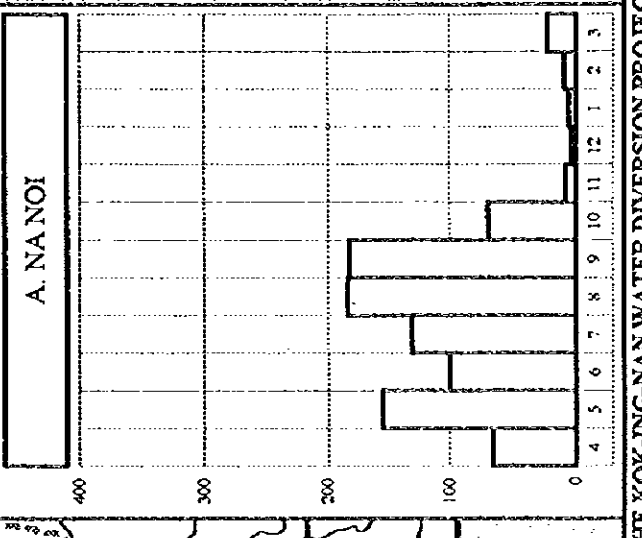
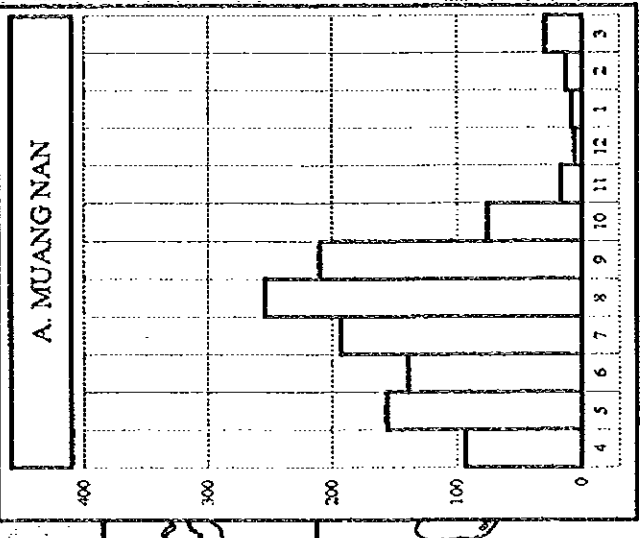
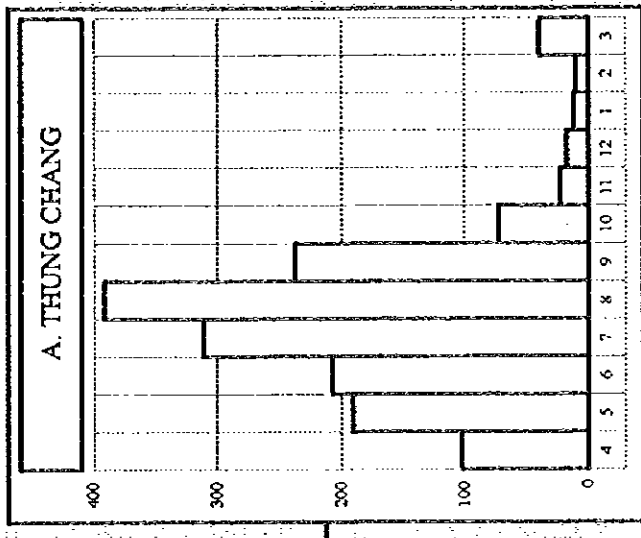
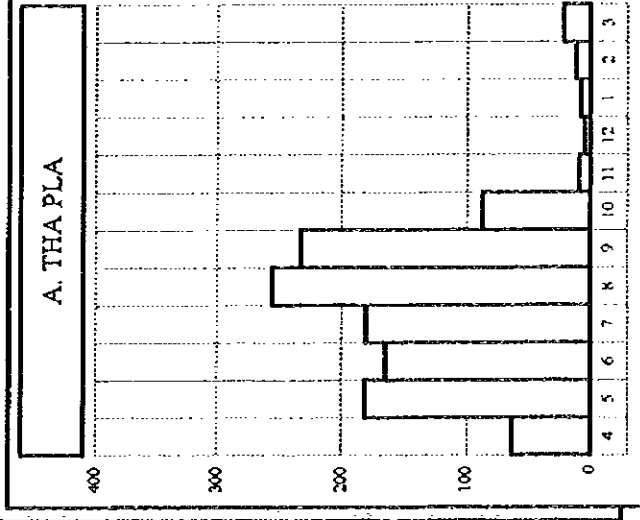
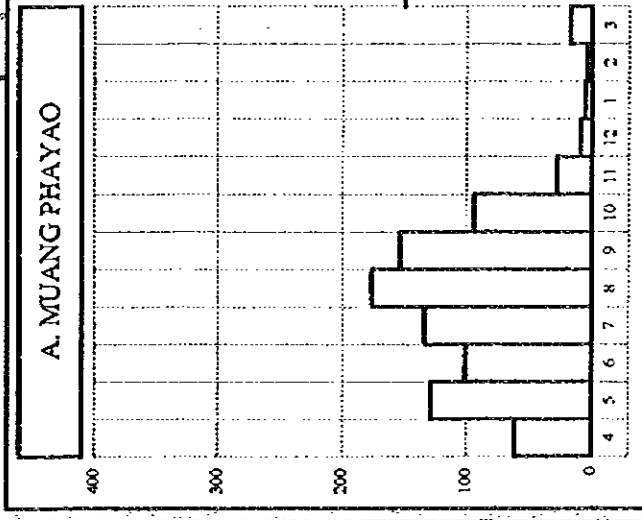
