

Figure D.4.9 Boeng Phtea Area Small Pump Irrigation Project



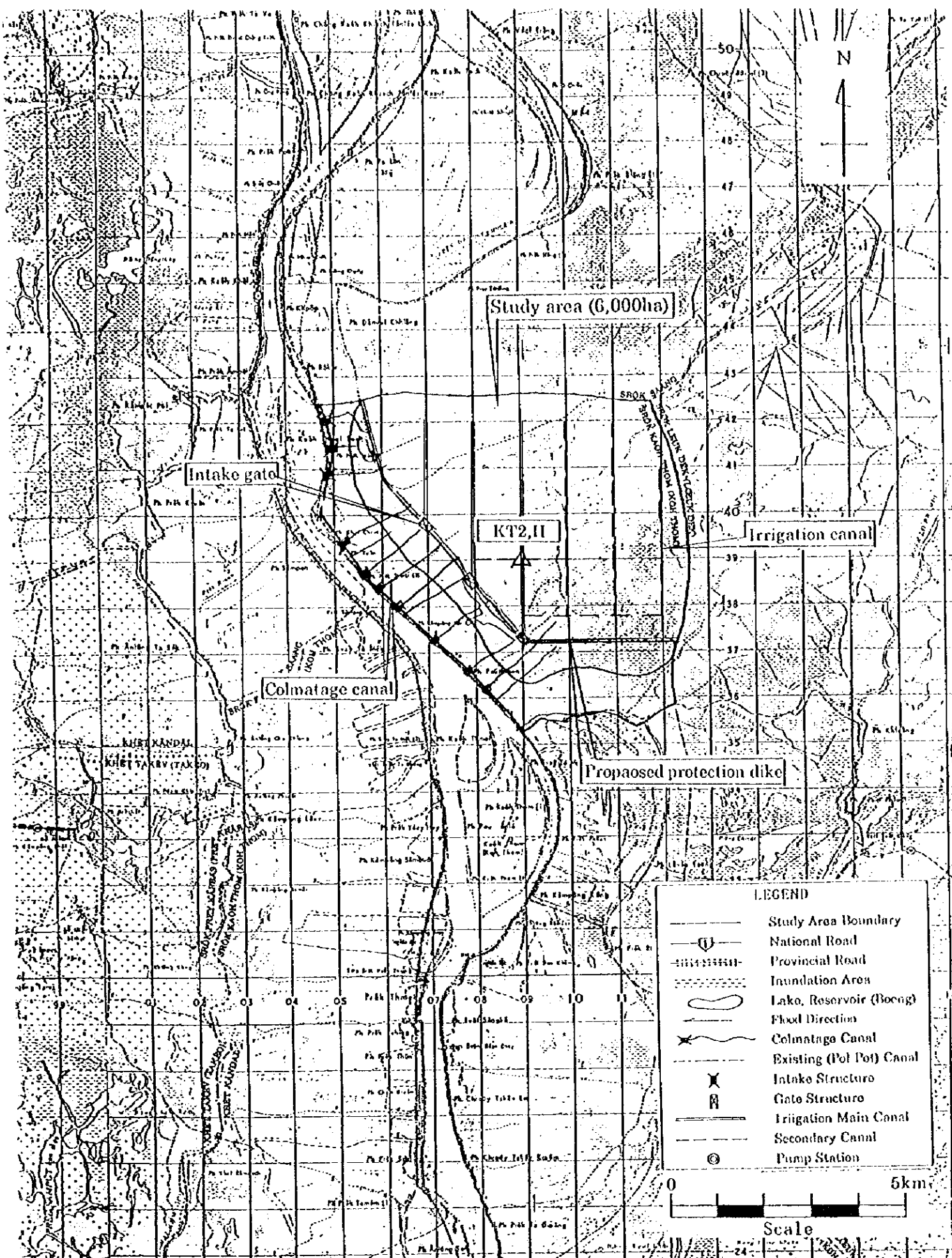


Figure D.4.11 Sras Bram Beay Irrigation System Rehabilitation Project

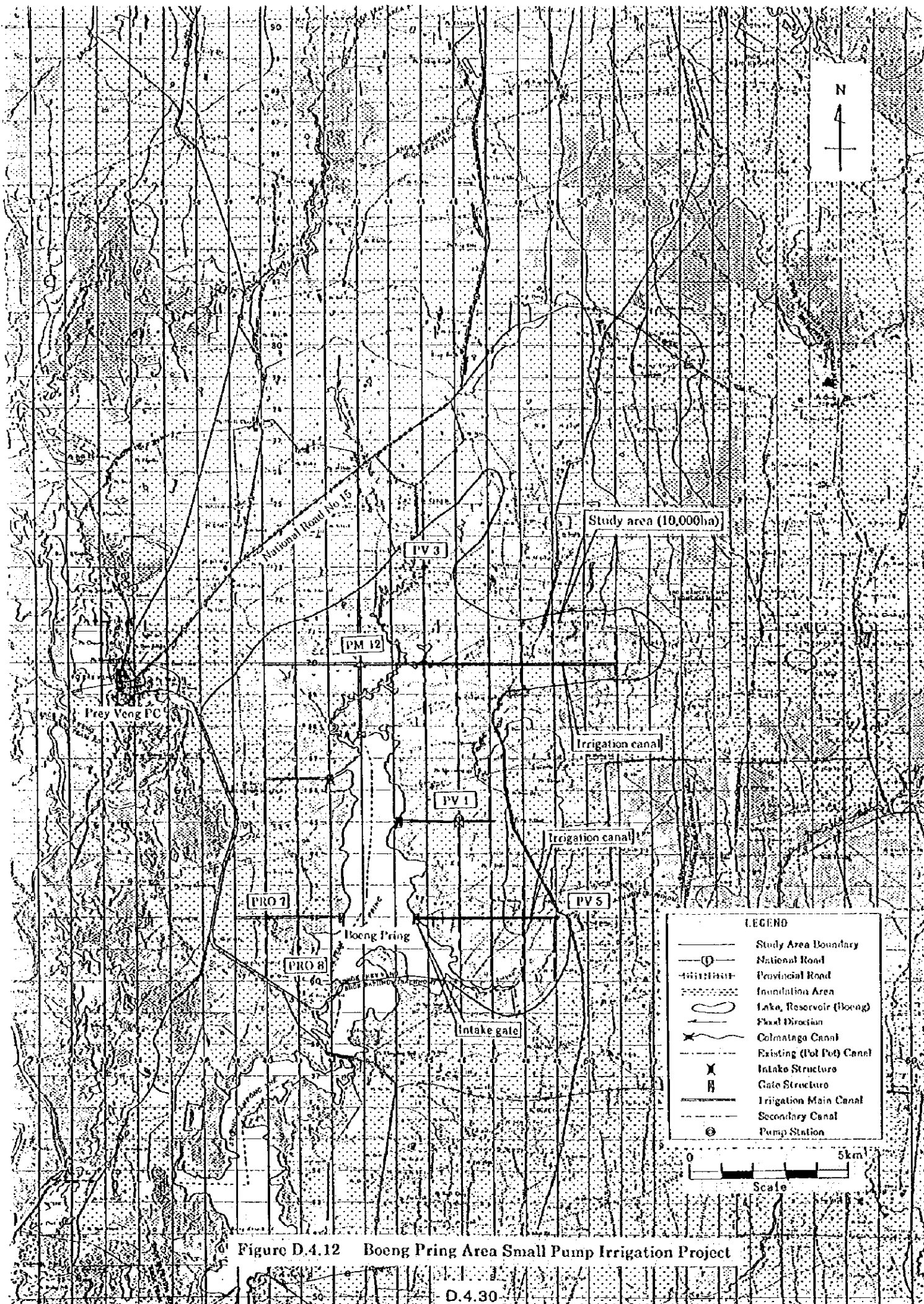


Figure D.4.12 Boeng Pring Area Small Pump Irrigation Project

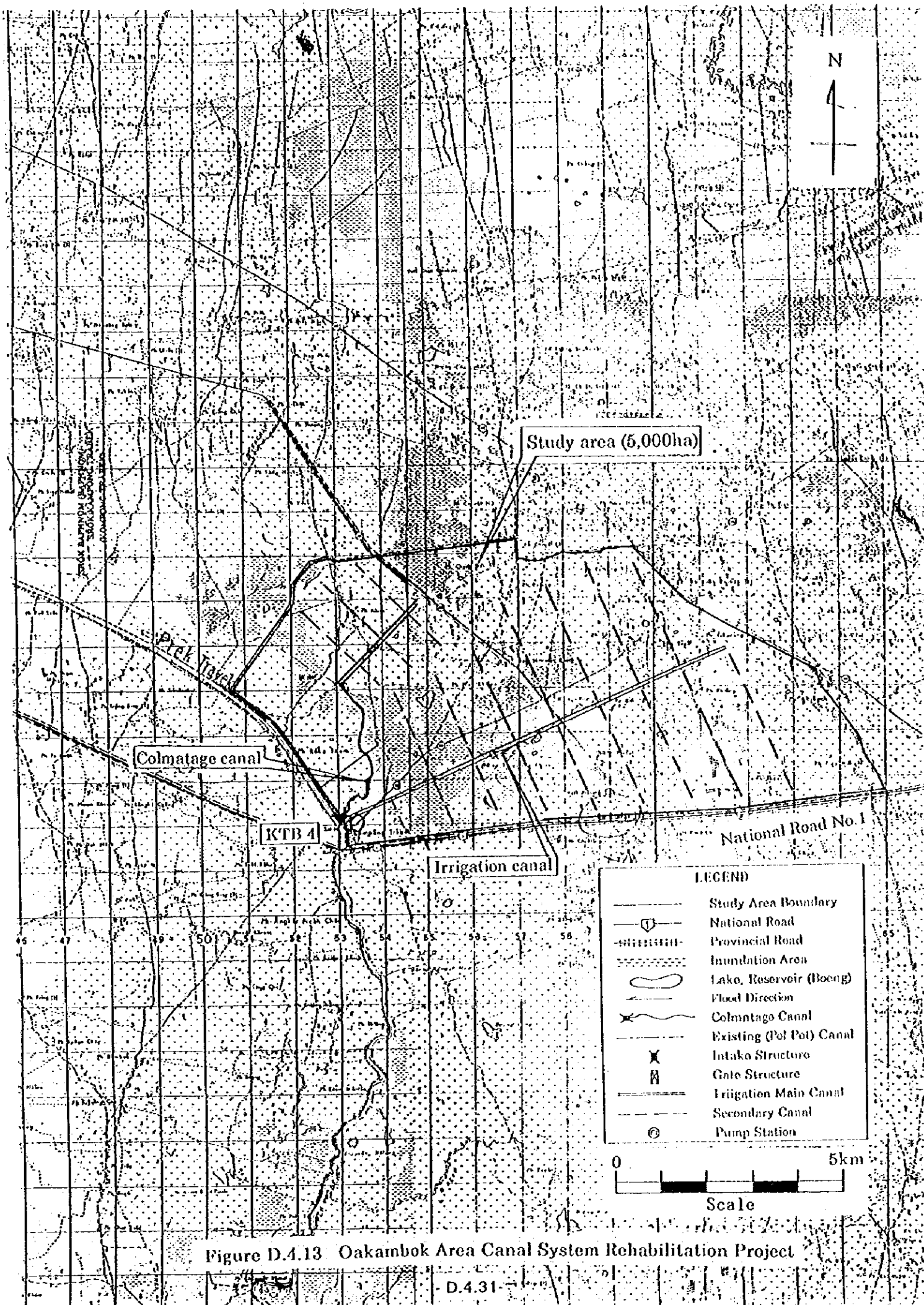


