

Figure 6.1 Location of Alternative Water Diversion Plan

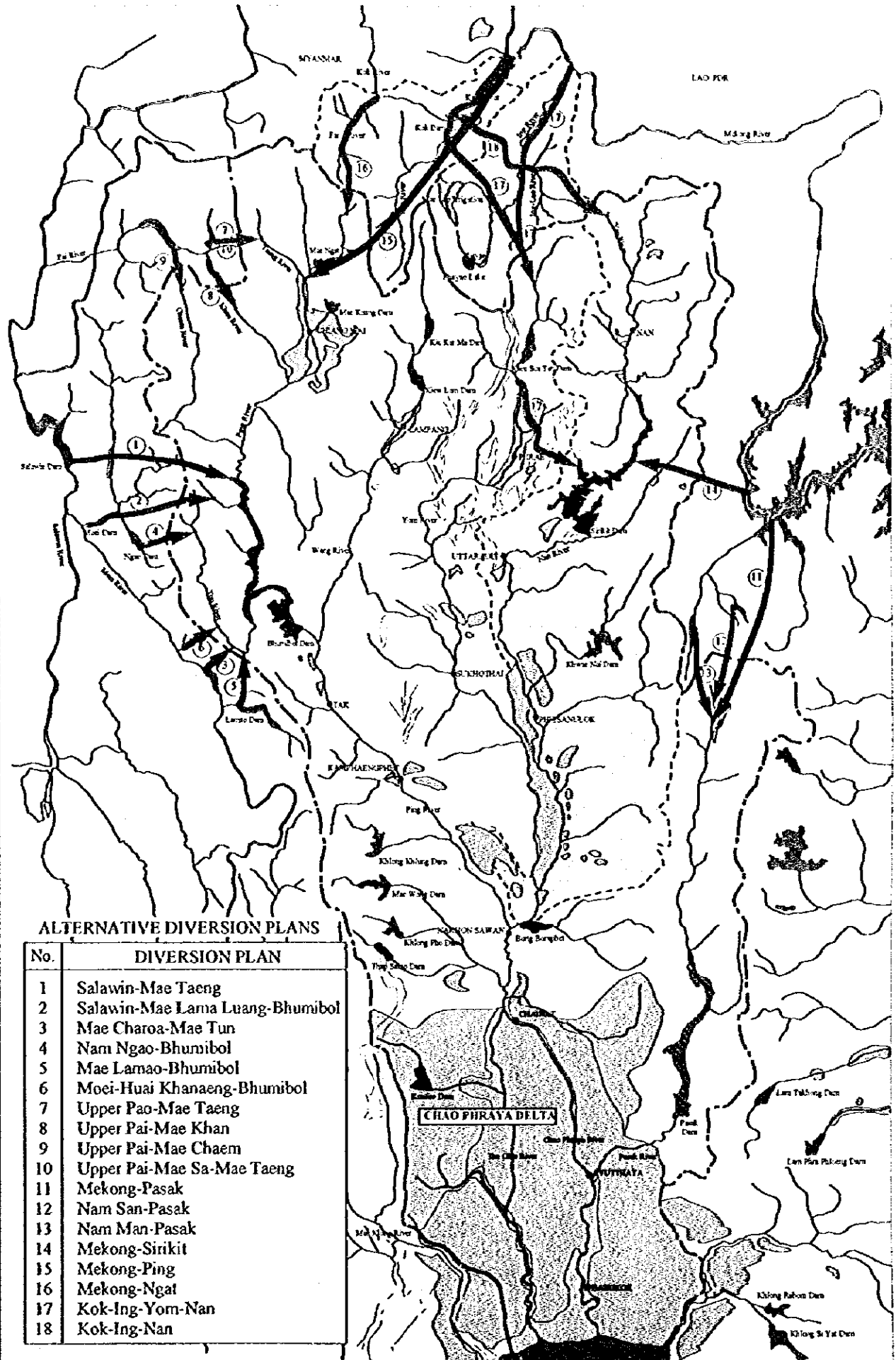


Figure 6.1 Location of Alternative Water Diversion Plan

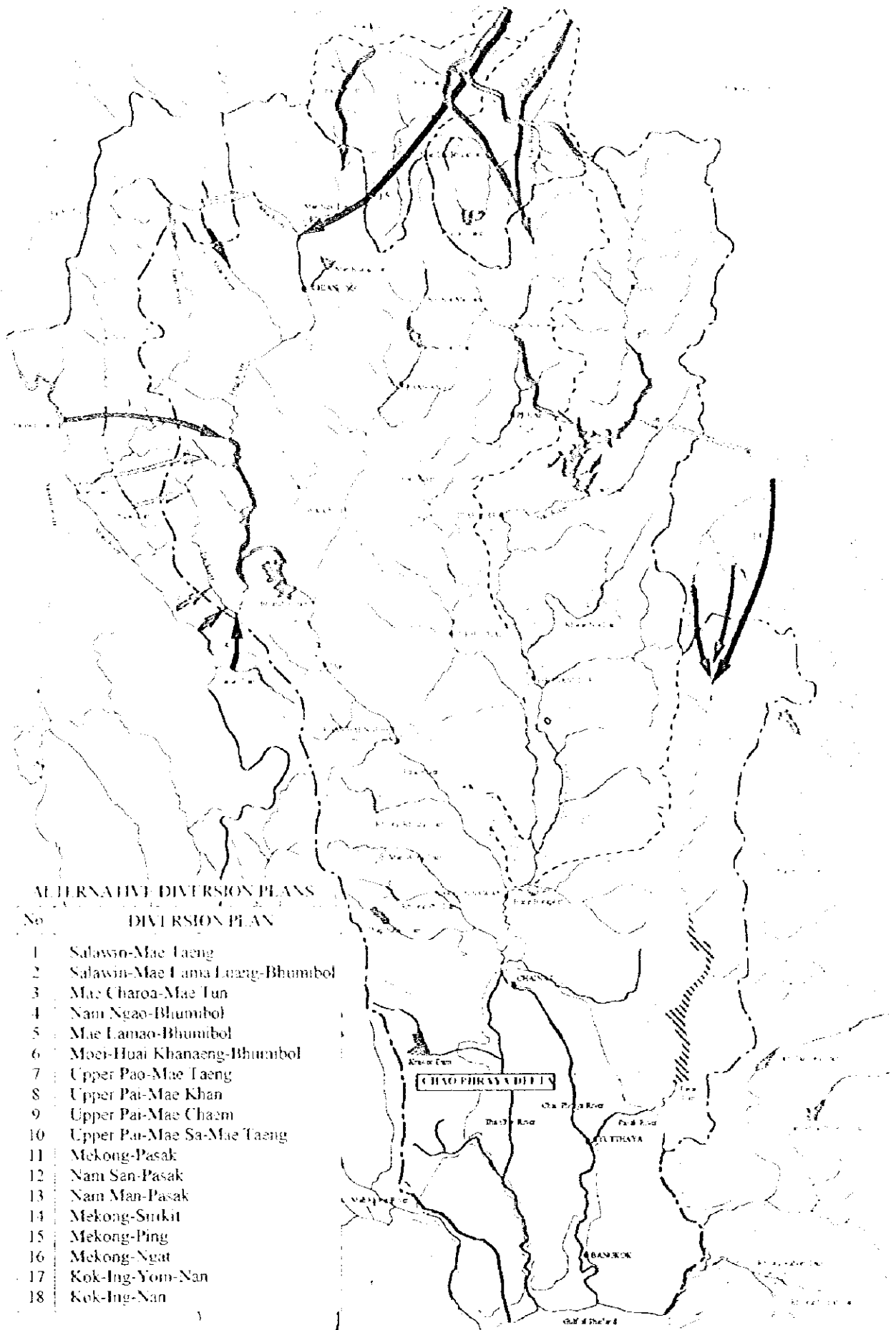


Figure 7.1 Present Operation and Improved Operation of Sirikit Reservoir