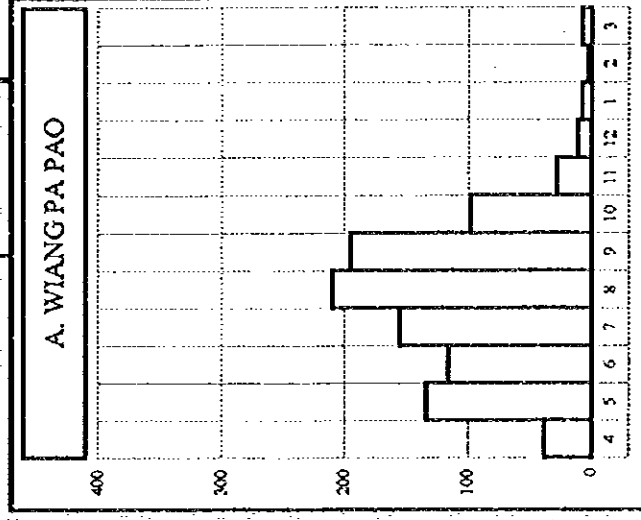
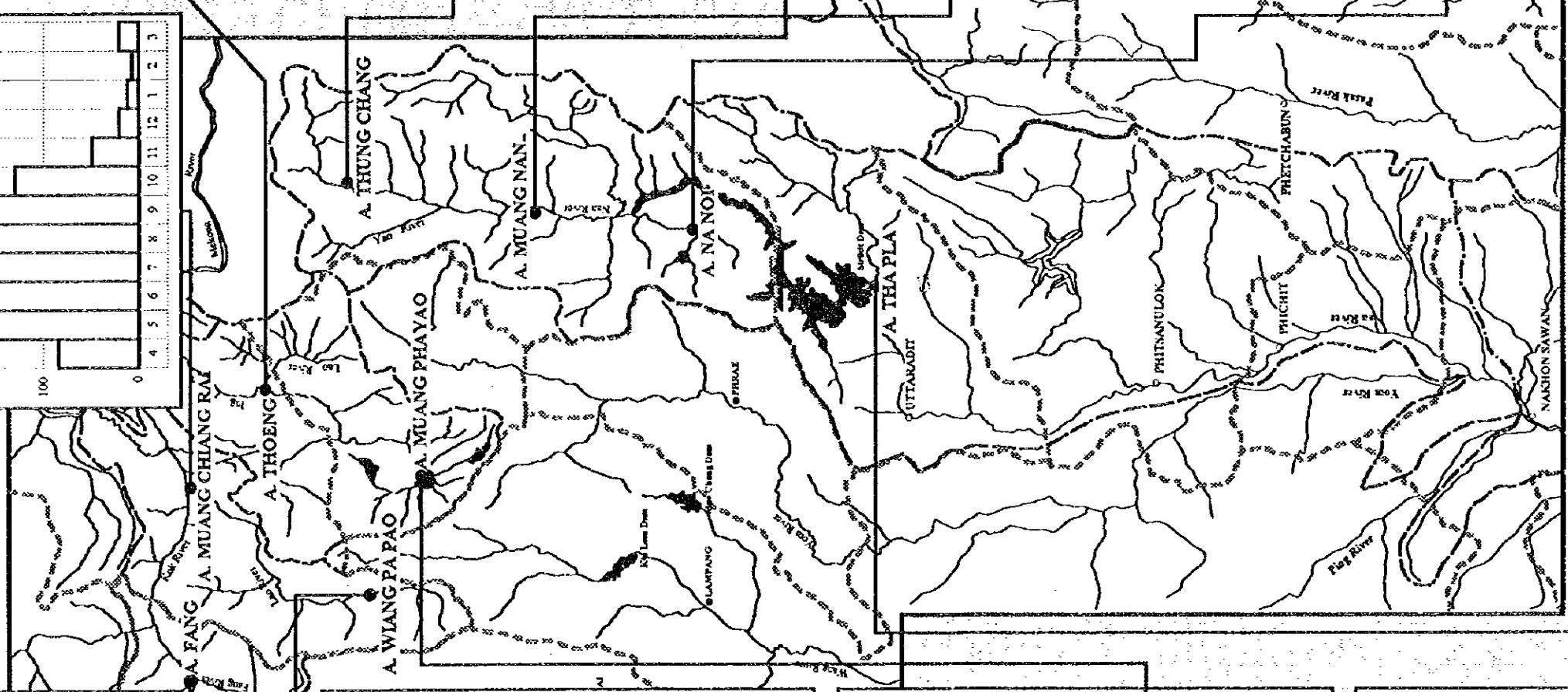
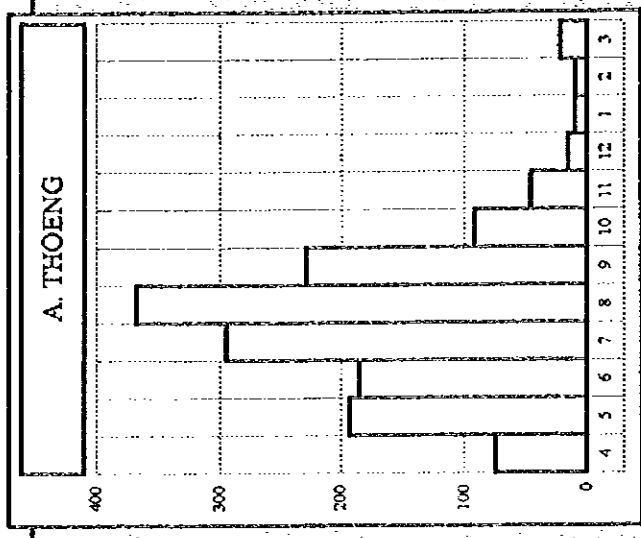
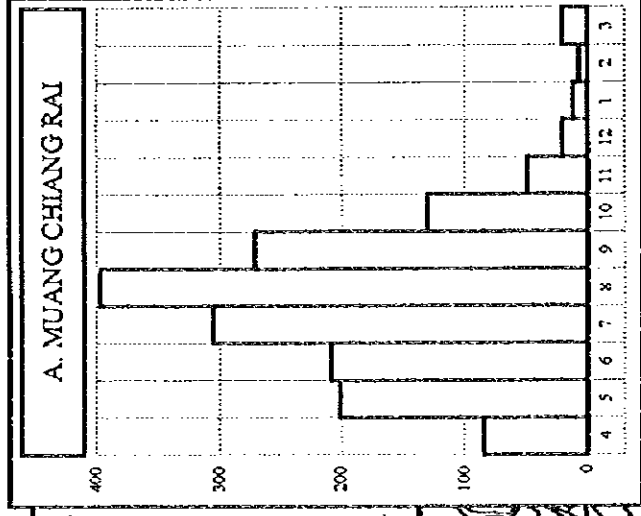
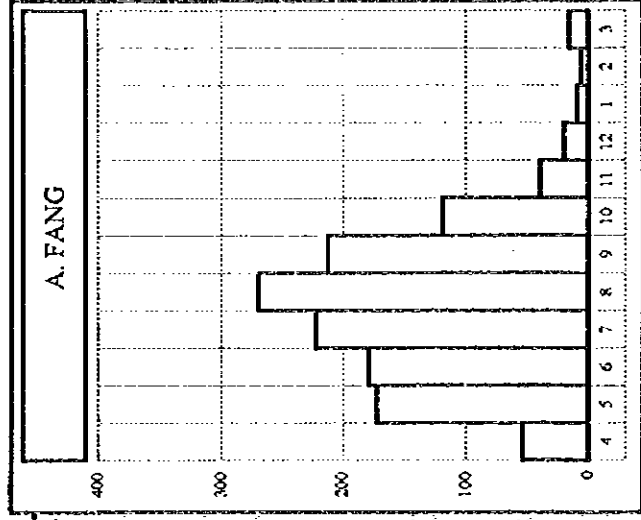