Figure D.4.13 Oakambok Area Canal System Rehabilitation Project

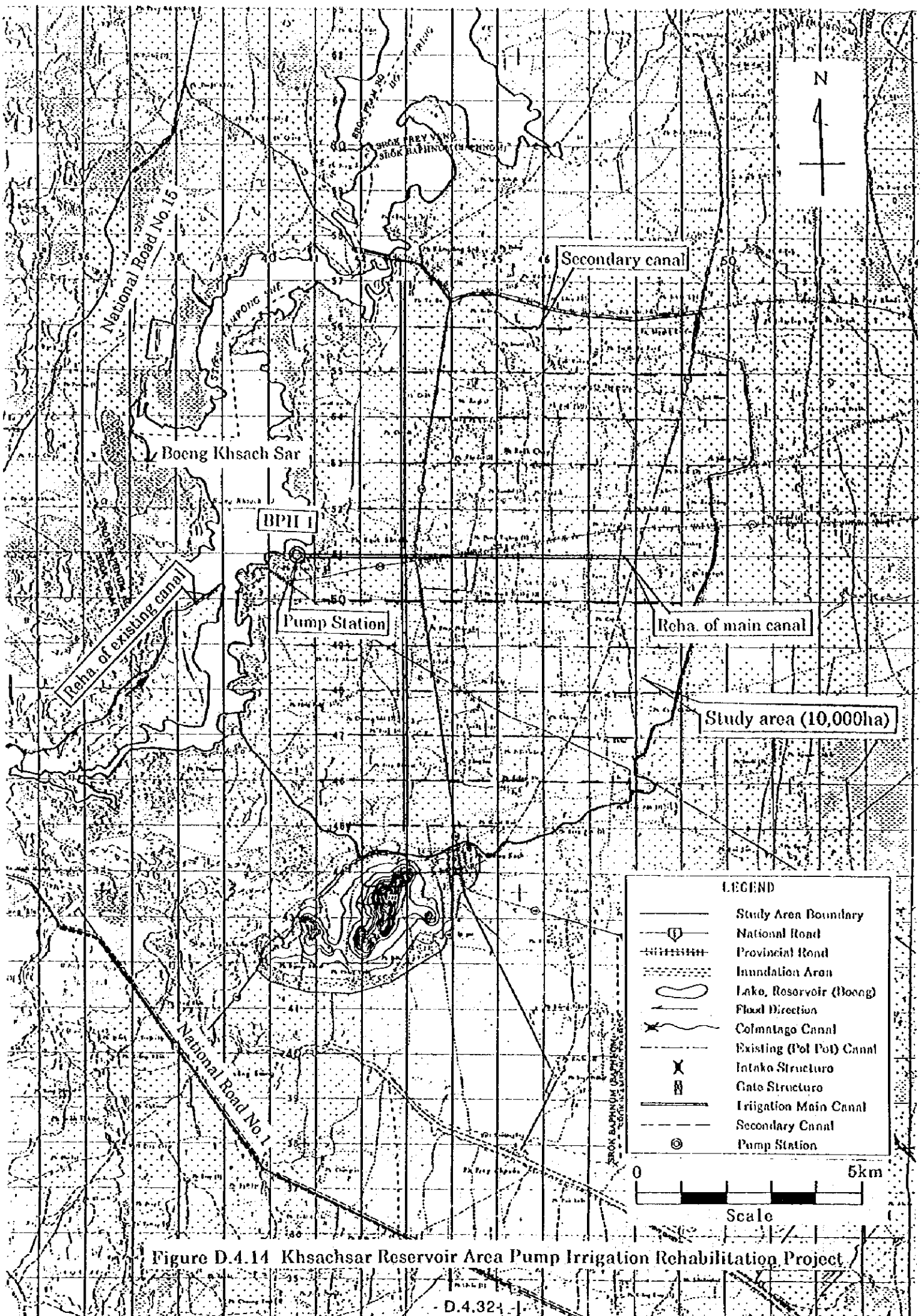


Figure D.4.14 Khsachsar Reservoir Area Pump Irrigation Rehabilitation Project

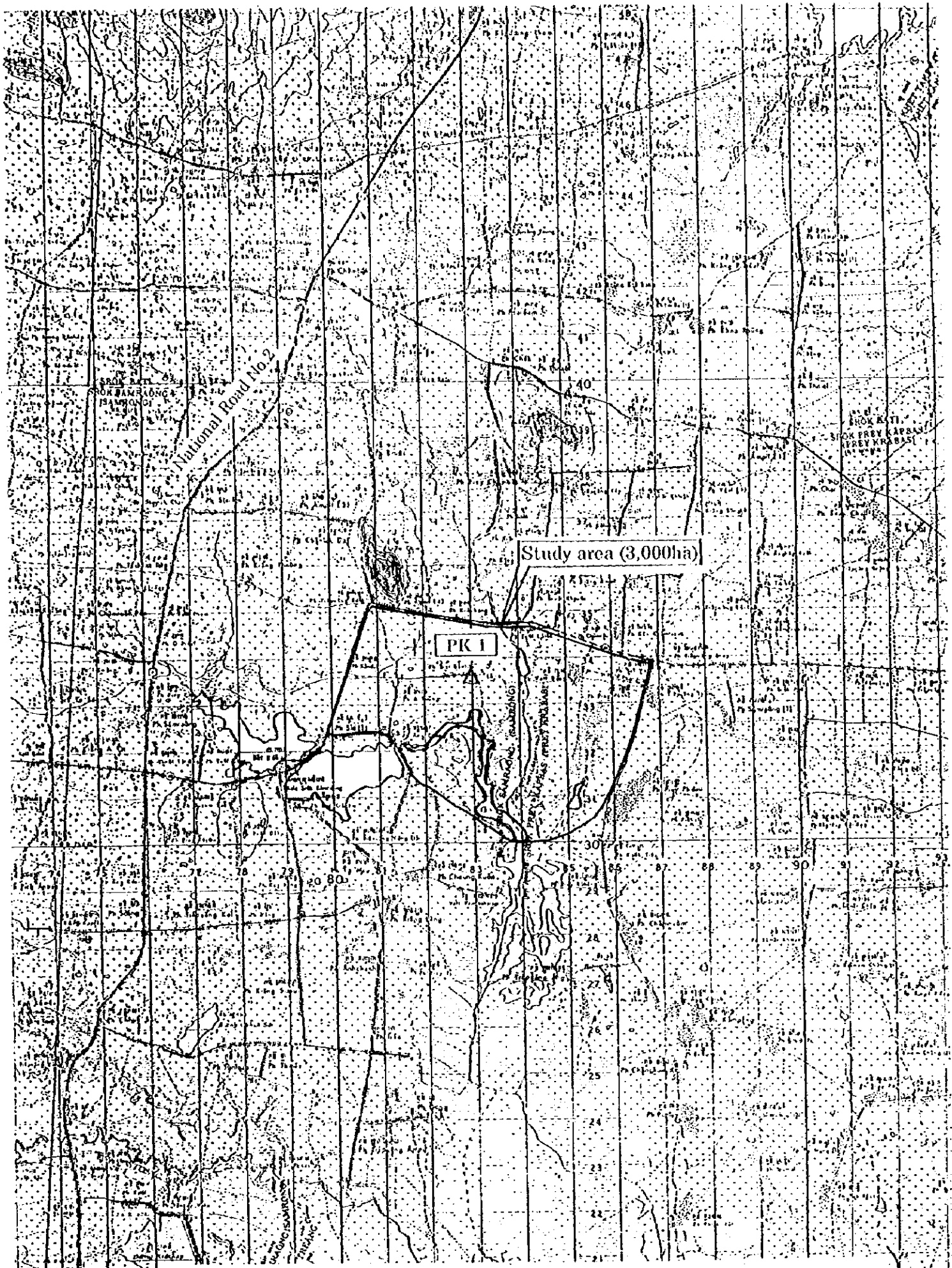


Figure D.4.15 Tourl Rolok Reservoir Irrigation System Rehabilitation Project

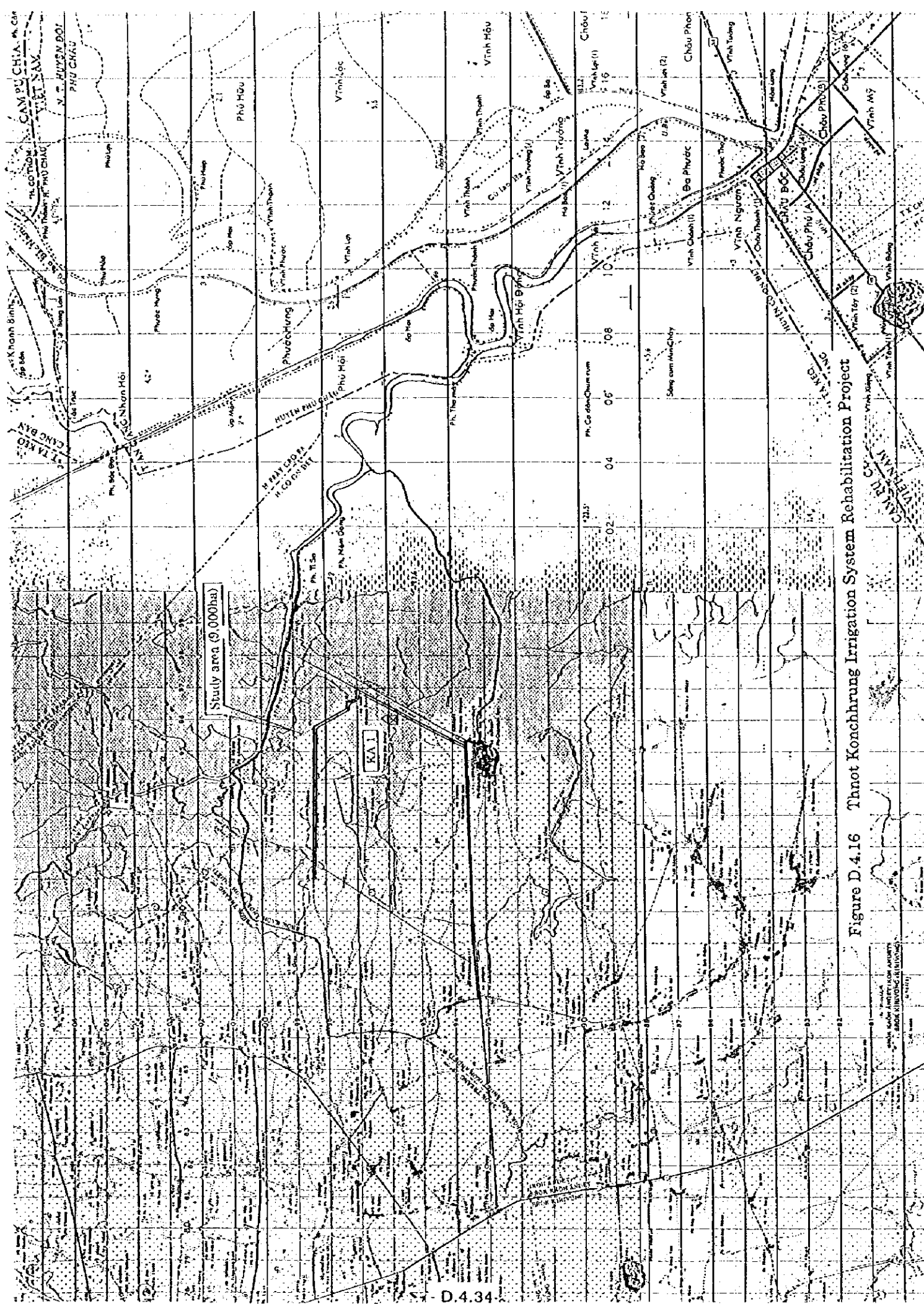


Figure D.4.16 Thnot Konchhung Irrigation System Rehabilitation Project

Study area (9,000ha)

KA 1

Scale: 1:50,000  
 Contour interval: 5m  
 Projection: UTM  
 Datum: Everest  
 Spheroid: Everest  
 Semi-major axis: 6378137m  
 Semi-minor axis: 6356755m  
 Flattening: 1/298.257  
 False easting: 500000m  
 False northing: 0m  
 Zone number: 48N  
 Authority: Ministry of the Royal Palace