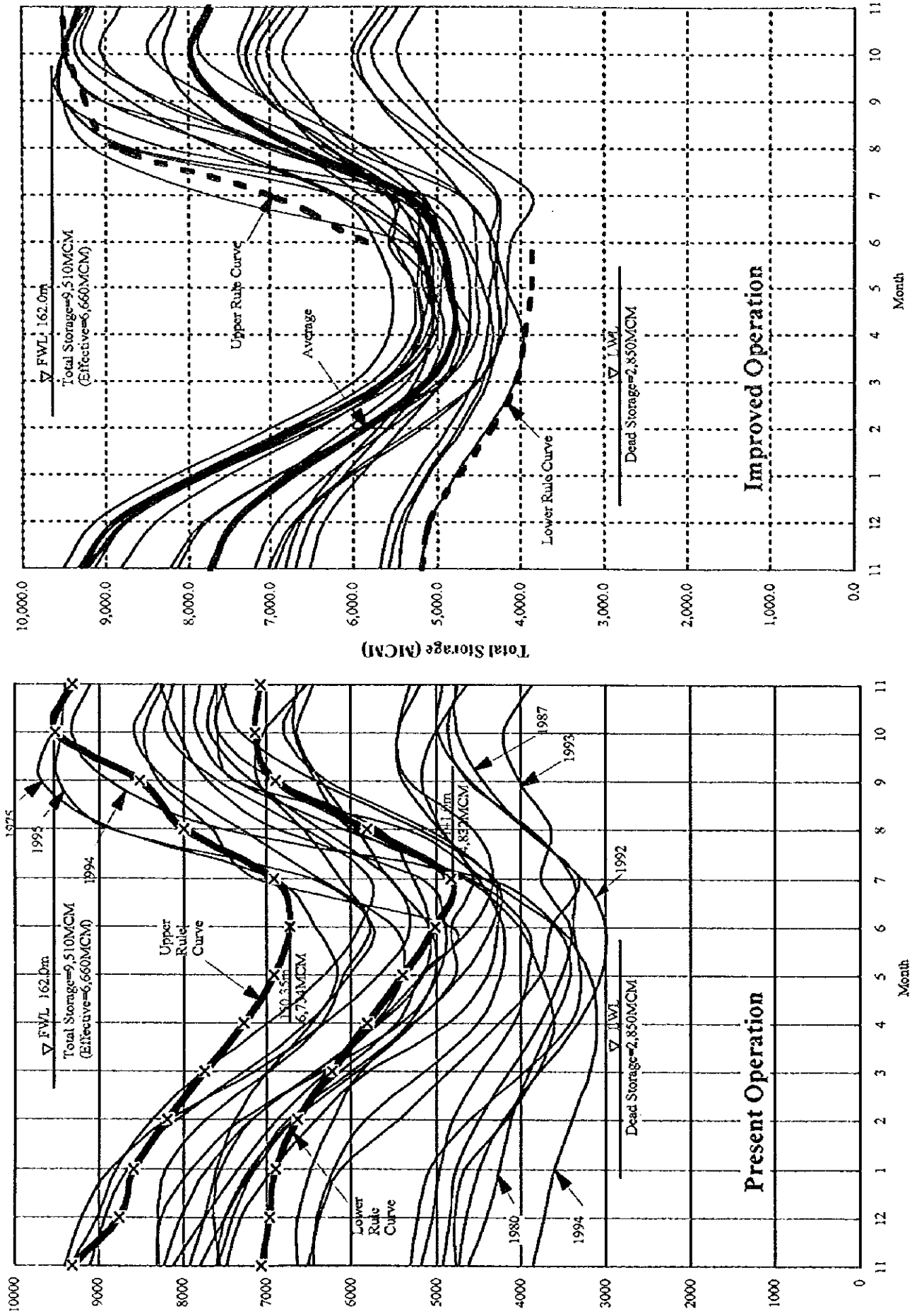


Figure 8.1 Irrigation Development and River Runoff in Kok, Ing and Upper Nan Basins

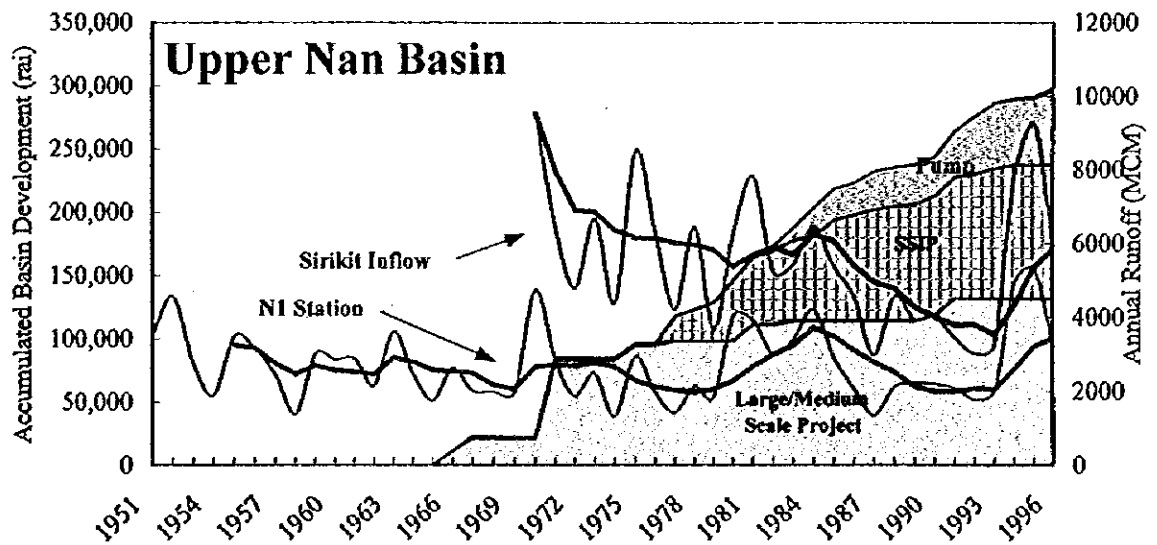
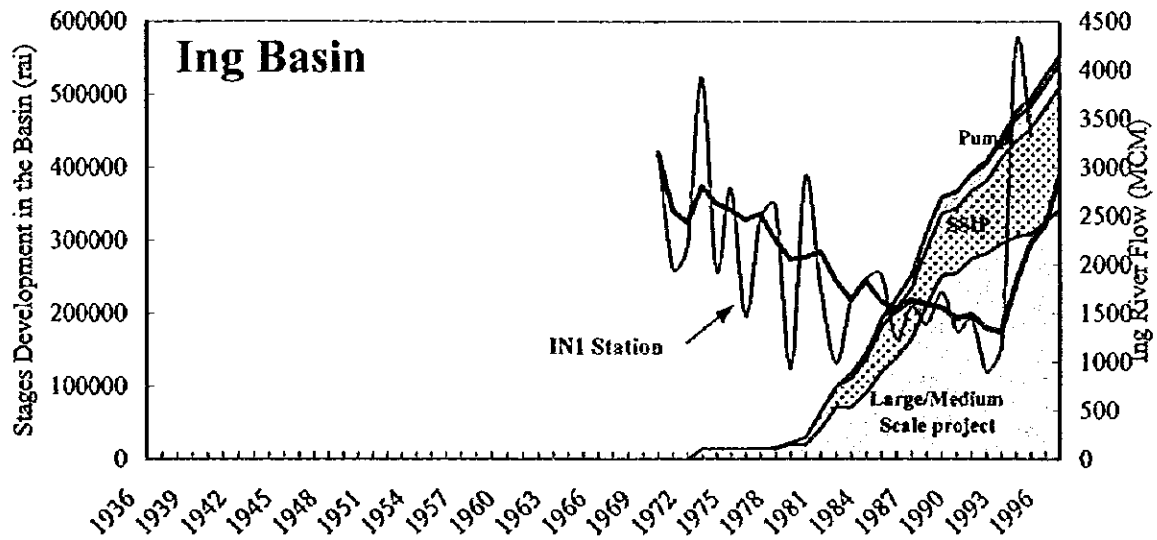
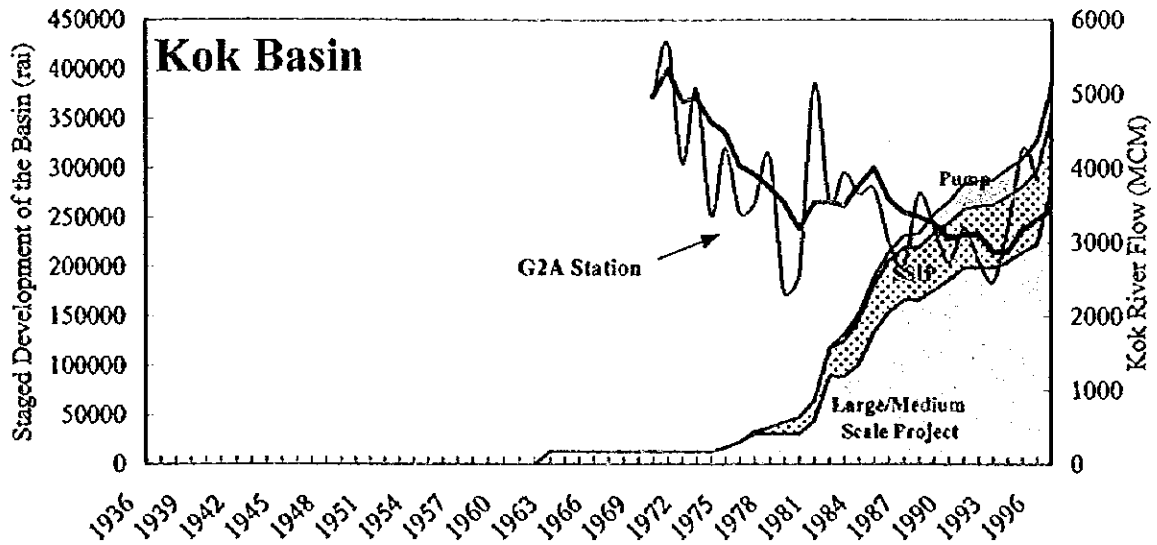


