

**Table F.27 Irrigation Water Requirement and Diversion Requirement of Sataon Area (1/6)**

Input data of Sataon Area of Sharda Canal CAD Project  
Summary of Crop and Basic Assumption

No.	C r o p	Application Efficiency	Percolation Loss Code	Land preparation Code	Pre-irrigation Code	Growing Stages
1	1 Paddy-nursery	0.90	1	1	0	2
2	2 Paddy	0.90	1	1	0	6
3	3 Pulses	0.75	0	0	1	7
4	4 Oilseeds	0.75	0	0	1	7
5	5 Wheat	0.75	0	0	1	7
6	6 Vegetables(Potatoes)	0.75	0	0	1	7
7	7 Forage crops	0.75	0	0	1	9

No.	C r o p	Crop Coefficient ( by growing stage )								
1	1 Paddy-nursery	1.00	1.00							
2	2 Paddy	1.10	1.14	1.17	1.20	1.20	1.15			
3	3 Pulses	0.35	0.40	0.80	1.08	1.10	1.03	0.55		
4	4 Oilseeds	0.20	0.53	1.12	1.17	1.17	1.16	0.70		
5	5 Wheat	0.48	0.58	1.10	1.18	1.18	1.16	0.92		
6	6 Vegetables(Potatoes)	0.37	0.42	0.90	1.05	1.12	1.08	0.74		
7	7 Forage crops	0.50	0.80	0.85	0.90	0.93	0.95	0.95	0.95	0.95

Remark: 1 growing stage = 15 days  
 $RBI < -RAIN < RB2 : EFR1-AA1 * RAIN - BB1$   
 $RBI = 0.00 \quad RB2 = 200.00 \quad AA1 = 0.79 \quad BB1 = 0.00 \quad AA2 = 0.22 \quad BB2 = 114.00$   
 $RB2 < -RAIN : EFR1-AA2 * RAIN + BB2$   
 Land preparation for paddy starts OSTAGE(S) BEFORE TRANSPLANTING

Summary of crop and basic assumption  
in Sataon Sub-Project Kharif Season

No.	C r o p	Cultiva. Area(ha)	Date of Water Issue	Land Preparation Period (stages)
1	1 Paddy-nursery	3.	5/16	2
2	2 Paddy	68.	6/16	2
3	3 Pulses	22.	6/ 1	1
4	4 Oilseeds	10.	6/ 1	1
Total Project Area		100.		

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Potential ET (mm)	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Conveyance Efficiency	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Return Flow Factor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Code	Unit:mm									
	1	2	3	4	5	6	7	8	9	10
Land Preparation	180.	0.	0.	0.	0.	0.	0.	0.	0.	0.
Percolation Losses	60.	90.	0.	0.	0.	0.	0.	0.	0.	0.
Pre-irrigation	50.	60.	0.	0.	0.	0.	0.	0.	0.	0.

Rainfall Data for Sataon Sub-Project Kharif Season  
Rainfall for Sataon area (Maurawan Distributary Command)

Year	Unit:mm												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1981	7	7	16	16	16	74	381	207	278	1	3	5	1011
1982	42	5	0	24	0	45	192	315	227	2	2	7	861
1983	30	0	0	65	29	263	329	130	155	147	0	5	1153
1984	17	9	0	13	0	87	250	203	198	45	0	0	822
1985	33	0	0	8	0	87	468	117	247	178	0	5	1143
1986	12	49	0	14	13	171	317	157	284	25	0	90	1132
1987	17	0	0	0	25	0	156	84	165	66	0	0	513
1988	0	0	2	0	0	0	282	359	6	58	0	5	712
1989	7	0	0	0	6	268	186	121	125	15	0	2	730
1990	0	38	0	0	9	152	624	159	130	17	0	0	1129
Ave.	16	10	1	14	9	114	318	185	181	55	0	11	920

Table F.27 Irrigation Water Requirement and Diversion Requirement of Sataon Area (2/6)