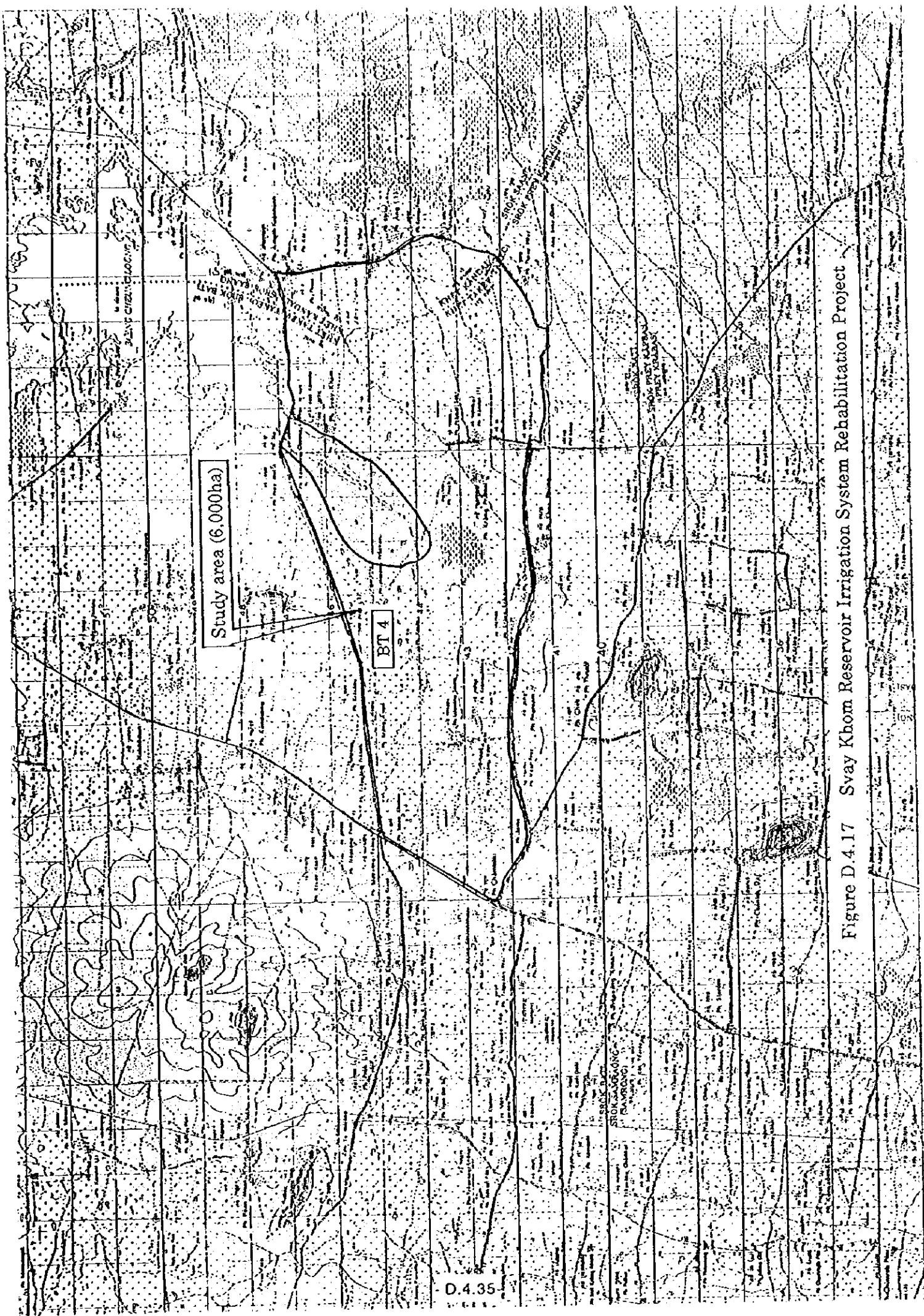


Figure D.4.17 Sray Khom Reservoir Irrigation System Rehabilitation Project

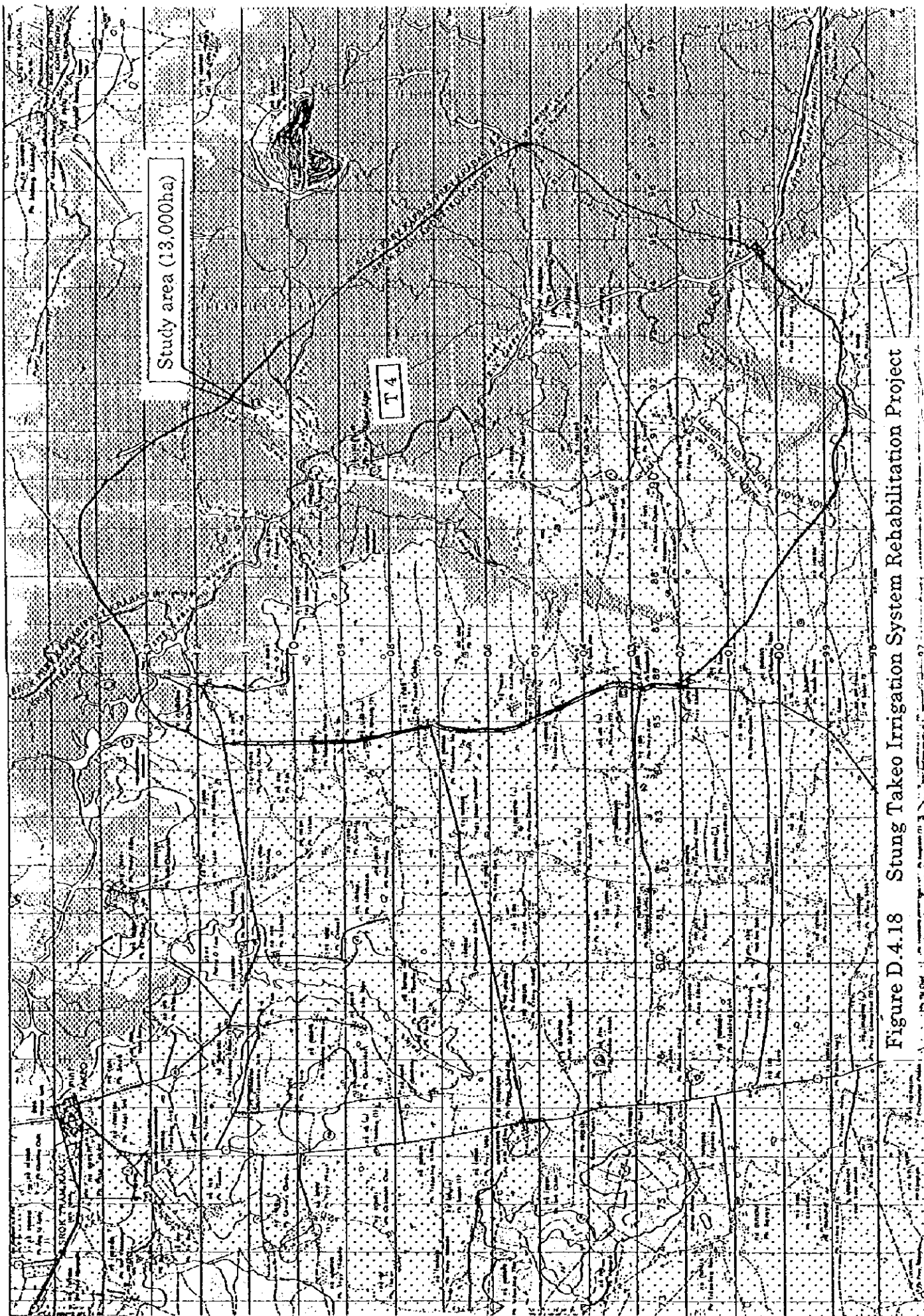


Figure D.4.18 Stung Takeo Irrigation System Rehabilitation Project

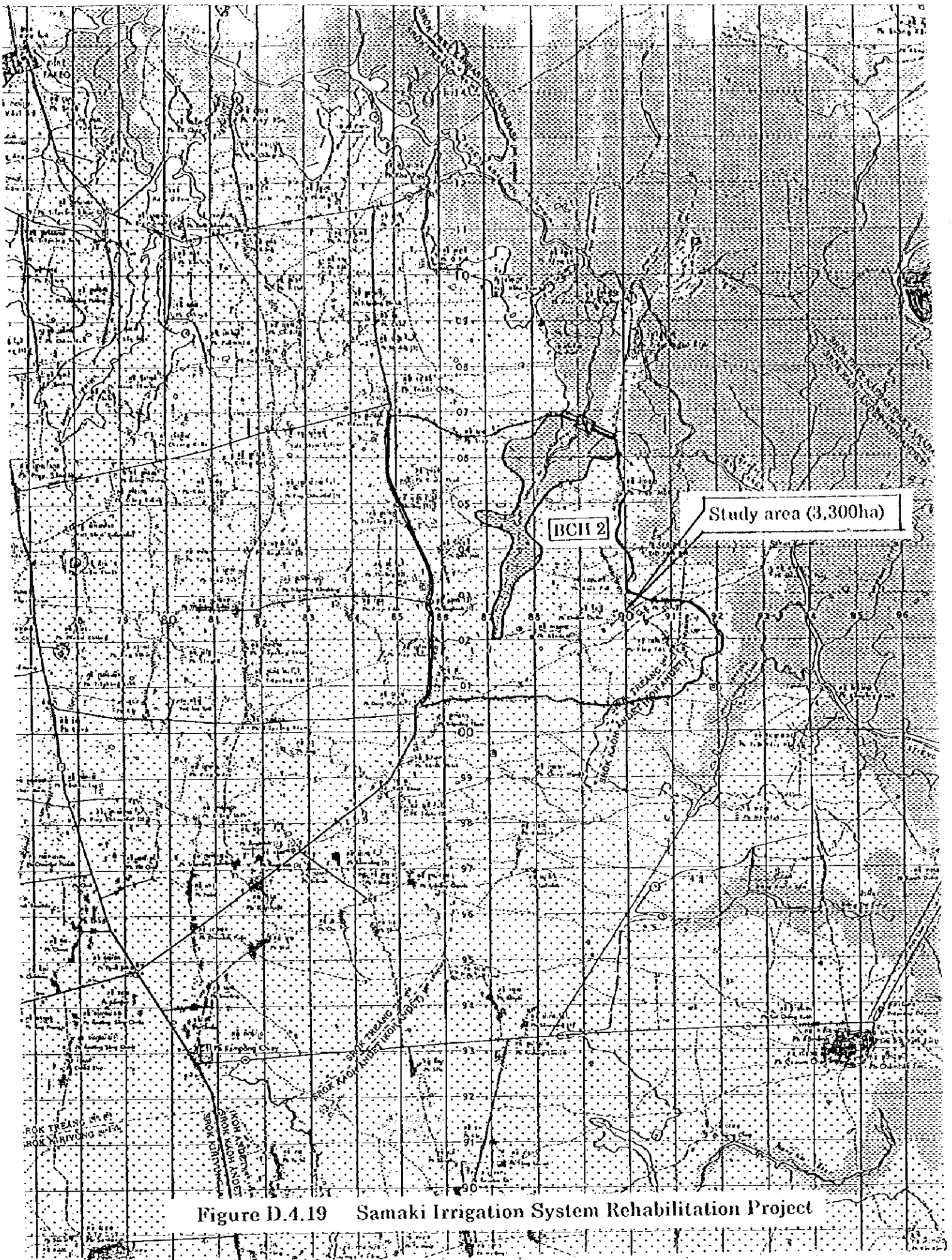


Figure D.4.19 Samaki Irrigation System Rehabilitation Project

**D.5**

**INVENTORY OF THE AGRICULTURAL  
INFRASTRUCTURES FOR THE PRIORITY PROJECT**

Table D.5.1(1) Inventory of Colmatage Canal at Boeng Phtea Area in Kandal Province