Figure 8.2(1) Kok River Flow before/after Potential Development

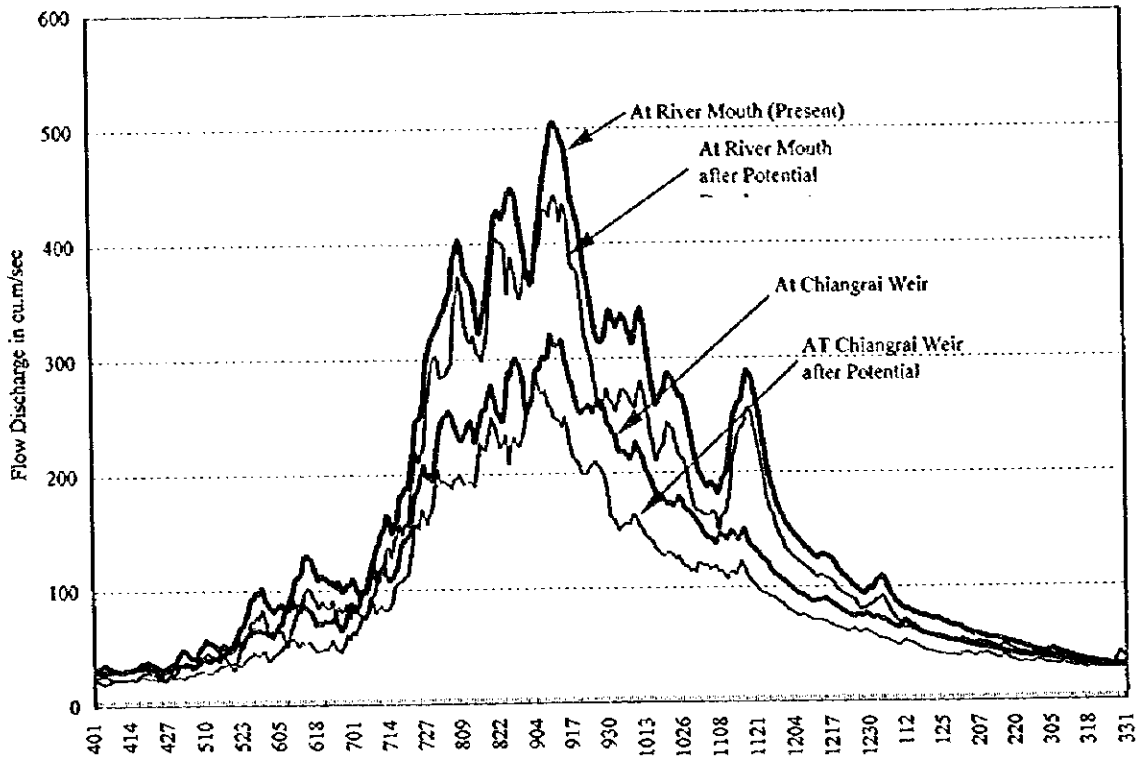


Figure 8.2(2) Ing River Flow before/after Potential Development

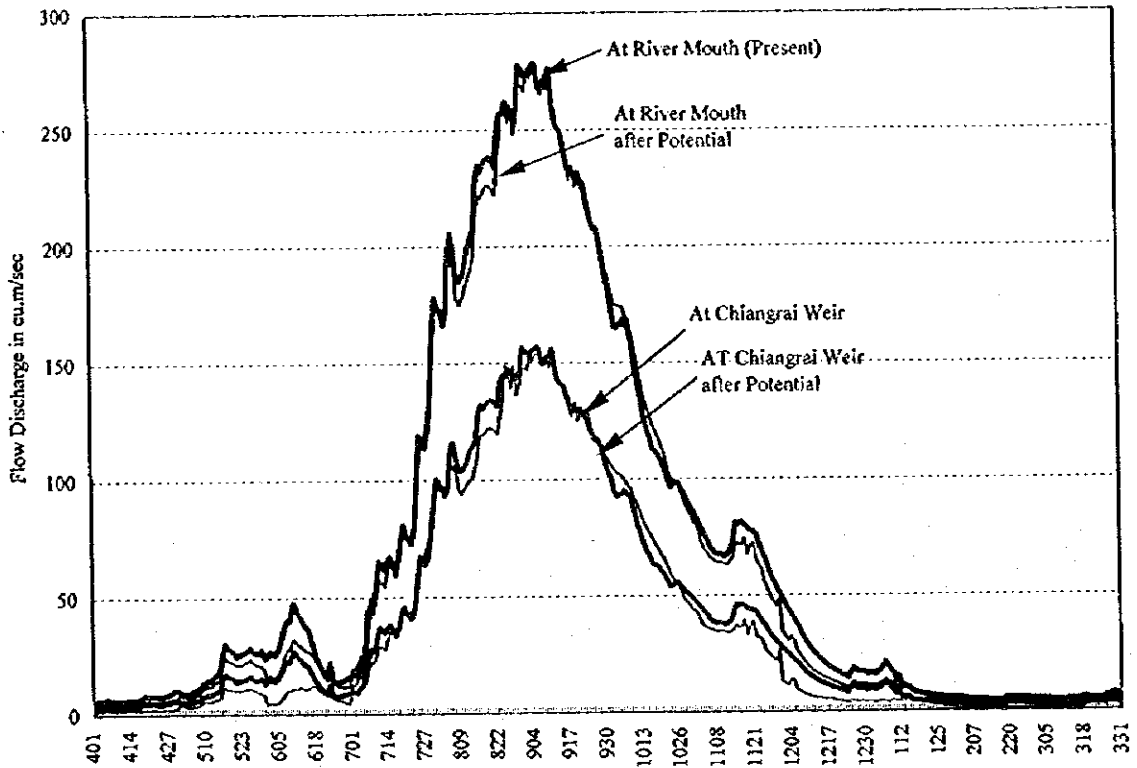
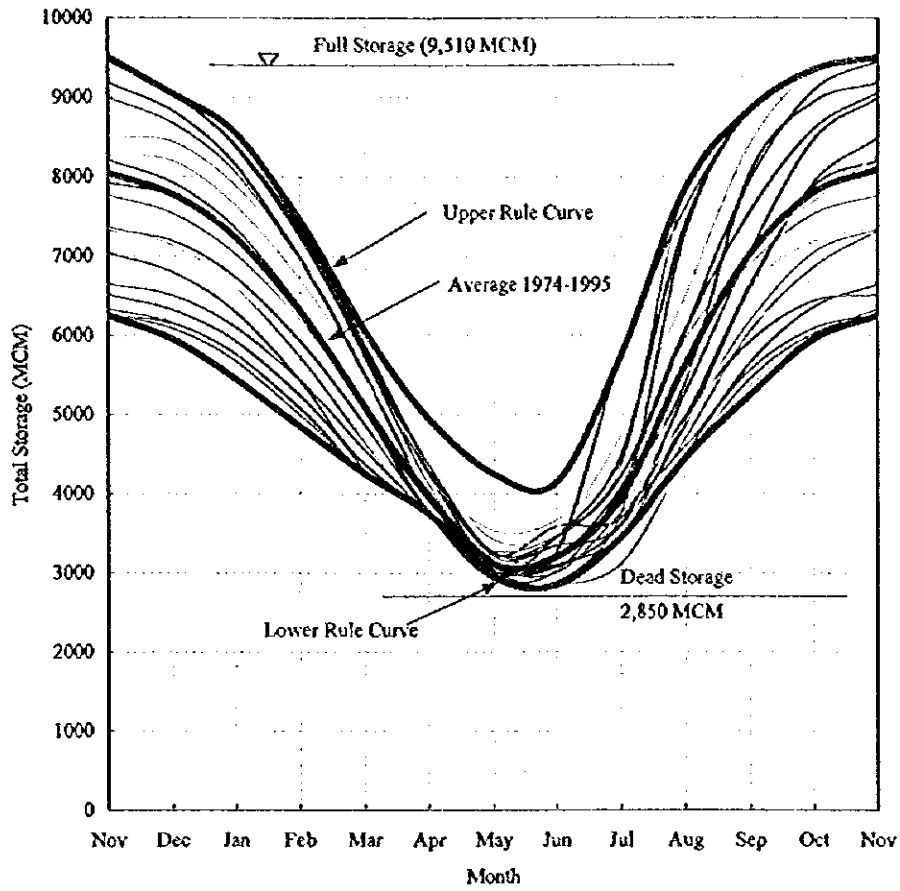