THE STUDY ON THE KOK-ING-NAN WATER DIVERSION PROJECT

Map & Drawing No
KOK, ING AND UPPER NAN BASIN
JAPAN INTERNATIONAL COOPERATION AGENCY(JICA)
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Figure H-3



THE STUDY ON THE KOK-ING-NAN WATER DIVERSION PROJECT

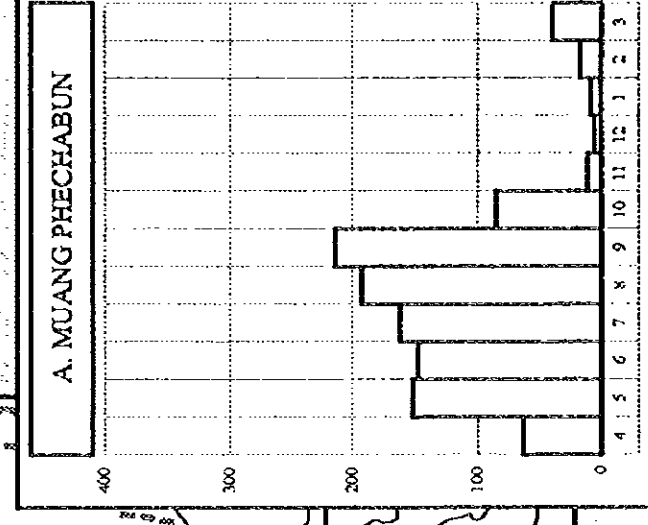
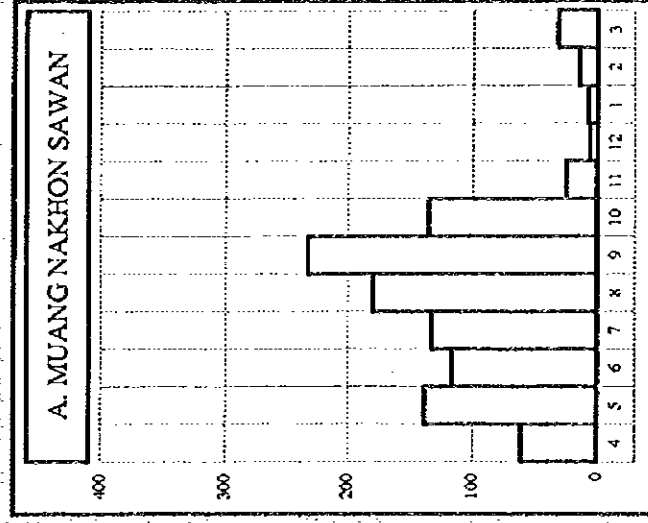
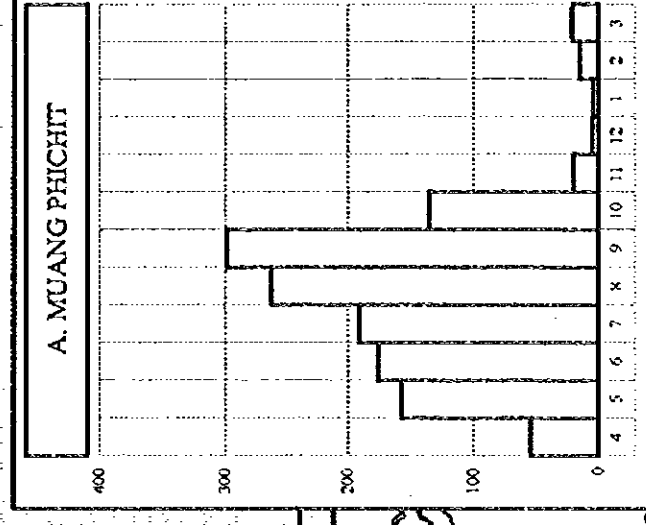
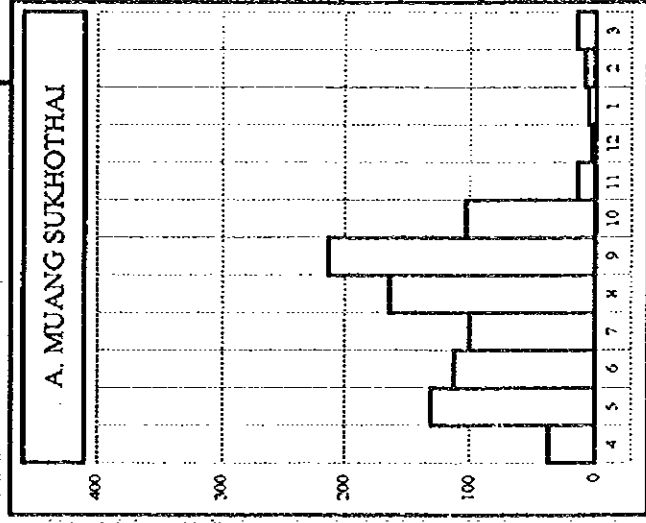
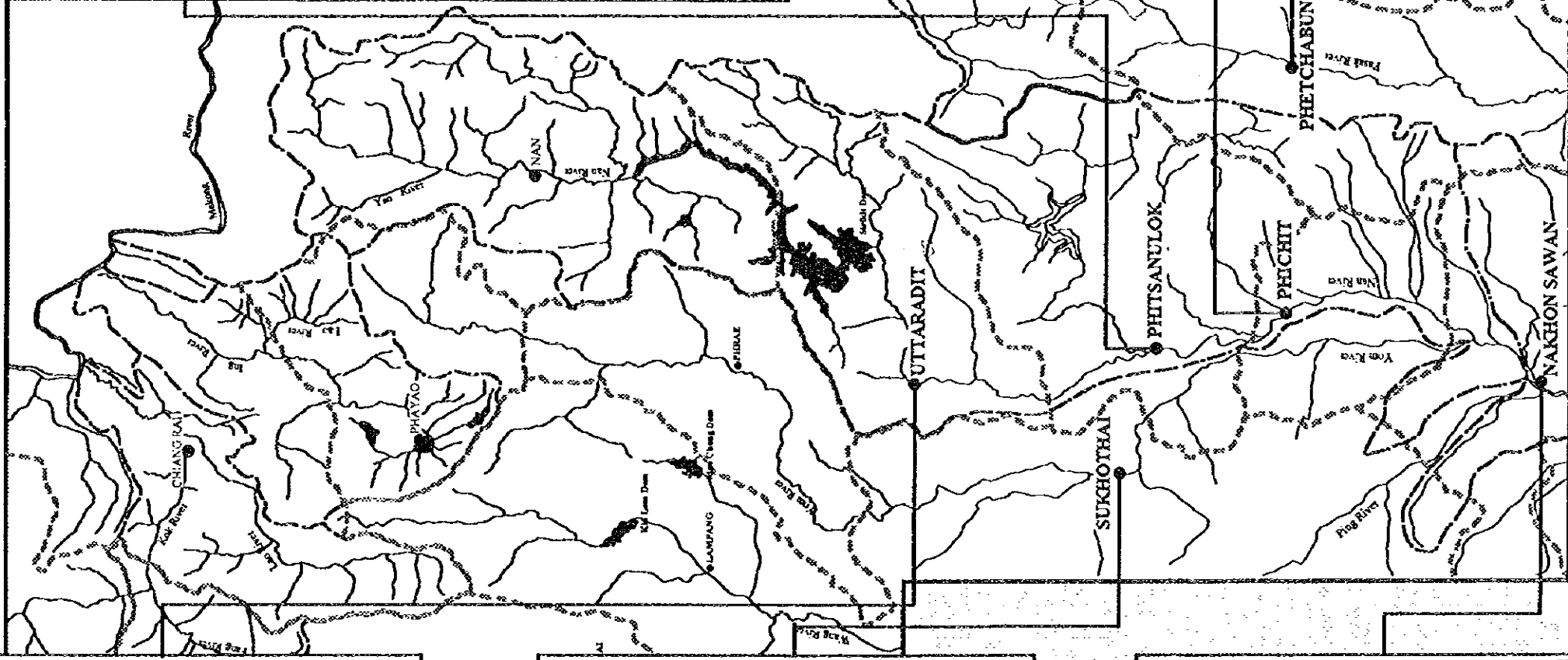
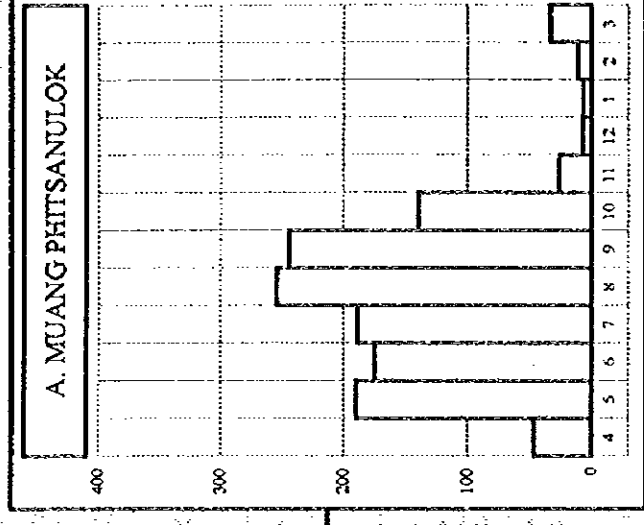
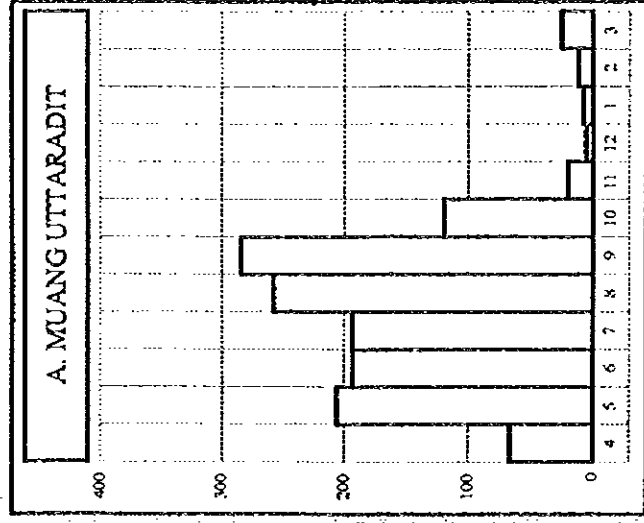
RAINFALL DISTRIBUTION IN
KOK, ING AND UPPER NAN BASIN (1/2)