Sample Intermediate Output in 1981

Crop : 1 Paddy-nursery  
 Land Preparation Requirement : 180. mm  
 Percolation Losses : 60. mm  
 Pre-irrigation : 0. mm  
 Growing Stages : 2 stages  
 Date of Water Issue : 5/16

Unit:mm

Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop Coefficient	0.00	0.00	0.00	0.00	0.17	0.67	0.17	0.00	0.00	0.00	0.00	0.00
Potential ET	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Crop ET	0.0	0.0	0.0	0.0	0.0	44.5	154.0	24.8	0.0	0.0	0.0	0.0
Rainfall	7.0	7.0	16.0	16.0	16.0	74.0	381.0	207.0	278.0	1.0	3.0	5.0
Effective Rainfall	0.0	0.0	0.0	0.0	2.1	38.8	32.7	0.0	0.0	0.0	0.0	0.0
Land Preparation	0.0	0.0	0.0	0.0	60.0	120.0	0.0	0.0	0.0	0.0	0.0	0.0
Percolation Loss	0.0	0.0	0.0	0.0	10.0	40.0	10.0	0.0	0.0	0.0	0.0	0.0
Farm Water Req.	0.0	0.0	0.0	0.0	112.4	275.2	2.1	0.0	0.0	0.0	0.0	0.0
Overall Efficiency	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Diversion Water Req.	0.0	0.0	0.0	0.0	173.5	424.7	3.3	0.0	0.0	0.0	0.0	0.0

Sample Intermediate Output in 1981

Crop : 2 Paddy  
 Land Preparation Requirement : 180. mm  
 Percolation Losses : 60. mm  
 Pre-irrigation : 0. mm  
 Growing Stages : 6 stages  
 Date of Water Issue : 6/16

Unit:mm

Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop Coefficient	0.00	0.00	0.00	0.00	0.00	0.18	0.94	1.18	0.98	0.19	0.00	0.00
Potential ET	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Crop ET	0.0	0.0	0.0	0.0	0.0	42.4	140.3	191.2	135.7	25.1	0.0	0.0
Rainfall	7.0	7.0	16.0	16.0	16.0	74.0	381.0	207.0	278.0	1.0	3.0	5.0
Effective Rainfall	0.0	0.0	0.0	0.0	0.0	9.7	163.6	158.7	145.0	0.1	0.0	0.0
Land Preparation	0.0	0.0	0.0	0.0	0.0	60.0	120.0	0.0	0.0	0.0	0.0	0.0
Percolation Loss	0.0	0.0	0.0	0.0	0.0	10.0	50.0	60.0	50.0	10.0	0.0	0.0
Farm Water Req.	0.0	0.0	0.0	0.0	0.0	102.7	146.7	92.4	40.7	35.0	0.0	0.0
Overall Efficiency	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Diversion Water Req.	0.0	0.0	0.0	0.0	0.0	158.4	226.4	142.7	62.7	54.0	0.0	0.0

Sample Intermediate Output in 1981

Crop : 3 Pulses  
 Land Preparation Requirement : 0. mm  
 Percolation Losses : 0. mm  
 Pre-irrigation : 50. mm  
 Growing Stages : 7 stages  
 Date of Water Issue : 6/1

Unit:mm

Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop Coefficient	0.00	0.00	0.00	0.00	0.00	0.28	0.77	1.08	0.53	0.00	0.00	0.00
Potential ET	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Crop ET	0.0	0.0	0.0	0.0	0.0	63.5	114.7	174.6	73.5	0.0	0.0	0.0
Rainfall	7.0	7.0	16.0	16.0	16.0	74.0	381.0	207.0	278.0	1.0	3.0	5.0
Effective Rainfall	0.0	0.0	0.0	0.0	0.0	38.8	246.3	157.1	119.2	0.0	0.0	0.0
Pre-irrigation	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0
Percolation Loss	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Farm Water Req.	0.0	0.0	0.0	0.0	0.0	74.7	0.0	17.4	0.0	0.0	0.0	0.0
Overall Efficiency	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Diversion Water Req.	0.0	0.0	0.0	0.0	0.0	138.4	0.0	32.3	0.0	0.0	0.0	0.0