Figure 8.3 Sirikit Reservoir under Improved Operation with Kok-Ing-Nan Project



Graph showing Monthly Storage before/after Project, Inflow and Outflow after Project

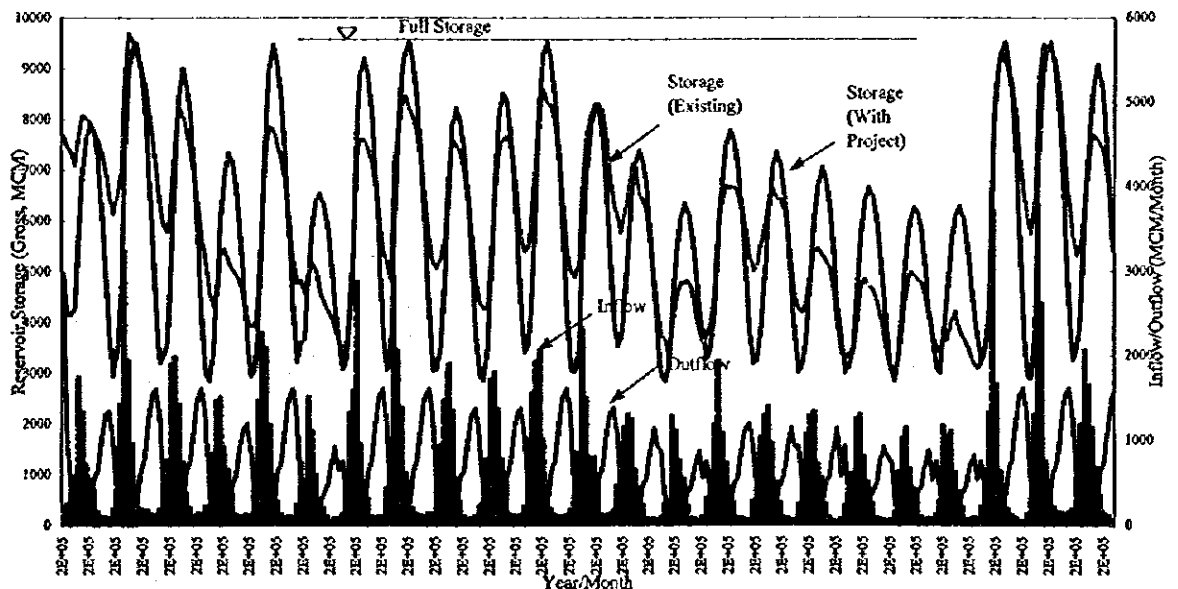


Figure 10.1 Existing, Proposed and Potential Water Resources Development Project