No.	Name of Prek	Name of village	Number of Families	Prek Dimension			Length m	Bridge or Culvert	Water Source	Colmatage areas			Problem/Comment
				Top Width m	Bottom Width m	Depth m				Upland Crop (ha)	Wet Season Rice (ha)	Dry Season Rice (ha)	
<b>1. Prek Tamerik Commune</b>													
1	Reung	Knong Kagnchap Cheung	15	15	8	1.5	1000	B/C	Mekong	2	-	4	Dredging is need. Construction of concrete bridge
2	Ta Hors	Anlung Kagnchap Cheung	17	15	8	2.5	1500	-		2	-	20	Dredging is need.
	Sub total		32	15	8	2	2500			4	0	24	Dredging is need.
<b>2. Puk Reusei Commune</b>													
3	Agn Cheng	Agn Cheng Leu	18	10	5	1.5	500	C.B	Mekong	10	10	-	Dredging is need.
4	Tamao	Agn Cheng Krom	298	67	58	12.5	1258	W.B	Mekong	23	23	-	Construction of concrete bridge
5	Kong Van	Agn Cheng Krom & Kroch Seauch	300				1500		Mekong				Dredging is need.
6	Ta Khoum	Kroch Seauch	312	57	50	8.2	2500	C.B	Mekong	34	32	-	Dredging is need.
	Slat	Puk Reusei Leu							Boong Phtea				Dredging is need.
7		Puk Reusei Krom	1264	30	30	1.8	6000					360	Construction of intake facility
8	Ta Pang	Puk Reusei Kandal	300	12	10	1.5	1500	C.B	Mekong	33	19	-	Dredging is need.
	Sub total		2492	29.33	25.5	4.25	13258			100	84	360	
	Total		2524	22.17	16.8	3.13	15758			104	84	384	

Note: C.B means Concrete Bridge and W.B means Wooden Bridge. B shows Bridge and C shows Culvert

Table D.5.1 (2) Inventory of Colmatage Canal at Boeng Phitea Area in Kandal Province

No.	Name of Prak	Construction/ Rehabilitation		Irrigation Type		Pump	Yield				Request
		Cons.	Rehabil.	Gravity	Traditi- nal Type		Wet Season		Dry Season		
							Rice	Up-land	Rice	Up-land	
<b>1. Prek Tamerik Commune</b>											
1	Reung	1820	.	.	.	4	.	.	2.5	.	.
2		1820	.	.	.	5	.	.	2.5	.	.
	Sub total										
<b>2. Puk Reusel Commune</b>											
3	Agn Cheng	1955	1992	.	.	.	2.3	0.8	.	.	.
4	Tamao	1977	.	.	.	.	2.0	0.7	.	.	.
5	Kong Van										
6	Ta Kheum	1941	1991			5	1.5	0.8			
7	Slat										
8	Ta Pang	1930	.				.	.	3.0	.	.
		1941	1987				2.0	0.8	.	.	.
	Sub total										
	Total										

**Table D.5.2 (1) Inventory of Reservoir in Boeung Phitea Area**

No.	Reservoir/ Lake/Swamp	Name	Village	Type of Dike		Dimension of Reservoir Dike			Water Depth (m)		Irrigation Facilities			Irrigable Area (ha)		Numbers of Family	Comment/Request	
				Semi- Closed	Closed	Top width (m)	Bottom width(m)	Height (m)	Length (m)	Dry season	Wet season	Dry season	Wet season	Traditional lifting	Sluice Gate			Culvert
<b>1. Prek Tamont Commune</b>																		
1	Thmei		Svay Att Leu & Kandal	0	0	2.5	8	2	2000	0.5	4	0	0	5	31.0	25.0	203	Repair the dike
2	Ta Dau		Svay Att Krom & Kandal	0	0	2.5	6	1.5	700	0.5	3	0	0	0	25.0	35.0	85	Repair the dike
3	Bronoh		Krong & Boeung Kagnchap Cheung	0	0	3	8	2	1300	0.5	3	1	5	4	52.0	14.0	370	Repair the dike & Need water control
4	Khar Bak		Svay Att Krom Boeung Kagnchap	0	0	2.5	8	2	470	1.5	4	0	0	10	18.0	6.0	75	facilities
5	Bae Chang Hoesur		Boeung Kagnchap Cheung & Toeung Boeung Kagnchap	0	0	3	8	2	2000	0.5	5	6	6	70	50.0	10.0	120	Need Outlet Facilities
6	Boeung Kreo Chep		Boeung Kagnchap Cheung	0	0	4	9	1	500	0.5	4	0	0	5	2.0	7.0	10	Repair the dike
7	Kropou		Boeung Kagnchap Cheung	0	0	2	8	1.5	500	1.5	6	0	0	2	10.0	0.0	20	Repair the dike & Need water control
8	O Sen Dan		Boeung Kagnchap Toeung	0	0	1.5	2	1	800	3.5	3.5	0	0	10	15.0	2.0	40	facilities
9	Treo Peung Reusel		Toeung	0	0	2.6	7.1	1.6	8270			1	12	145	233.0	06.0	1043	
<b>Total</b>																		
<b>2. Puk Reusel Commune</b>																		
1	Ta Yi		Agn Cheng Leu	0	0	1.5	3	1.5	700	1.5	3	0	0	4	4.0	0.0	4	
2	Cheung Chyang		Agn Cheng Leu	0	0	2	6	1.5	1150	1.5	2.2	0	0	20	5.8	0.0	20	Repair the dike
3	Promok Khar		Agn Cheng Krom	0	0	3.5	8	3.5	3600	2.2	3	0	0	1	86.0	0.0	550	Existing intake Facility 1
4	Ta Svey		Puk Reusel Leu Puk Reusel Leu & Kroch Seauhen	0	0	2	6	1.5	760	1.2	2	0	0	22	39.0	0.0	74	
5	Phleuy Tuk		Puk Reusel Leu & Kroch Seauhen	0	0	3	6.6	1.8	3200	1.8	2.5	0	0	4.8	63.5	0.0	612	Repair the dike
6	Pro Phleuh		Puk Reusel Krom & Kieng Meng	0	0	2	6	1.4	1840	1.7	1.8	0	0	35	23.1	0.0	396	Repair the dike
7	Khnech		Puk Reusel Krom & Kieng Meng	0	0	2	6	1.4	1300	1.3	2	0	0	50	55.8	0.0	256	
8	Tunnup Tmei		Puk Reusel Kandal	0	0	2	6	1.7	200	1.7	2	0	0	7	7.0	0.0	16	
9	Ta Long		Puk Reusel Kandal	0	0	2	6	1.5	250	1.5	2.5	0	0	16	10.0	3.0	16	
10	Ta Tein		Puk Reusel Kandal	0	0	1.5	5	1	500	0.95	1.5	0	0	6	30.0	15.0	95	
<b>Total</b>																		
				3	7	2.2	5.9	1.7	13600			0	1	177	324.2	18.0	2039.0	