Sample Intermediate Output in 1981

Crop : 4 Oilseeds  
 Land Preparation Requirement : 0. mm  
 Percolation Losses : 0. mm  
 Pre-irrigation : 50. mm  
 Growing Stages : 7 stages  
 Date of Water Issue : 6/1

Unit:mm

Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop Coefficient	0.00	0.00	0.00	0.00	0.00	0.23	0.99	1.17	0.64	0.00	0.00	0.00
Potential ET	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Crop ET	0.0	0.0	0.0	0.0	0.0	53.7	146.8	189.1	88.3	0.0	0.0	0.0
Rainfall	7.0	7.0	16.0	16.0	16.0	74.0	381.0	207.0	278.0	1.0	3.0	5.0
Effective Rainfall	0.0	0.0	0.0	0.0	0.0	37.7	265.8	161.1	126.2	0.0	0.0	0.0
Pre-irrigation	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0
Percolation Loss	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Farm Water Req.	0.0	0.0	0.0	0.0	0.0	66.0	0.0	28.1	0.0	0.0	0.0	0.0
Overall Efficiency	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Diversion Water Req.	0.0	0.0	0.0	0.0	0.0	122.2	0.0	52.0	0.0	0.0	0.0	0.0

Table F.27 Irrigation Water Requirement and Diversion Requirement of Sataon Area (3/6)

Sample Intermediate Output in 1981  
 Summary of Water Demand for Each Crop  
 Unit Diversion Water Requirement

C r o p	Unit:mm											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1 Paddy-nursery	0.	0.	0.	0.	173.	425.	3.	0.	0.	0.	0.	0.
2 Paddy	0.	0.	0.	0.	0.	158.	226.	143.	63.	54.	0.	0.
3 Pulses	0.	0.	0.	0.	0.	138.	0.	32.	0.	0.	0.	0.
4 Oilseeds	0.	0.	0.	0.	0.	122.	0.	52.	0.	0.	0.	0.

Sample Intermediate Output in 1981  
 Summary of Water Demand for Each Crop  
 Diversion Water Requirement

C r o p	Unit:x1000 m3											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1 Paddy-nursery	0.	0.	0.	0.	6.	14.	0.	0.	0.	0.	0.	0.
2 Paddy	0.	0.	0.	0.	0.	108.	154.	97.	43.	37.	0.	0.
3 Pulses	0.	0.	0.	0.	0.	30.	0.	7.	0.	0.	0.	0.
4 Oilseeds	0.	0.	0.	0.	0.	12.	0.	5.	0.	0.	0.	0.
T o t a l	0.	0.	0.	0.	6.	165.	154.	109.	43.	37.	0.	0.

Diversion Water Requirement for Sataon Sub-Project Kharif Season  
 ( Total Area : 100. ha )

Year	Unit:x1000 m3												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1981	0.	0.	0.	0.	6.	165.	154.	109.	43.	37.	0.	0.	513.
1982	0.	0.	0.	0.	6.	178.	196.	73.	52.	37.	0.	0.	541.
1983	0.	0.	0.	0.	6.	99.	164.	202.	93.	17.	0.	0.	580.
1984	0.	0.	0.	0.	6.	159.	179.	112.	59.	31.	0.	0.	545.
1985	0.	0.	0.	0.	6.	159.	138.	219.	49.	12.	0.	0.	582.
1986	0.	0.	0.	0.	6.	121.	166.	168.	42.	33.	0.	0.	536.
1987	0.	0.	0.	0.	6.	200.	229.	261.	84.	28.	0.	0.	807.
1988	0.	0.	0.	0.	6.	200.	173.	63.	235.	29.	0.	0.	705.
1989	0.	0.	0.	0.	6.	98.	201.	214.	122.	35.	0.	0.	675.
1990	0.	0.	0.	0.	6.	130.	108.	166.	117.	35.	0.	0.	560.
Ava.	0.	0.	0.	0.	6.	151.	171.	158.	89.	29.	0.	0.	605.