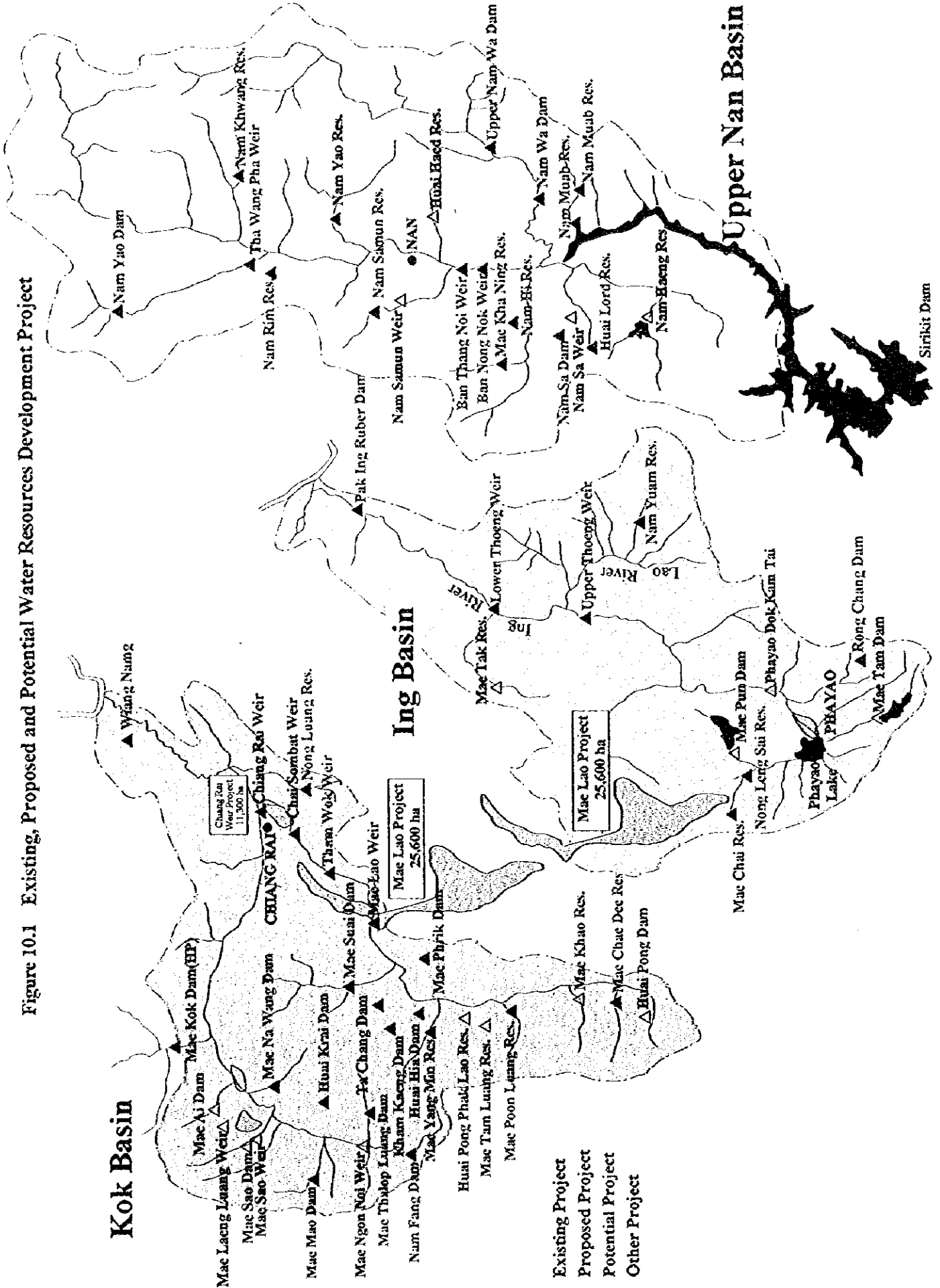


Figure 10.2 Associated Irrigation Projects in the Ing Basin

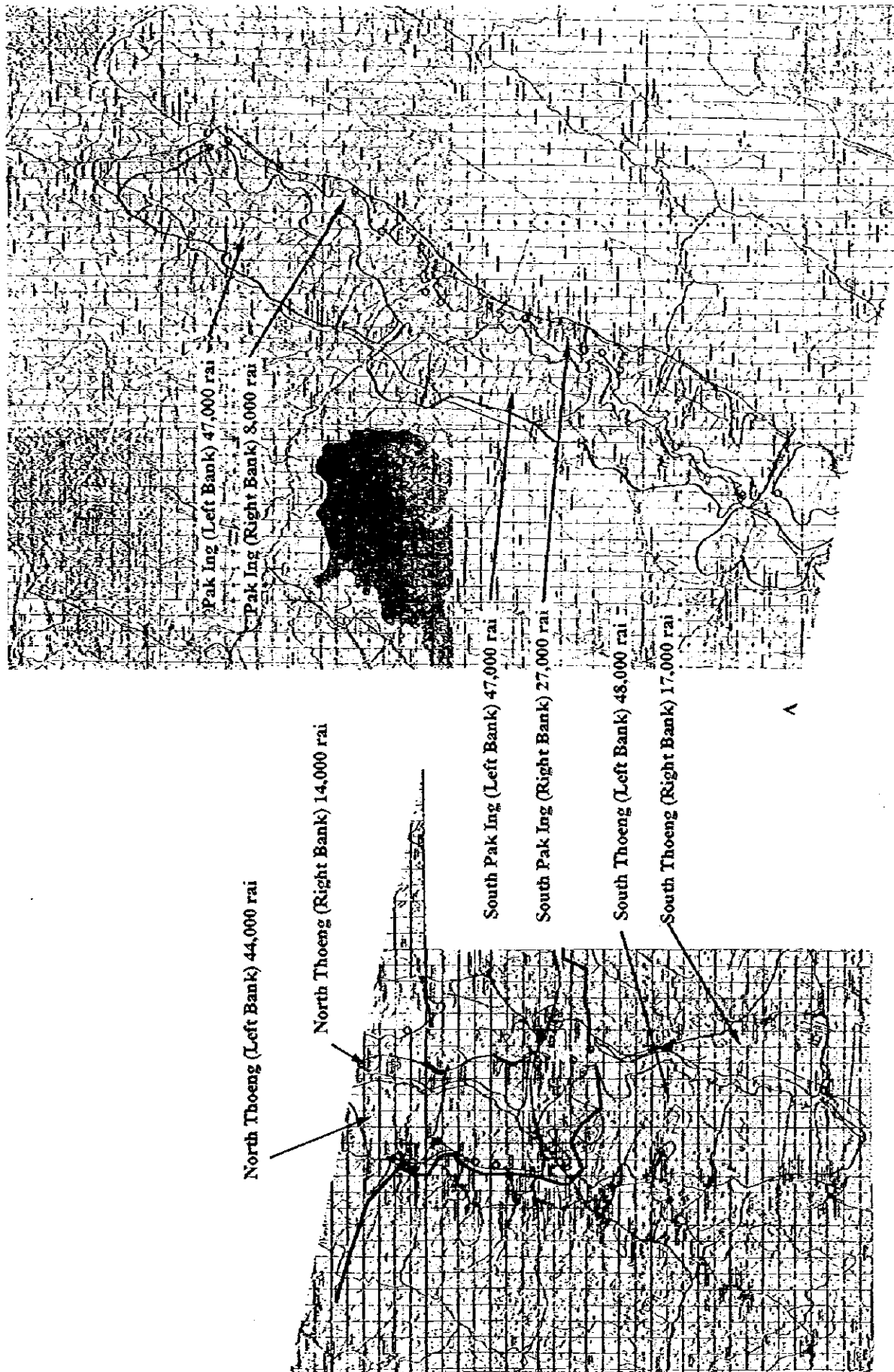
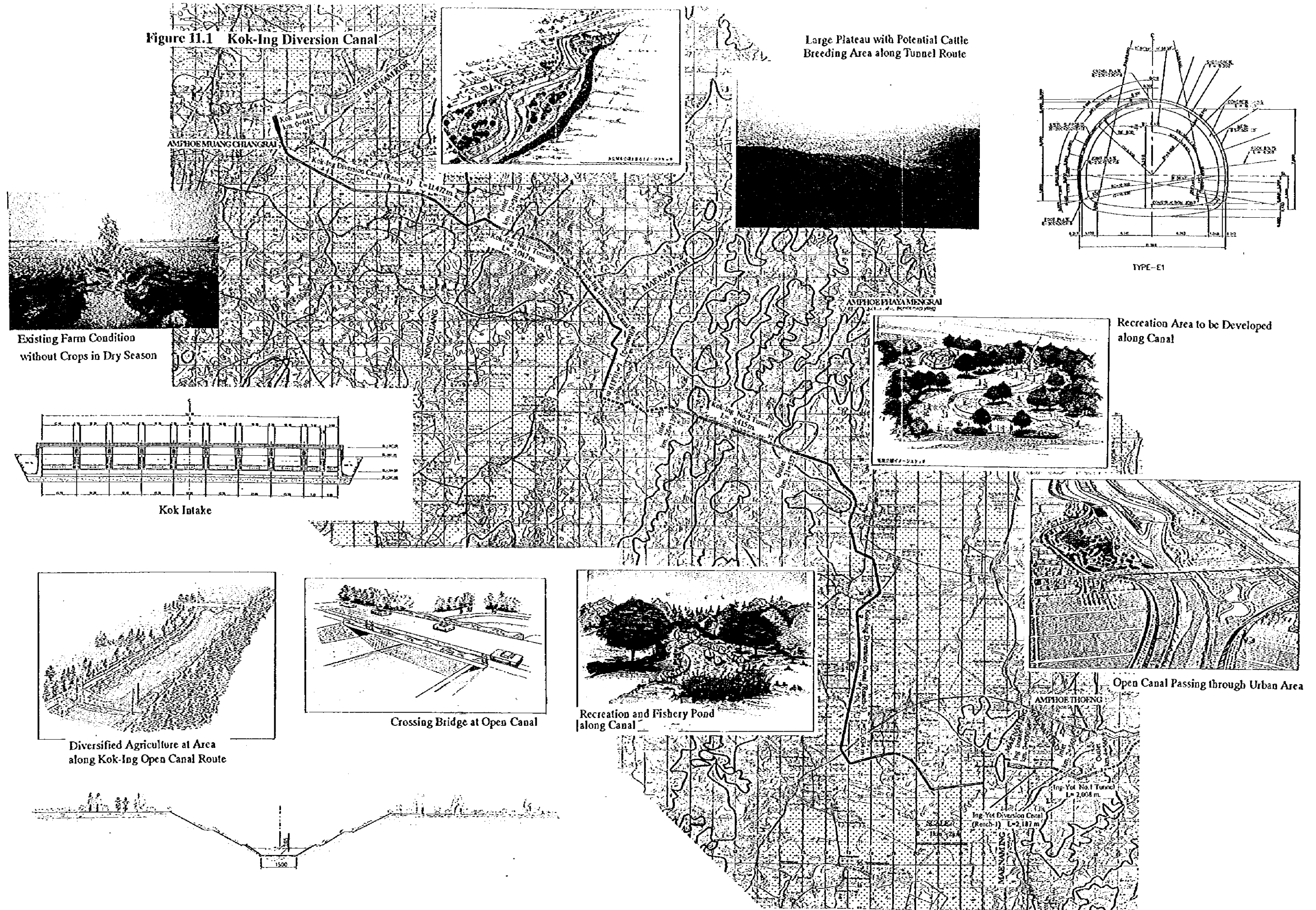
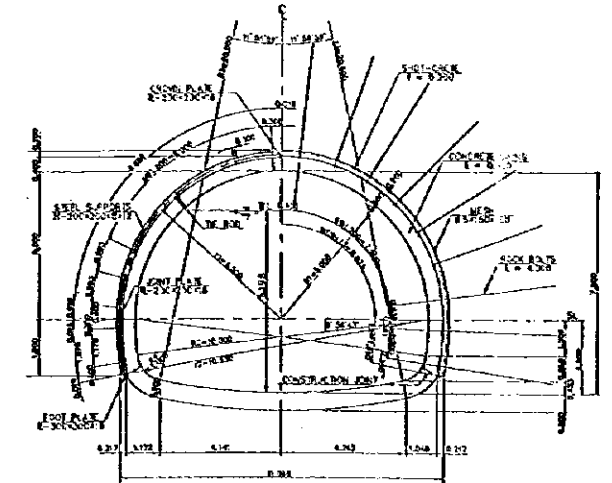
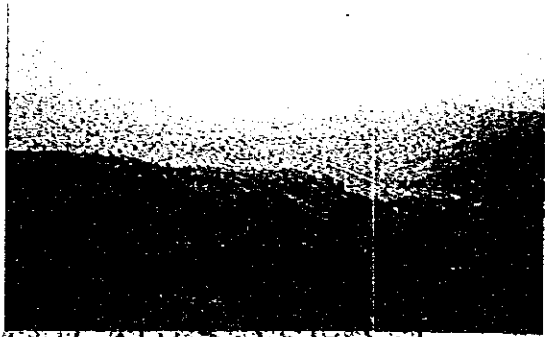