**Table D.5.2 (2) Inventory of Reservoir in Boeung Phiea Area**

No.	Reservoir/ Lake/Swamp	Name	Village	Type of Lake		Dimension of Reservoir/Dike				Water Depth (m)			Irrigation Facilities			Irrigable Area (ha)		Comment/Request	
				Semi-Closed	Closed	Top width (m)	Bottom width (m)	Height (m)	Length (m)	Dry Season	Wet Season	Wet season	Dry season	Traditional lifting	Culvert	Gate	Sluice		Dry season
<b>3. Santung Commune</b>																			
1	Som Sxy	Santung				3	6	1.5	3600	1	3.5	0	0	0	0	45.0	0.0	95	Need Intake Facilities, No Pot Dike, Lotus Pond
<b>4. Prek Ampil Commune</b>																			
1	Tamso	To Toi				2	5	0.5	400	1	3				6	4.0	0.0	4	
2	Ta Phing	Ta Toi				1.5	5	0.5	2000	0.8	2				20	10.0	0.0	16	
3	Mess Satt	Ta Toi				1	2	0.9	1000	0.8	2				7.0	0.0	15		
	Total					0	3	3.3	3400			0	0	0	26	21.0	0.0	35	
<b>5. Vharsour Commune</b>																			
1	Ta Hem	Prei Chas				1.5	3	1	500	0.5	2				2.0	0.0	3	Need Intake Facilities	
2	Khom Leak	Prei Chas				2	5	1.5	400	1	2.5				4.0	0.0	20	Need Intake Facilities	
3	Tro Peang Krang	Prei Chas				2.5	6	2	1000	1	3.5				12.0	0.0	15	Need Mobile Pumps	
4	Ta Non	Prei Chas				3	6	2	5600	1	3.5	1	1	3	42.0	0.0	82	Need Outlet Facilities, There is existing Intake facility, Lotus Pond	
5	O Dey Lau	Prei Chas				2	5	1.5	800	1	2.5				8.0	0.0	10		
6	O Dey Krom	Vharsour Cheung				2	5	1.5	1500	1	3				4.0	0.0	45	Repair the dike	
7	Chok Teuk Cheung	Seda				2	5	1.5	2000	1	3				7.0	0.0	40	Repair the dike	
8	San Dan	Seda				2	5	2	2500	0.5	3				20.0	0.0	44	Need Mobile Pumps	
9	Chok Teuk Tbong	Seda				2	5	1.5	1200	1	2				3.5	0.0	15	Repair the dike	
10	Mh Thom	Seda				2	5	1.5	800	1	2.5				4.0	0.0	10	Repair the dike	
11	Ta Top	Cheung				2	4	1	1900	0.8	2.5				6.0	0.0	6	Repair the dike	
12	Ta Ngen	Cheung				3	6	1.5	1200	1.5	7	0	7	0	20.0	0.0	310	Repair the dike	
13	Trapeang Chok	Cheung				1	3	0.8	1900										
14	Kom Phak	Cheung				3	8	2.5	2900	0.5-1.0	3.5	1	4	1	150.0	0.0	230	Need Intake Facilities, Irrigation area is out of study area.	
	Total					2	12	5.1	16,237.00			2	12	3	132.5	0.0	610		
	Grand Total					12	25		52770			3	25	351	756.7	114.0	3822		

Note : Data is obtained by the District Agricultural Office in Kaech Kanol District



**Table D.5.3 Estimation of the Stored Water in the Reservoirs at present**

No.	Name of Reservoir	Name of Commune	Length (m)	Type		Existing				
				Area(1,000m <sup>2</sup> )		Mean Dike EL.m	Mean Bottom EL.m	Mean Depth (m)	Volume(1,000m <sup>3</sup> )	
				Closed	Closed				Semi Closed	Closed
1	Thmei	Prek Tamerk	2000	106		8.4	6.5	1.9	110.8	
2	Ta Dau		7000	41		8	7	1	22.6	
3	Brovosh		1300	243		8.5	7	1.5	200.5	
4	Khlar Siko		470	15		8	6	2	16.5	
5	Bac Chang Hoer		2000	252		7.5	6	1.5	207.9	
6	Boeng Krao Chap		500		90	9.3	8.5	0.8	0.0	39.6
7	Kropeu		0		138	4.5	4	0.5		48.3
8	O San Dan		500	30		7.5	6.5	1	16.5	
9	Trao Peang Reusel		800	20		7.5	6.5	1	11.0	
	Sub Total		14570.0	707.0	228.0				585.7	87.9
10	Ta Yi	Puk Reusel	700		38	7.5	6.5	1		26.6
11	Cheung Chrang		1150	343		7.5	6.5	1	168.7	
12	Promok Khlar		3900		718	7.5	5.8	1.7		854.4
13	Ta Svay		600		27	8	6.5	1.5		28.4
14	Phleuy Tuk		3200		482	7.8	6	1.8		607.3
15	Pro Pheng		1800		190	6.6	5.2	1.4		186.2
16	Khnach		1300		120	6.4	5	1.4		117.6
17	Tunnup Tmei		200	12		9	8	1	6.6	
18	Ta Long		250	12		8.9	8	0.9	5.9	
19	Ta Tein	600	55		7	6	1	30.3		
	Sub total		13700.0	422.0	1575.0				231.4	1820.5
20	Som Say	Sanlung	3600		667	6.2	4.7	1.5		700.4
21	Tamao	Prek Ampil	400		13	6.5	6	0.5		4.6
22	Ta Pring		2000		118	6.5	6	0.5		41.3
23	Meas Sall		1000		42	6	5	1		29.4
	Sub total		3400.0		173.0					75.3
24	Ta Hem	Vihearsour	500		16	7	6	1		11.2
25	Khtom Leak		450	30		7	6	1	16.5	
26	Tro Peang Kragh		1000		34	7.5	7	0.5		11.9
27	Ta Non		5800		1738	6.9	5.8	1.1		1338.3
28	O Diev Leu		800		34	7.5	6.5	1		23.8
29	O Diev Krom		1500		93	7	6	1		65.1
30	Choir Teuk Cheng		2000		163	7	6	1		114.1
31	San Dan		2500		248	6.5	5.5	1		173.6
32	Choir Teuk Tbong		1200		54	7.5	6.5	1		37.8
33	Min Thom		800		39	7	6	1		27.3
34	Ta Top		1900		62	8	6.2	1.8		103.3
35	Ta Ngen		1200		79	8	7	1		55.3
36	Trapeang Chouk		1900		63	7.8	7	0.8		46.5
37	Kom Pheak	2900		-	7.9	5.5	2.4		0.0	
	Sub Total		24250.0	30.0	2663.0				16.5	2008.2
	Total		59520.0	1159.0	5306.0				833.6	4692.2