Map &
Drawing No.

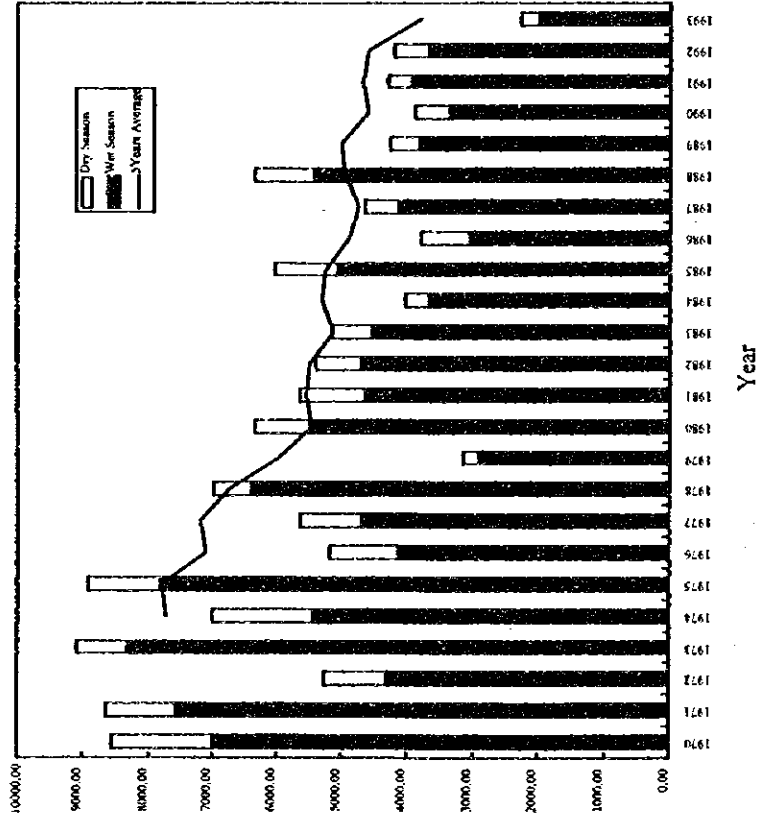
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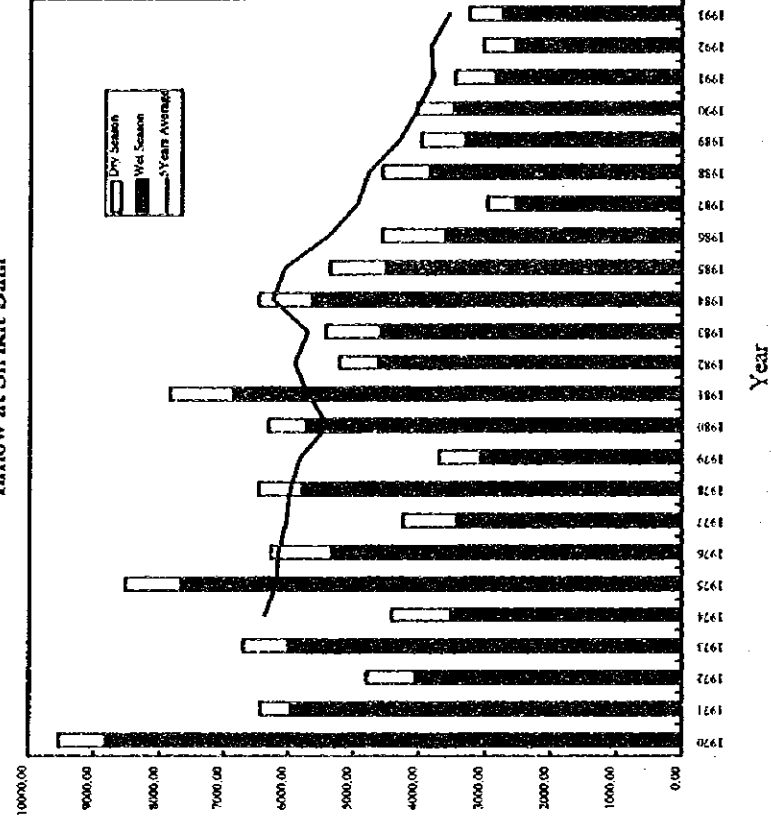
Figure H-4