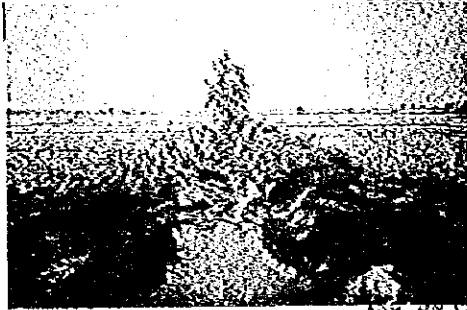
Figure 11.1 Kok-Ing Diversion Canal



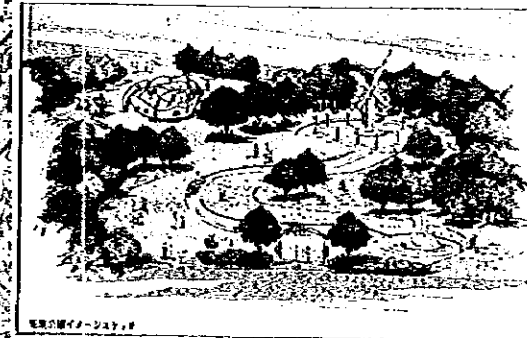
Large Plateau with Potential Cattle Breeding Area along Tunnel Route



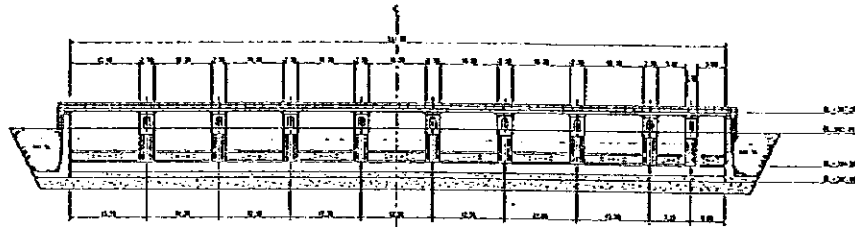
TYPE-E1



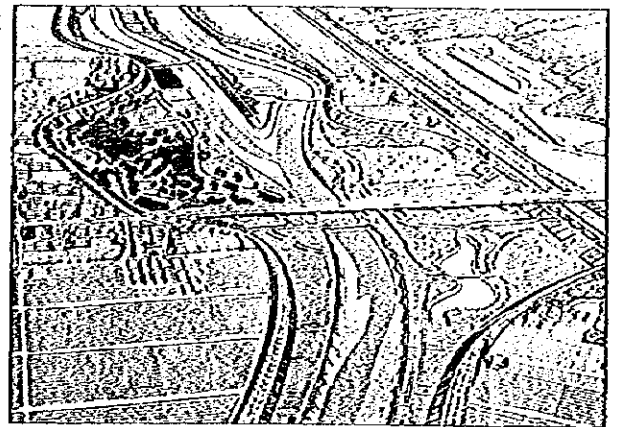
Existing Farm Condition without Crops in Dry Season



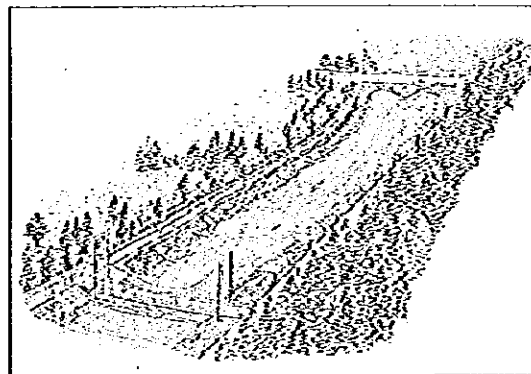
Recreation Area to be Developed along Canal