**Table F.27 Irrigation Water Requirement and Diversion Requirement of Sataon Area (4/6)**

Summary of crop and basic assumption  
in Sataon Sub-Project Area Rabi Season

No.	C r o p	Cultiva. Area(ha)	Date of Water Issue	Land Preparation Period (stages)
5	5 Wheat	68.	11/ 1	2
3	3 Pulses	15.	10/16	1
4	4 Oilseeds	5.	10/16	1
6	6 Vegetables(Potatoes)	6.	10/16	1
7	7 Forage crops	6.	10/16	1
Total Project Area		100.		

Sample Intermediate Output in 1981

Crop : 5 Wheat  
Land Preparation Requirement : 0. mm  
Percolation Losses : 0. mm  
Pre-irrigation : 50. mm  
Growing Stages : 7 stages  
Date of Water Issue : 11/ 1

Unit:mm

I t e m	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop Coefficient	1.16	0.89	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.84
Potential ET	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Crop ET	89.6	96.1	26.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.8	52.7
Rainfall	7.0	7.0	16.0	16.0	16.0	74.0	381.0	207.0	278.0	1.0	3.0	5.0
Effective Rainfall	5.1	4.4	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	3.4
Pre-irrigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	16.7
Percolation Loss	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Farm Water Req.	84.5	91.8	25.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	55.2	65.9
Overall Efficiency	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Diversion Water Req.	156.4	169.9	46.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	102.2	122.1

Sample Intermediate Output in 1981

Crop : 3 Pulses  
Land Preparation Requirement : 0. mm  
Percolation Losses : 0. mm  
Pre-irrigation : 50. mm  
Growing Stages : 7 stages  
Date of Water Issue : 10/16

Unit:mm

I t e m	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop Coefficient	0.93	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.49	1.02
Potential ET	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Crop ET	71.4	14.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5	43.4	63.9
Rainfall	7.0	7.0	16.0	16.0	16.0	74.0	381.0	207.0	278.0	1.0	3.0	5.0
Effective Rainfall	4.8	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.1	3.3
Pre-irrigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	25.0	0.0
Percolation Loss	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Farm Water Req.	66.6	14.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.3	66.3	60.6
Overall Efficiency	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Diversion Water Req.	123.4	26.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	67.2	122.7	112.2

Table F.27 Irrigation Water Requirement and Diversion Requirement of Sataon Area (5/6)

Sample Intermediate Output in 1981  
 Crop : 4 Oilseeds  
 Land Preparation Requirement : 0. mm  
 Percolation Losses : 0. mm  
 Pre-irrigation : 50. mm  
 Growing Stages : 7 stages  
 Date of Water Issue : 10/16

Unit:mm

Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop Coefficient	1.05	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.59	1.16
Potential ET	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Crop ET	80.7	18.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.6	53.0	72.9
Rainfall	7.0	7.0	16.0	16.0	16.0	74.0	381.0	207.0	278.0	1.0	3.0	5.0
Effective Rainfall	5.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.2	3.5
Pre-irrigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	25.0	0.0
Percolation Loss	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Farm Water Req.	75.7	18.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.4	75.8	69.4
Overall Efficiency	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Diversion Water Req.	140.2	33.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	58.2	140.3	128.6

Sample Intermediate Output in 1981  
 Crop : 6 Vegetables(Potatoes)  
 Land Preparation Requirement : 0. mm  
 Percolation Losses : 0. mm  
 Pre-irrigation : 50. mm  
 Growing Stages : 7 stages  
 Date of Water Issue : 10/16

Unit:mm

Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop Coefficient	1.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.53	1.03
Potential ET	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Crop ET	77.4	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.1	46.9	64.9
Rainfall	7.0	7.0	16.0	16.0	16.0	74.0	381.0	207.0	278.0	1.0	3.0	5.0
Effective Rainfall	4.9	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.1	3.4
Pre-irrigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	25.0	0.0
Percolation Loss	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Farm Water Req.	72.5	19.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37.0	69.8	61.5
Overall Efficiency	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Diversion Water Req.	134.2	35.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	68.5	129.3	113.9