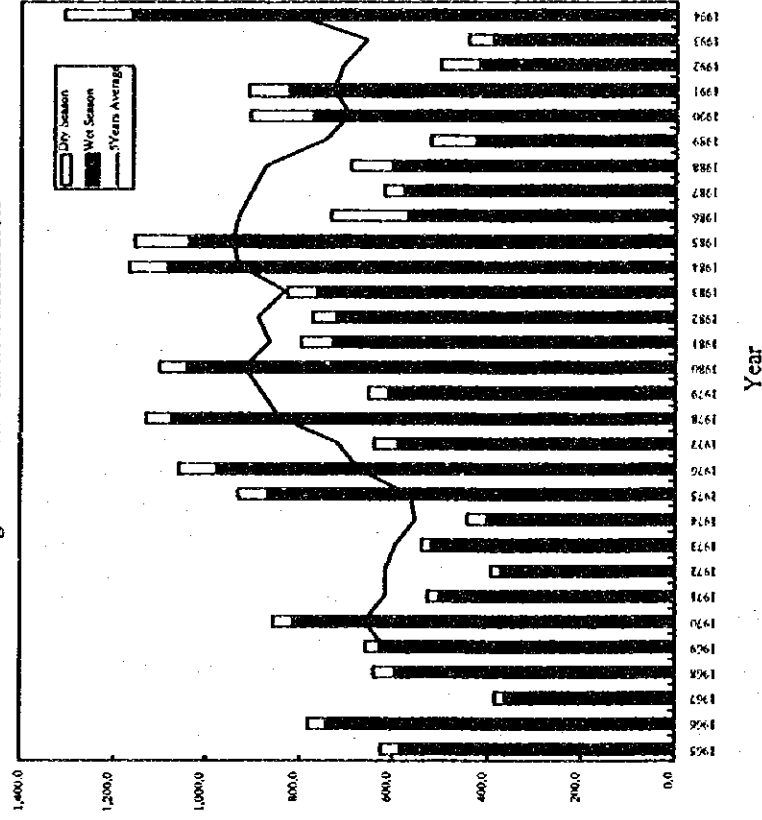
Inflow at Bhumibol Dam



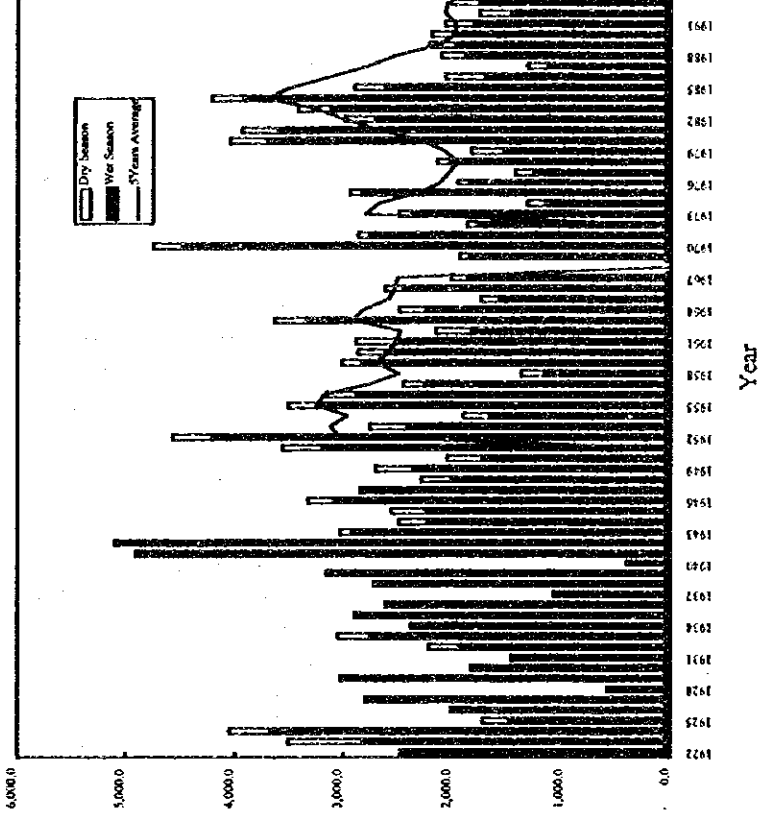
Inflow at Sirikit Dam



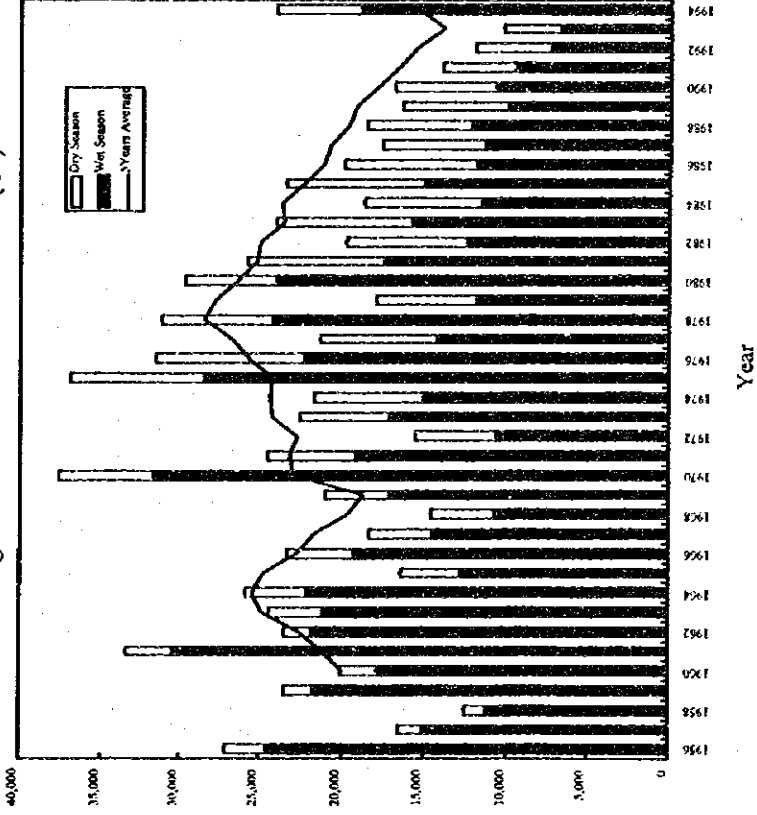
Long Term Runoff at Phitsanulok



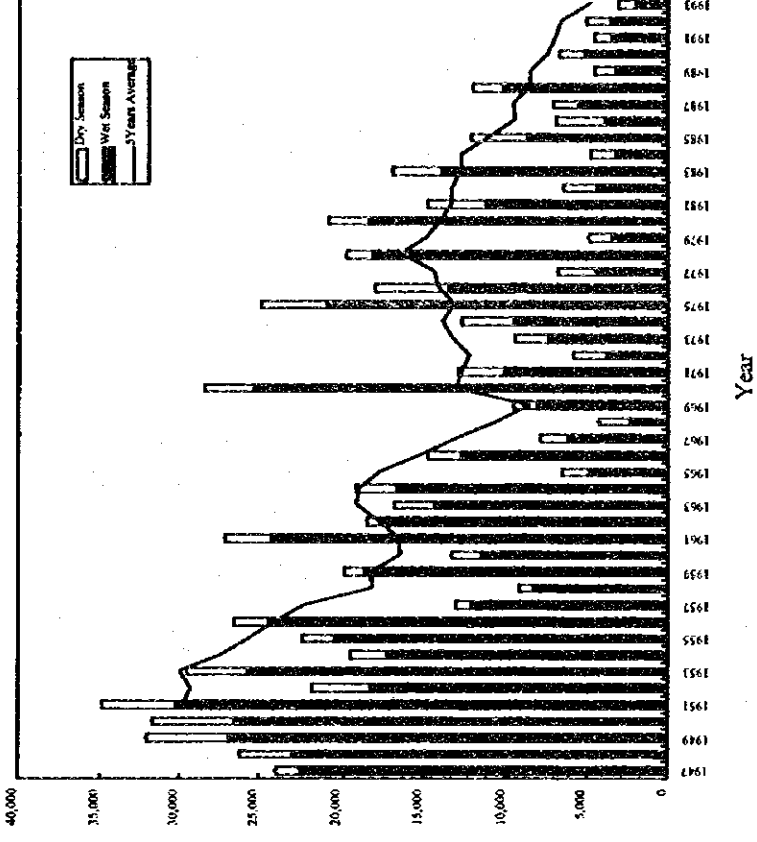
Long Term Runoff at Mae Nan (N1)