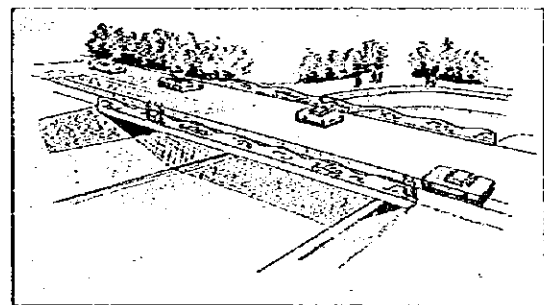
Kok Intake



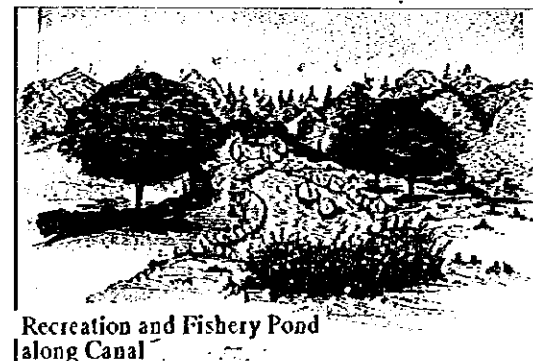
Open Canal Passing through Urban Area



Diversified Agriculture at Area along Kok-Ing Open Canal Route



Crossing Bridge at Open Canal



Recreation and Fishery Pond along Canal

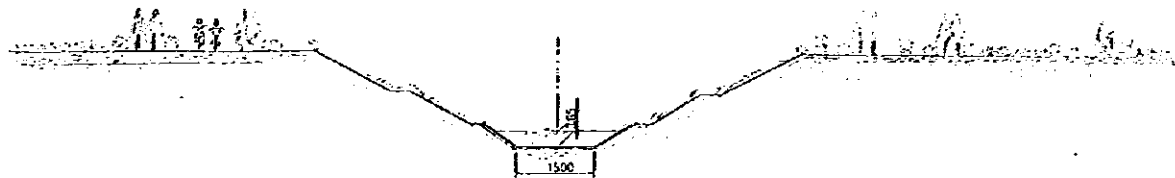
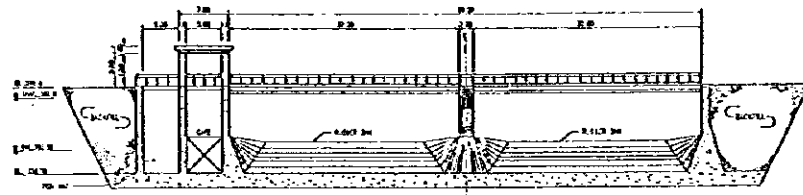
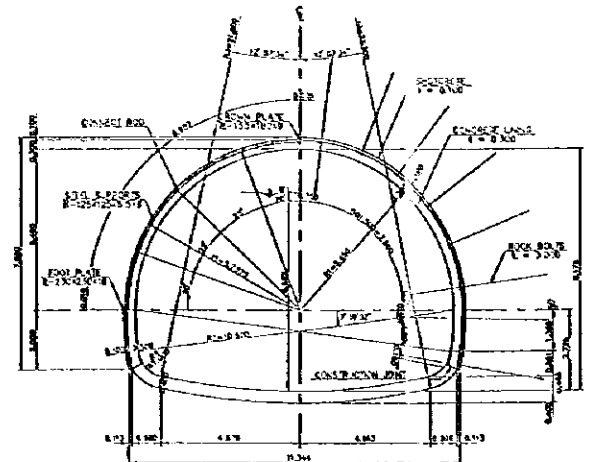
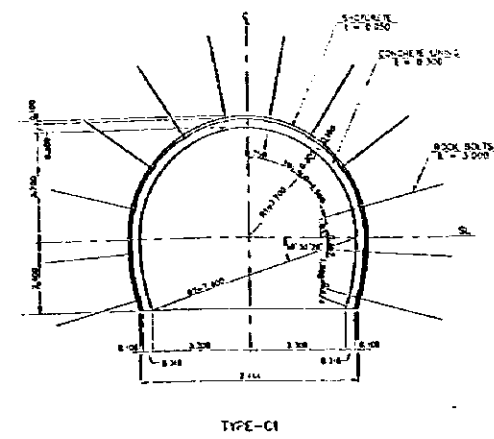
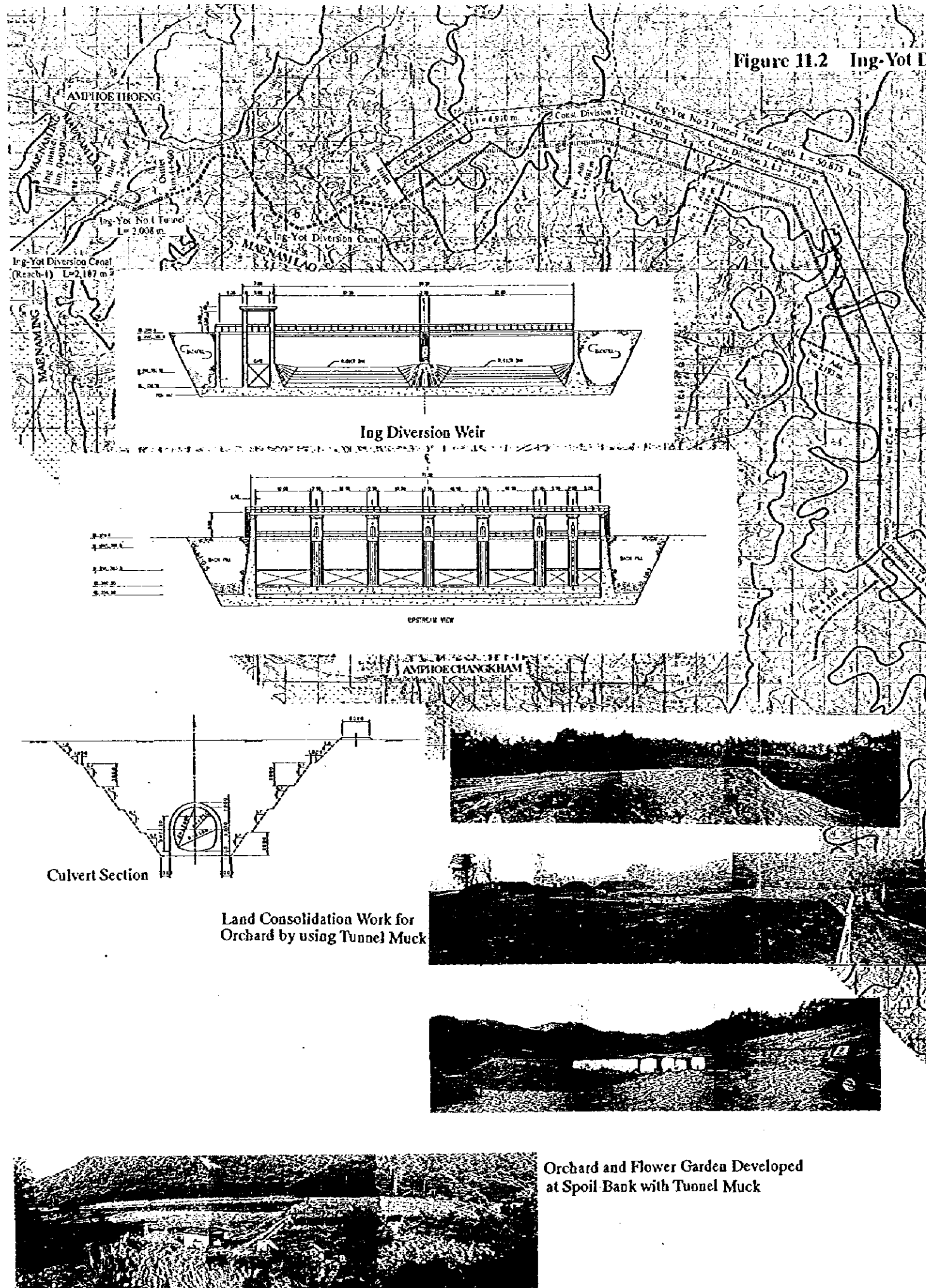
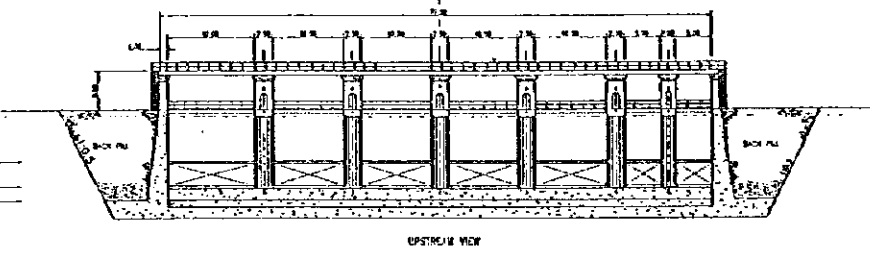


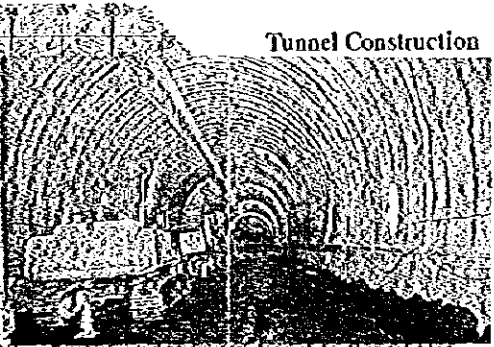
Figure 11.2 Ing-Yot Diversion Tunnel



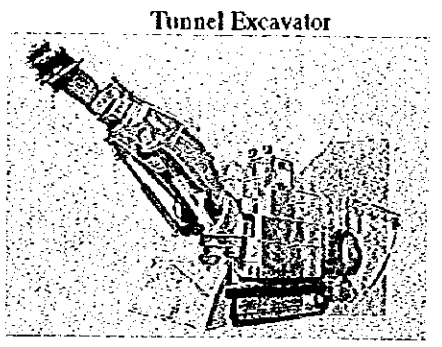
Ing Diversion Weir



UPSTREAM VIEW



Tunnel Construction



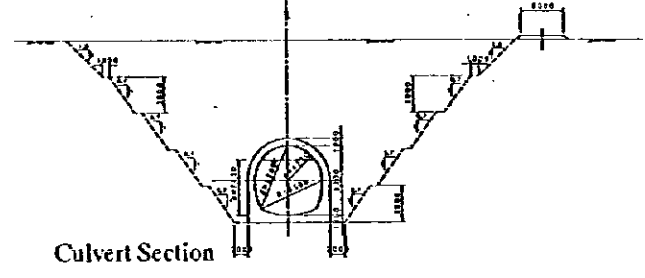
Tunnel Excavator



Treatment of Polluted Drainage Water



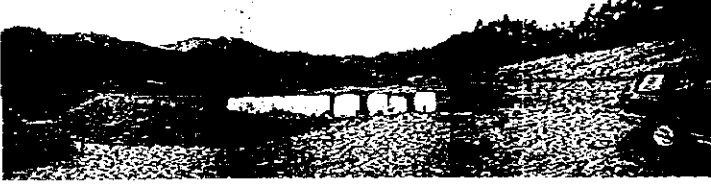
Tunnel Inlet



Culvert Section



Land Consolidation Work for Orchard by using Tunnel Muck



Orchard and Flower Garden Developed at Spoil Bank with Tunnel Muck



Eco-Park Created by using Tunnel Muck



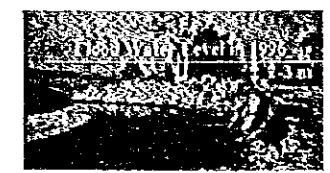
KING AMPHOE SONGKHWAR

Release the Flood Water smoothly to the "Nam Mae Nan".