Sample Intermediate Output in 1981  
 Crop : 7 Forage crops  
 Land Preparation Requirement : 0. mm  
 Percolation Losses : 0. mm  
 Pre-irrigation : 50. mm  
 Growing Stages : 9 stages  
 Date of Water Issue : 10/16

Unit:mm

Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop Coefficient	0.94	0.95	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.74	0.89
Potential ET	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Crop ET	72.8	102.6	40.8	0.0	0.0	0.0	0.0	0.0	0.0	16.4	65.6	56.4
Rainfall	7.0	7.0	16.0	16.0	16.0	74.0	381.0	207.0	278.0	1.0	3.0	5.0
Effective Rainfall	4.8	5.3	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.3	3.2
Pre-irrigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	25.0	0.0
Percolation Loss	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Farm Water Req.	68.0	97.3	38.7	0.0	0.0	0.0	0.0	0.0	0.0	41.2	88.3	53.2
Overall Efficiency	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Diversion Water Req.	125.9	180.1	71.6	0.0	0.0	0.0	0.0	0.0	0.0	76.3	163.6	98.5

Table F.27 Irrigation Water Requirement and Diversion Requirement of Sataon Area (6/6)

Sample Intermediate Output in 1981  
 Summary of Water Demand for Each Crop  
 Unit Diversion Water Requirement

C r o p	Unit:mm											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
5 Wheat	156.	170.	46.	0.	0.	0.	0.	0.	0.	0.	102.	122.
3 Pulses	123.	26.	0.	0.	0.	0.	0.	0.	0.	67.	123.	112.
4 Oilseeds	140.	34.	0.	0.	0.	0.	0.	0.	0.	58.	140.	129.
6 Vegetables(Potatoes)	134.	36.	0.	0.	0.	0.	0.	0.	0.	68.	129.	114.
7 Forage crops	126.	180.	72.	0.	0.	0.	0.	0.	0.	76.	164.	98.

Sample Intermediate Output in 1981  
 Summary of Water Demand for Each Crop  
 Diversion Water Requirement

C r o p	Unit:xl000 m3											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
5 Wheat	106.	116.	32.	0.	0.	0.	0.	0.	0.	0.	69.	83.
3 Pulses	19.	4.	0.	0.	0.	0.	0.	0.	0.	10.	18.	17.
4 Oilseeds	7.	2.	0.	0.	0.	0.	0.	0.	0.	3.	7.	6.
6 Vegetables(Potatoes)	8.	2.	0.	0.	0.	0.	0.	0.	0.	4.	8.	7.
7 Forage crops	8.	11.	4.	0.	0.	0.	0.	0.	0.	5.	10.	6.
T o t a l	147.	134.	36.	0.	0.	0.	0.	0.	0.	22.	112.	119.

Diversion Water Requirement for Sataon Sub-Project Area Rabi Season  
 ( Total Area : 100. ha )

Year	Unit:xl000 m3												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1981	147.	134.	36.	0.	0.	0.	0.	0.	0.	22.	112.	119.	571.
1982	106.	136.	38.	0.	0.	0.	0.	0.	0.	22.	113.	117.	531.
1983	120.	141.	38.	0.	0.	0.	0.	0.	0.	11.	115.	119.	543.
1984	135.	132.	38.	0.	0.	0.	0.	0.	0.	18.	115.	125.	564.
1985	116.	141.	38.	0.	0.	0.	0.	0.	0.	9.	115.	119.	538.
1986	141.	100.	38.	0.	0.	0.	0.	0.	0.	20.	115.	27.	441.
1987	135.	141.	38.	0.	0.	0.	0.	0.	0.	17.	115.	125.	571.
1988	157.	141.	37.	0.	0.	0.	0.	0.	0.	17.	115.	119.	586.
1989	147.	141.	38.	0.	0.	0.	0.	0.	0.	21.	115.	123.	584.
1990	157.	108.	38.	0.	0.	0.	0.	0.	0.	20.	115.	125.	564.
Ave.	136.	131.	38.	0.	0.	0.	0.	0.	0.	18.	115.	112.	549.