Note 1) \*Area means the full water surface area in the flood season

2) Bottom area in semi-closed reservoir is assumed 10 % of the full water surface

3) Bottom area in closed reservoir is assumed 40 % of the full water surface

**D.6 AGRICULTURAL INFRASTRUCTURES IMPROVEMENT  
PLAN**

Table D.6.1 Crop Water Requirement and Evaporation of the reservoir for the dry season recession paddy

	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Total
Evapo-Transpiration (mm/day)	5.10	5.40	6.20	7.30	7.10	6.90		
KC Value	1.15	1.15	1.35	1.30	1.20	1.05		
ET Crop (mm/day)	5.87	6.21	8.37	9.49	8.52	7.25		
ET'Crop (mm/day)	0.98	3.11	6.98	7.91	4.26	1.21		
Effective Rainfall (mm/day)	0.00	0.00	0.00	0.00	3.95	2.10		
Water Requirement (mm/day)	0.98	3.11	6.98	7.91	0.31	0.00		
Water Requirement (mm/month)	30.303	96.255	195.3	245.16	9.3	0		576.3
Evaporation of the reservoir								
Evaporation (mm/day)	5.4	6.2	7.3	7.1	6.9	5.5		
Average Number of Rainy Day	1	0	0	1	4	9		
Evaporation (mm/month)	162	192.2	204.4	213	179.4	951.0		

Note: L.P. ; Land Preparation, T.P. ; Transplant

Percolation rate of 1mm/day is included in the evapotranspiration value

Reference: FAO Irrigation & Drainage Paper, Crop Water Requirement

Physiologica ecology in Tropical Paddy, Association for International Cooperation of Agriculture & Forest

Available Water in the Swamps Area		
Name	Water Surface Area (ha)	Stored Water (MCM)
Boeung Selap	148 at EL 5.0	1.416
Trapeng Kongsongke	100 at EL 6.0	0.93

No.	Name of Reservoir	Name of Commune	Existing Irrigation Area		Balance
			Dry Season (ha)	Wet Season (ha)	
R2	Chheung Chreang		5.8	0	
R3	Promok Khlar		86	0	
R5	Phiev Tuk	Puk Reusei	63.5	0	
R6	Pro Pheng		23.1	0	216 37.6
R7	Khmach		55.8	0	661 10.2
	Sub total		234.2	0	282 47.8
S1	Som Say	Sanlung	45	0	76 31
A1	Tameo		4	0	
A2	Ta Ping	Prek Ampil	10	0	
A3	Mess Satt		7	0	
	Sub total		21	0	27 6
V3	Tro Peang Kreng		12	0	
V4	Ta Non		42	0	
V5	O Diev Leu		8	0	
V6	O Diev Krom		4	0	
V7	Chor Teuk Chang		7	0	
V8	San Dan	Vinearsour	20	0	
V9	Chor Teuk Tbong		3.5	0	
V10	Min Thom		4	0	
V11	Ta Top		6	0	
V12	Tropeang Chouk		20	0	
	Sub Total		126.5	0	446 319.5
	Total		426.7	0	831 404.3

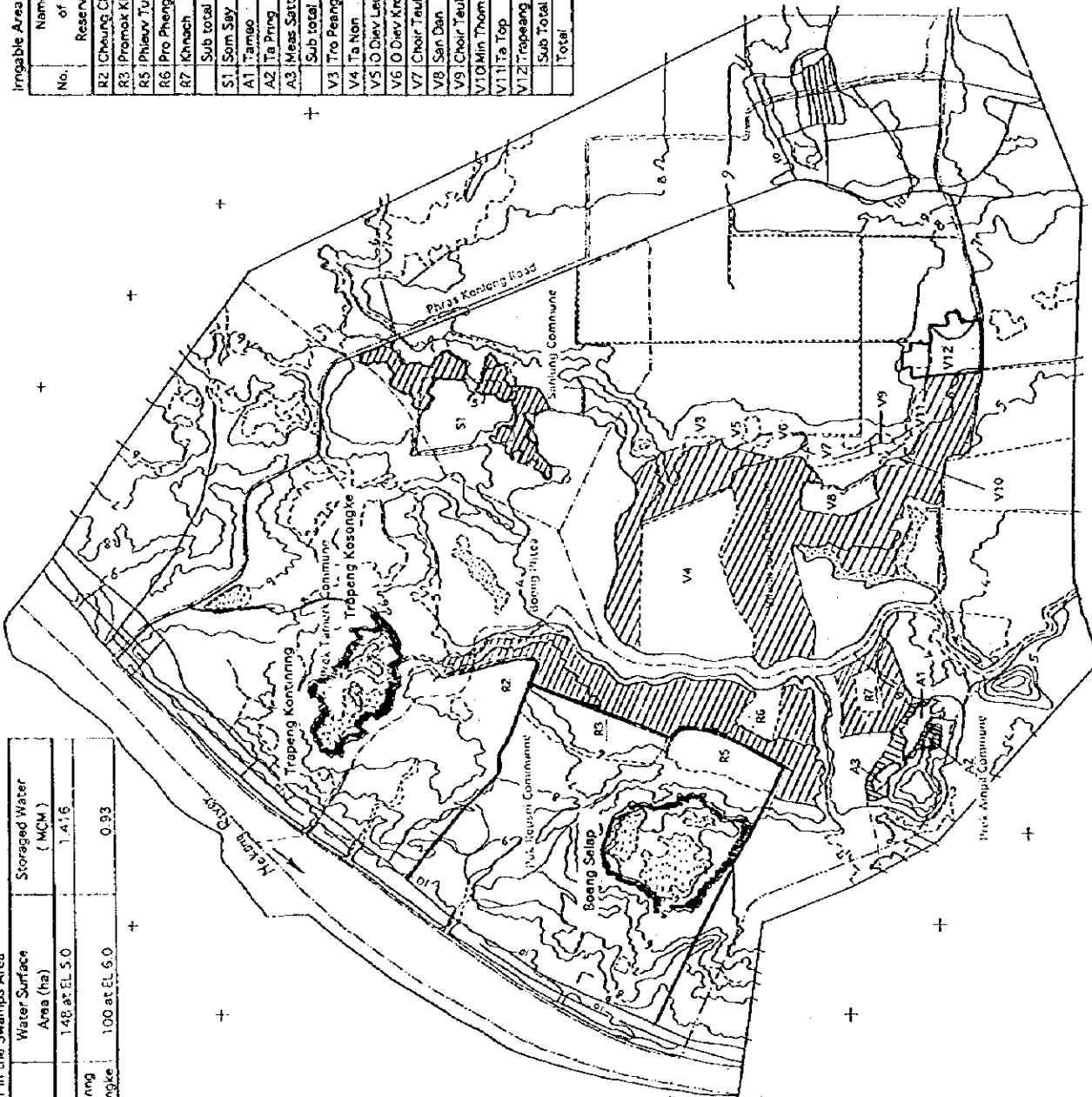


Figure D.6.1 Irrigable Area for the Dry Season Recession Paddy in the Reservoirs and Available Water in the Swamps at Stage I Development Plan

**APPENDIX E**

**Agriculture / Agricultural Supporting System**



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