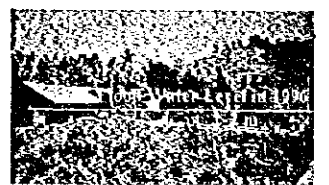
- Measures**
1. Provision of Flood Control Dam
 2. Stoppage of Water Diversion when Flooding is predicted to occur in the Yao and Nan Rivers.
 3. River Channel Improvement
 4. Provision of series of consolidation sills for river channel

Present Condition of Yao River

Habitual Inundation by Flood
Agricultural Use of Narrow Plain along the River Channel



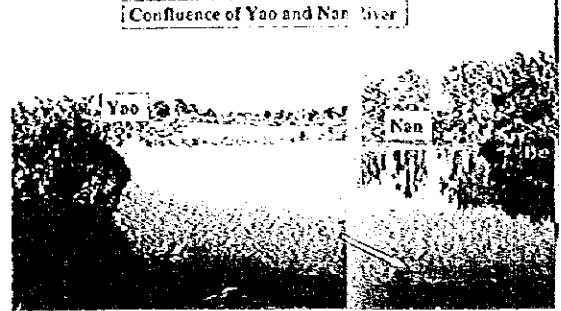
Riverbank Erosion at the Meandering Channel in the Lower Reaches



Foundation of Existing Road in Ban Soeng Khwae



Land Use along the Middle Reaches of the Yao River

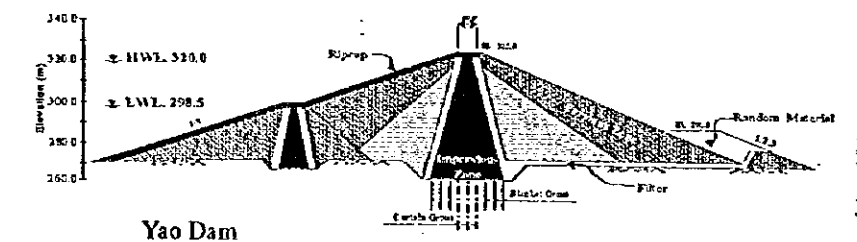


Confluence of Yao and Nan River

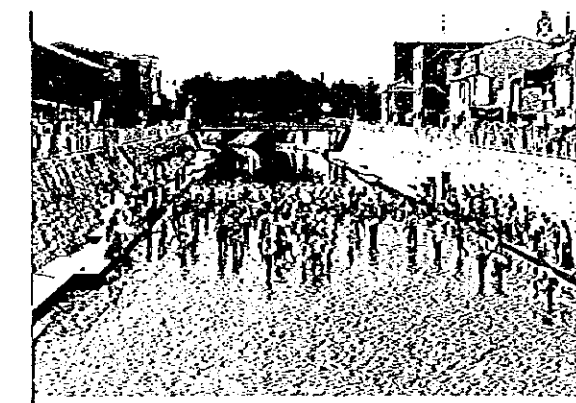
Figure 11.3 Yao Dam and River Training



Ing-Yat No 2 Tunnel Total L. = 50.87 km
Const. Division 9: L9 = 4.915 m



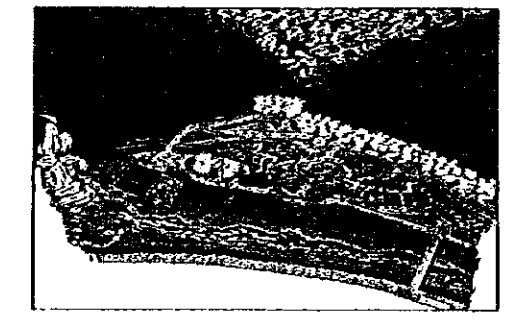
Yao Dam



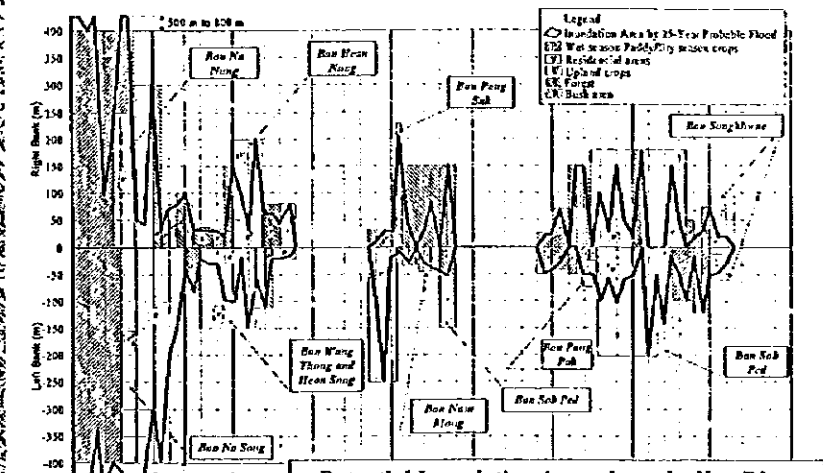
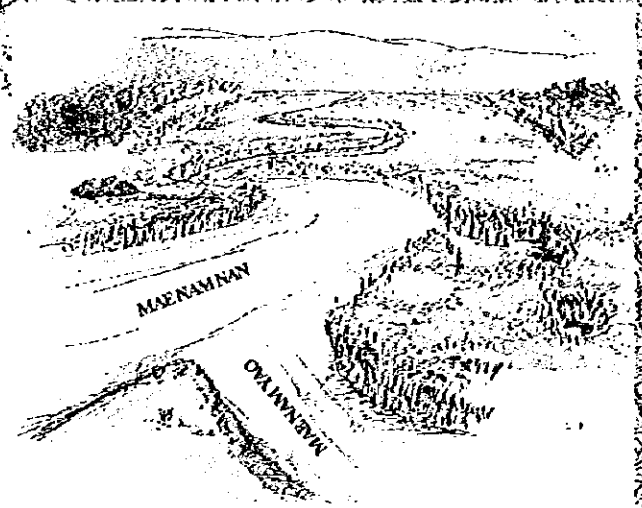
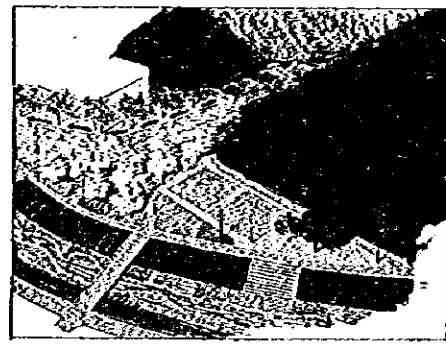
Water Edge for Recreation



River Training



Flood Protection Dike



Potential Inundation Area along the Yao River
730 ha, Actually Inundated in 1996

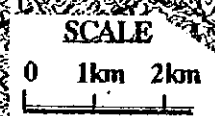


Figure 13 Project Benefit Estimation

(1) Economic Project Benefit at Full Development

(Unit : million Baht)

Plan A-1	406 (3)	14,704 (100)
	3,698 (25)	10,600 (72)
A-2	406 (3)	14,089 (100)
	2,766 (20)	10,917 (77)
A-3	406 (3)	13,544 (100)
	1,938 (14)	11,200 (83)
B-1	406 (3)	13,588 (100)
	3,698 (27)	9,484 (70)
B-2	406 (3)	13,042 (100)
	2,766 (21)	9,870 (76)
B-3	406 (3)	12,557 (100)
	1,938 (16)	10,213 (81)

■ : Power Generation ■ : Water Supply □ : Agriculture

(2) Net Farm Household Income (Owner Cultivator)

(Unit : 1,000 Baht)

Cho Phraya Dalta (31.6 rai)	42 (F-W/O)
	103 (F-W)
Phitsanulok Irrigation Project (Stage1) (31.9 rai)	44
	119
Exsting DEDP Pumping Scheme (16.1rai)	18
	59
Phitsanulok Irrigation Project (Stage2) (31.9 rai)	6
	139
New DEDP Pumping Scheme (16.1 rai)	5
	72
Associate Irrigation Projects (15.5 rai)	11
	108

Note: Household expenses were subtracted.

JICA