Table F.28 Irrigation Water Requirement and Diversion Requirement of Sursa Area (1/6)

Input data of Sursa Area of Sharda Canal CAD Project  
Summary of Crop and Basic Assumption

No.	C r o p	Application Efficiency	Percolation Loss	Code	Land preparation Code	Pre-irrigation Code	Growing Stages
1	1 Paddy-nursery	0.90	1		1	0	2
2	2 Paddy	0.90	1		1	0	6
3	3 Pulses	0.75	0		0	1	7
4	4 Oilseeds	0.75	0		0	1	7
5	5 Wheat	0.75	0		0	1	7
6	6 Vegetables(Potatoes)	0.75	0		0	1	7
7	7 Forage crops	0.75	0		0	1	9
8	8 Sugarcane	0.75	0		0	1	20

No.	C r o p	Crop Coefficient ( by growing stage )															
1	1 Paddy-nursery	1.00	1.00														
2	2 Paddy	1.10	1.14	1.17	1.20	1.20	1.15										
3	3 Pulses	0.35	0.40	0.80	1.08	1.10	1.03	0.55									
4	4 Oilseeds	0.20	0.53	1.12	1.17	1.17	1.16	0.70									
5	5 Wheat	0.48	0.58	1.10	1.18	1.18	1.16	0.92									
6	6 Vegetables(Potatoes)	0.37	0.42	0.90	1.05	1.12	1.08	0.74									
7	7 Forage crops	0.50	0.80	0.85	0.90	0.93	0.95	0.95	0.95	0.95	0.95	0.95					
8	8 Sugarcane	0.20	0.28	0.36	0.45	0.54	0.63	0.72	0.78	0.85	0.90	0.97	1.02				
		1.08	1.11	1.14	1.15	1.15	1.15	1.15	1.10								

Remark: 1 growing stage = 15 days  
 $RBI \leftarrow RAIN - RB2 : EFFR1 - AA1 * RAIN - BB1$   
 $RBI = 0.00$   $RB2 = 200.00$   $AA1 = 0.79$   $BB1 = 0.00$   $AA2 = 0.22$   $BB2 = 114.00$   
 $RB2 \leftarrow RAIN : EFFR1 - AA2 * RAIN + BB2$   
 Land preparation for paddy starts OSTAGE(S) BEFORE TRANSPLANTING

Summary of crop and basic assumption  
in Sursa Sub-Project Kharif Season

No.	C r o p	Cultiva. Area(ha)	Date of Water Issue	Land Preparation Period (stages)
1	1 Paddy-nursery	3.	5/16	2
2	2 Paddy	58.	6/16	2
3	3 Pulses	22.	6/ 1	1
4	4 Oilseeds	10.	6/ 1	1
8	8 Sugarcane	10.	2/ 1	1
	Total Project Area	100.		

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Potential ET (mm)	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Conveyance Efficiency	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Return Flow Factor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Unit:mm

Code	1	2	3	4	5	6	7	8	9	10
Land Preparation	180.	0.	0.	0.	0.	0.	0.	0.	0.	0.
Percolation Losses	60.	90.	0.	0.	0.	0.	0.	0.	0.	0.
Pre-irrigation	50.	60.	0.	0.	0.	0.	0.	0.	0.	0.

Rainfall Data for Sursa Sub-Project Kharif Season  
Rainfall for Hardol area (Badaicha Distributary Command)

Unit:mm

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1981	10	0	3	0	35	1	381	157	219	0	32	9	847
1982	48	22	0	2	0	82	173	266	144	0	0	0	737
1983	0	0	0	0	0	27	192	101	94	116	0	3	533
1984	0	0	0	0	0	79	189	150	78	2	0	2	500
1985	9	0	0	0	6	103	415	138	361	233	0	25	1290
1986	4	50	2	1	8	58	362	40	86	36	108	0	755
1987	8	11	1	0	46	31	71	102	95	68	0	0	433
1988	8	8	8	3	0	136	306	314	140	22	0	22	967
1989	34	0	30	0	6	82	177	143	214	5	7	0	698
1990	0	23	2	0	5	7	162	329	98	0	0	7	633
Ave.	12	11	4	0	10	60	242	174	152	48	14	6	739