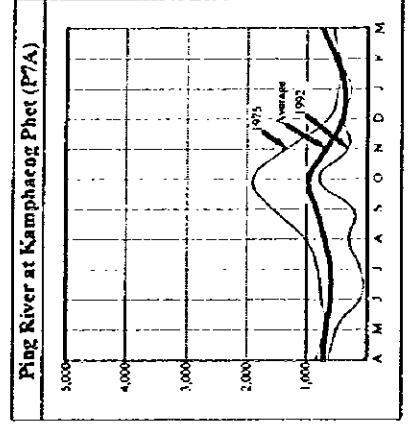
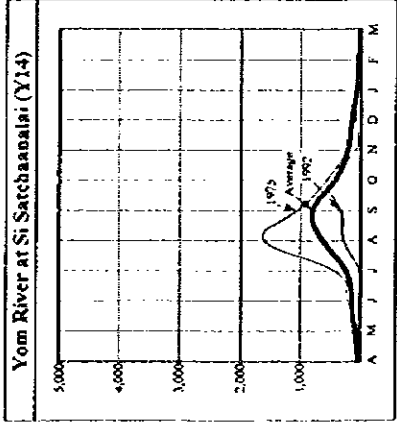
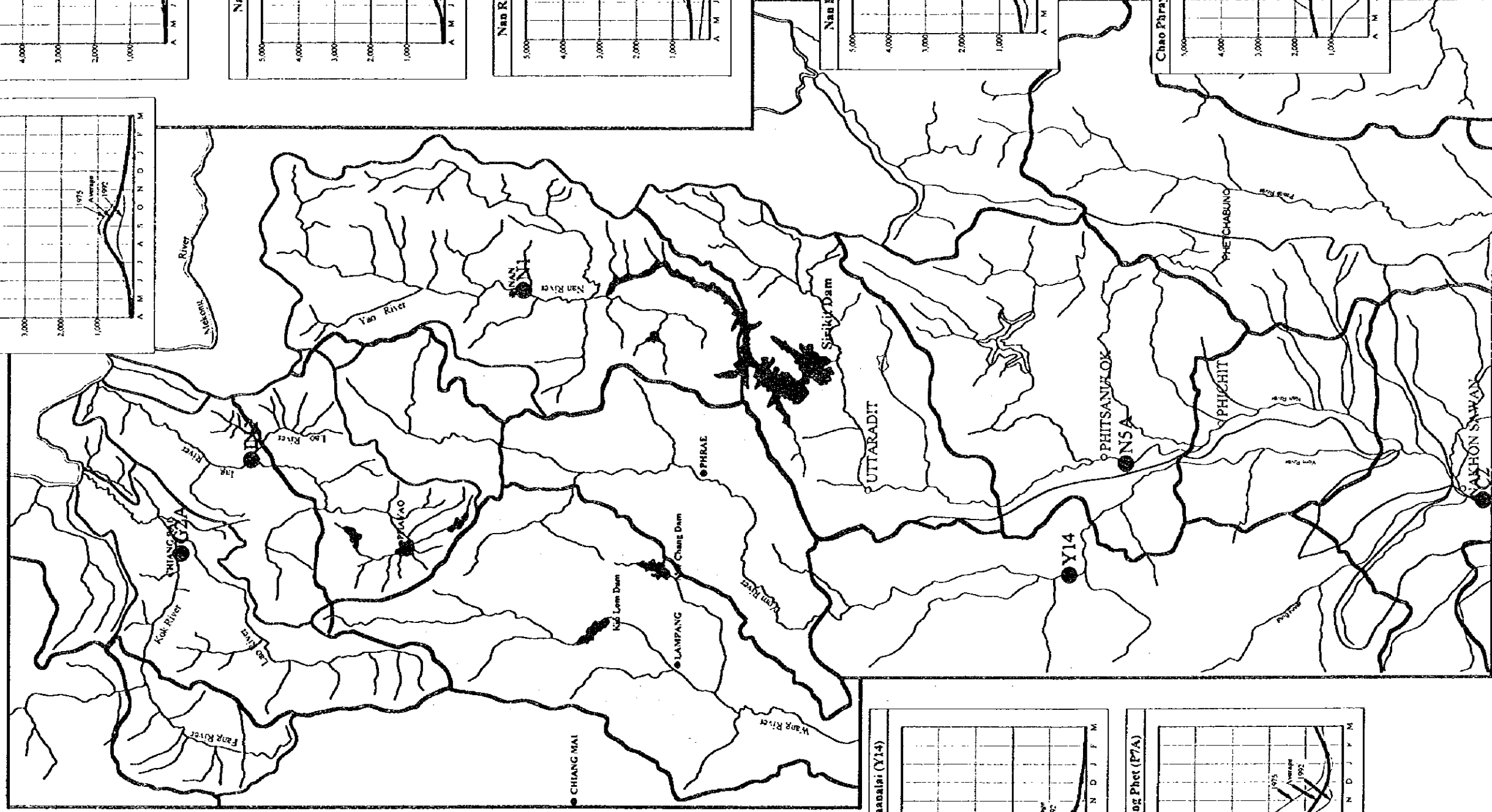
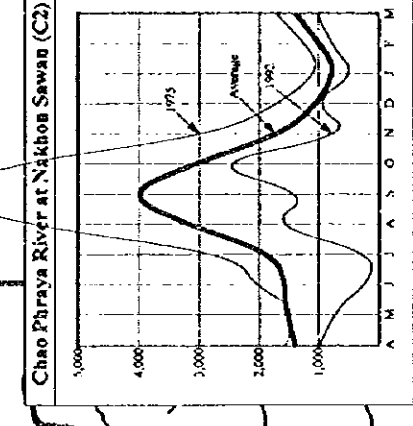
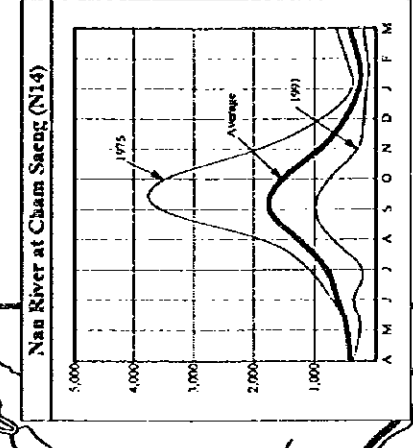
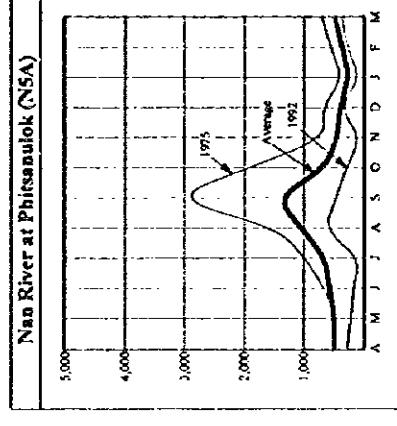
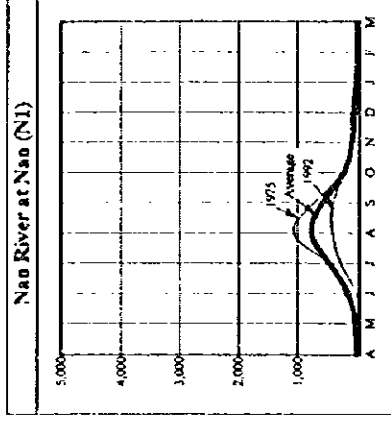
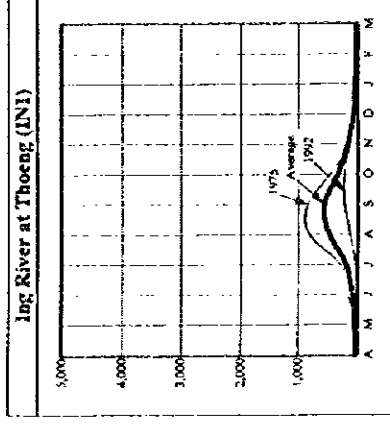
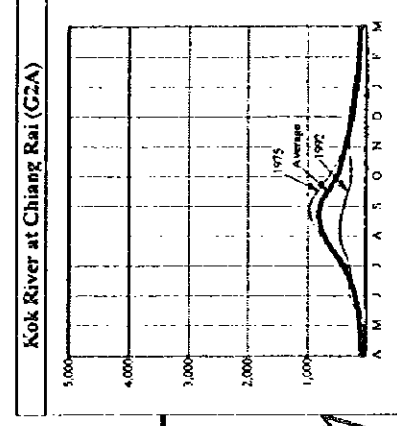


Long Term Runoff at Nakon Sawan (C2)



Long Term Runoff at Chainat Barrage (C13)





THE STUDY ON THE KOK-ING-NAN WATER DIVERSION PROJECT

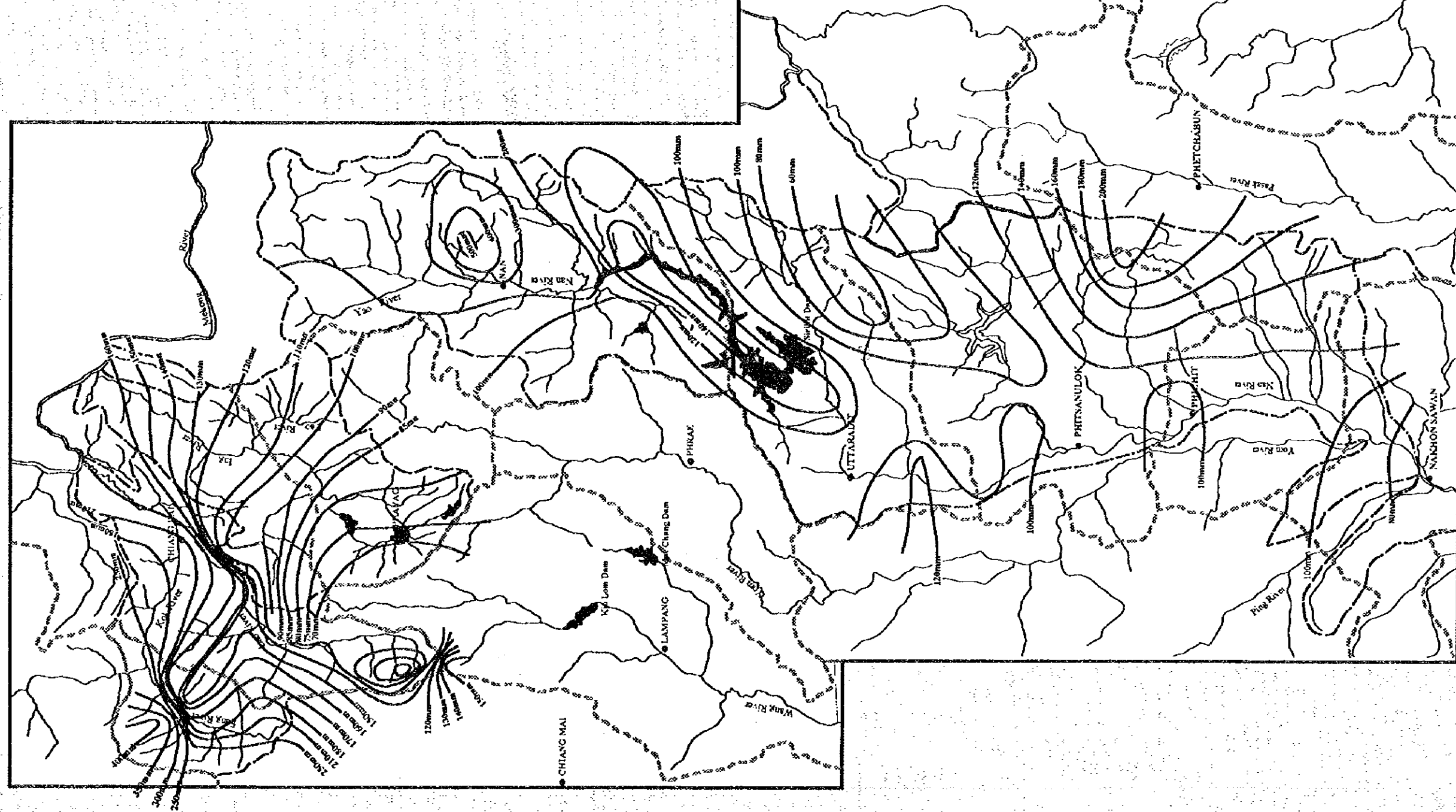
Monthly Runoff in Kok, Ing & Chao Phraya Basin

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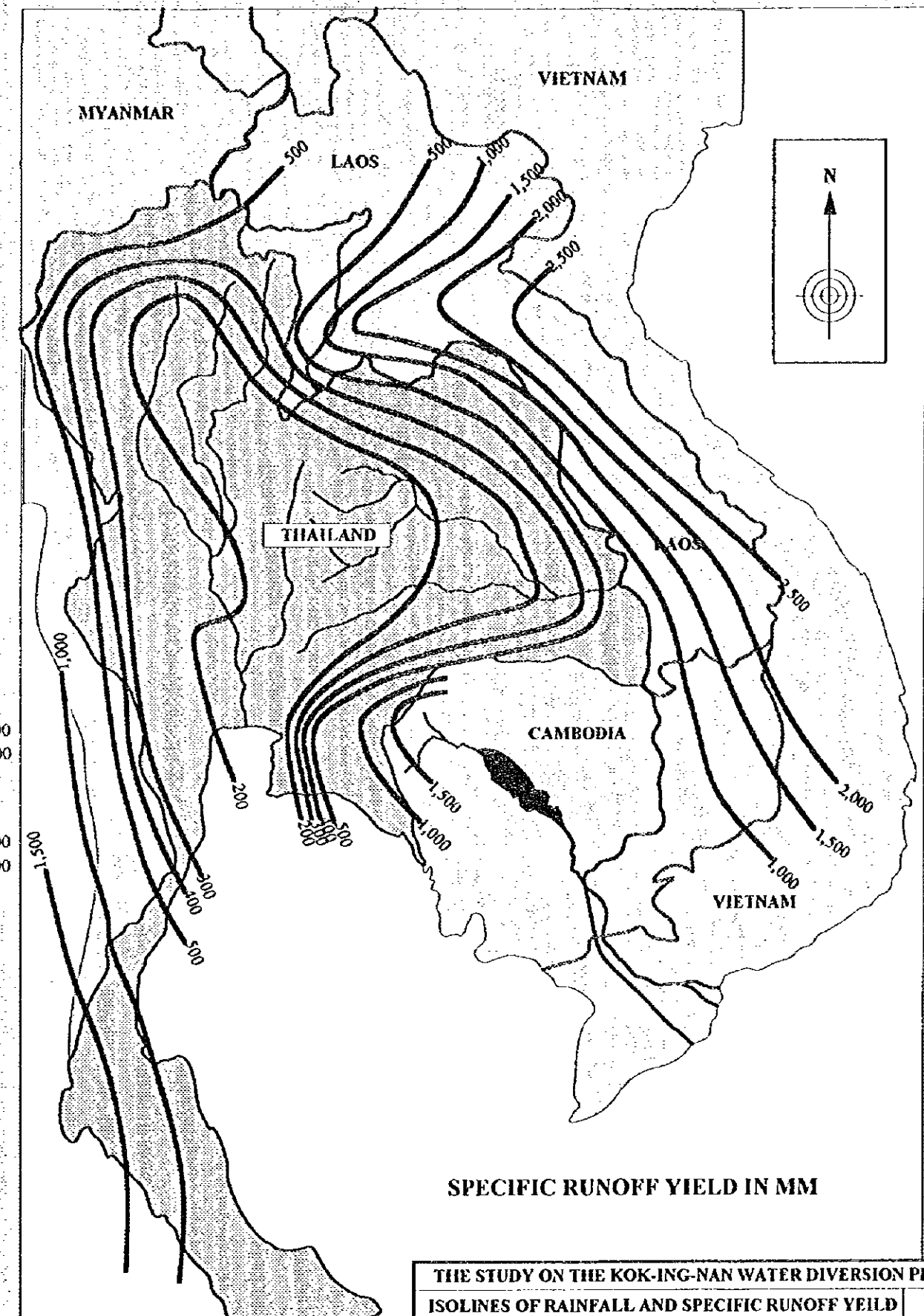
Map & Drawing No.

Figure H-7



THE STUDY ON THE KOK-ING-NAN WATER DIVERSION PROJECT

ISOLINES OF SPECIFIC RUNOFF YIELD IN KOK, ING AND UPPER NAN BASIN	Map & Drawing No
JAPAN INTERNATIONAL COOPERATION AGENCY(JICA)	Figure H-8
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THE STUDY ON THE KOK-ING-NAN WATER DIVERSION PROJECT	
ISOLINES OF RAINFALL AND SPECIFIC RUNOFF YIELD IN SOUTHEASTERN ASIAN COUNTRIES	
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	Map & Drawing No.
SANYU CONSULTANTS INC. & NIPPON KOEI CO., LTD.	Figure H-9

AVAILABLE RECORDS ON DAILY AND MONTHLY RIVER RUNOFF (KOK, ING & NUN RIVERS)

RIVER	STATION	69	78	75	88	85	90	94
KOK	G.2R	Daily Record Collected						
	G.N.3	Daily Record Collected						
	G.N.1	Daily Record Collected						
LRO	BRN THA SRI	Daily Record Collected						
	THOENG	Daily Record Collected						
ING	KHRO ING ROD	Monthly Record Collected						
	I.1B	Monthly Record Collected						
NUN	N.1	Monthly Record Collected						
	N.2B	Monthly Record Collected						
	N.5R	Monthly Record Collected						
	N.7	Monthly Record Collected						
	N.12R	Monthly Record Collected						
	N.17	Monthly Record Collected						
	N.24	Monthly Record Collected						
	N.26	Monthly Record Collected						
	N.27A	Monthly Record Collected						
	N.28(N.28B)	Monthly Record Collected						
	N.35	Monthly Record Collected						
	N.35	Monthly Record Collected						
	N.36	Monthly Record Collected						
	N.48	Monthly Record Collected						
	N.42	Monthly Record Collected						
N.49	Monthly Record Collected							
N.58	Monthly Record Collected							
N.51	Monthly Record Collected							
N.52	Monthly Record Collected							
N.53	Monthly Record Collected							
N.68	Monthly Record Collected							
N.65	Monthly Record Collected							
CHRO PHAYVA	C.2	Monthly Record Collected						
	C.13	Monthly Record Collected						

AVAILABLE RECORDS ON MONTHLY RAINFALL (KOK & ING RIVER BASIN)

	52	55	60	65	70	75	80	85	90	94
R. Chiang Saen	Monthly Record Collected									
R. Mae Chan	Monthly Record Collected									
R. Muang Chiang Rai	Monthly Record Collected									
R. Mae Bi	Monthly Record Collected									
R. Fang	Monthly Record Collected									
R. Mae Sui	Monthly Record Collected									
R. Wang Pa Pao	Monthly Record Collected									
R. Wang Nua	Monthly Record Collected									
R. Phan	Monthly Record Collected									
R. Muang Phayao	Monthly Record Collected									
R. Chum	Monthly Record Collected									
R. Chiang Khum	Monthly Record Collected									
R. Thoeng	Monthly Record Collected									
R. Chiang Kheng	Monthly Record Collected									
R. Ngao	Monthly Record Collected									

AVAILABLE RECORDS ON MONTHLY RAINFALL (NAN RIVER BASIN)

	52	55	60	65	70	75	80	85	90	94
R. THONG CHANG	Monthly Record Collected									
R. PUR	Monthly Record Collected									
R. MUANG NAN	Monthly Record Collected									
R. SR	Monthly Record Collected									
R. RONG KUANG	Monthly Record Collected									
R. NR NOI	Monthly Record Collected									
R. FAE THA	Monthly Record Collected									
R. THA PLA	Monthly Record Collected									
R. NAM PAT	Monthly Record Collected									
R. MUANG UTTARADIT	Monthly Record Collected									
R. SI SRECHANALAI	Monthly Record Collected									
R. TRON	Monthly Record Collected									
R. PHICHAJ	Monthly Record Collected									
R. CHAT TRAKAN	Monthly Record Collected									
R. PHRAM PHUROM	Monthly Record Collected									
R. NAKHON THAI	Monthly Record Collected									
R. WANG THONG	Monthly Record Collected									
R. MUANG PHITSANULOK	Monthly Record Collected									
R. MUANG PHICIT	Monthly Record Collected									
R. WANG SAI PHUM	Monthly Record Collected									
R. TAPHIN HIN	Monthly Record Collected									
R. CHON OREN	Monthly Record Collected									
R. PHETCHADUN	Monthly Record Collected									
R. BRANG MUN NAK	Monthly Record Collected									
R. CHUMSRENG	Monthly Record Collected									
R. BANPHOT PHISAI	Monthly Record Collected									
R. NAKHON SAIUAN	Monthly Record Collected									