Table F.28 Irrigation Water Requirement and Diversion Requirement of Sursa Area (2/6)

Sample Intermediate Output in 1981  
 Crop : 1 Paddy-nursery  
 Land Preparation Requirement : 180. mm  
 Percolation Losses : 60. mm  
 Pre-irrigation : 0. mm  
 Growing Stages : 2 stages  
 Date of Water Issue : 5/16

Unit:mm

Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop Coefficient	0.00	0.00	0.00	0.00	0.17	0.67	0.17	0.00	0.00	0.00	0.00	0.00
Potential ET	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Crop ET	0.0	0.0	0.0	0.0	44.5	154.0	24.8	0.0	0.0	0.0	0.0	0.0
Rainfall	10.0	0.0	3.0	0.0	35.0	1.0	381.0	157.0	219.0	0.0	32.0	9.0
Effective Rainfall	0.0	0.0	0.0	0.0	4.6	0.5	32.7	0.0	0.0	0.0	0.0	0.0
Land Preparation	0.0	0.0	0.0	0.0	60.0	120.0	0.0	0.0	0.0	0.0	0.0	0.0
Percolation Loss	0.0	0.0	0.0	0.0	10.0	40.0	10.0	0.0	0.0	0.0	0.0	0.0
Farm Water Req.	0.0	0.0	0.0	0.0	109.9	313.5	2.1	0.0	0.0	0.0	0.0	0.0
Overall Efficiency	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Diversion Water Req.	0.0	0.0	0.0	0.0	169.6	483.8	3.3	0.0	0.0	0.0	0.0	0.0

Sample Intermediate Output in 1981  
 Crop : 2 Paddy  
 Land Preparation Requirement : 180. mm  
 Percolation Losses : 60. mm  
 Pre-irrigation : 0. mm  
 Growing Stages : 6 stages  
 Date of Water Issue : 6/16

Unit:mm

Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop Coefficient	0.00	0.00	0.00	0.00	0.00	0.18	0.94	1.18	0.98	0.19	0.00	0.00
Potential ET	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Crop ET	0.0	0.0	0.0	0.0	0.0	42.4	140.3	191.2	135.7	25.1	0.0	0.0
Rainfall	10.0	0.0	3.0	0.0	35.0	1.0	381.0	157.0	219.0	0.0	32.0	9.0
Effective Rainfall	0.0	0.0	0.0	0.0	0.0	0.1	163.6	123.4	134.4	0.0	0.0	0.0
Land Preparation	0.0	0.0	0.0	0.0	0.0	60.0	120.0	0.0	0.0	0.0	0.0	0.0
Percolation Loss	0.0	0.0	0.0	0.0	0.0	10.0	50.0	60.0	50.0	10.0	0.0	0.0
Farm Water Req.	0.0	0.0	0.0	0.0	0.0	112.2	146.7	127.8	51.3	35.1	0.0	0.0
Overall Efficiency	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Diversion Water Req.	0.0	0.0	0.0	0.0	0.0	173.2	226.4	197.2	79.1	54.2	0.0	0.0

Sample Intermediate Output in 1981  
 Crop : 3 Pulses  
 Land Preparation Requirement : 0. mm  
 Percolation Losses : 0. mm  
 Pre-irrigation : 50. mm  
 Growing Stages : 7 stages  
 Date of Water Issue : 6/1

Unit:mm

Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop Coefficient	0.00	0.00	0.00	0.00	0.00	0.28	0.77	1.08	0.53	0.00	0.00	0.00
Potential ET	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Crop ET	0.0	0.0	0.0	0.0	0.0	63.5	114.7	174.6	73.5	0.0	0.0	0.0
Rainfall	10.0	0.0	3.0	0.0	35.0	1.0	381.0	157.0	219.0	0.0	32.0	9.0
Effective Rainfall	0.0	0.0	0.0	0.0	0.0	0.7	246.3	120.8	95.1	0.0	0.0	0.0
Pre-irrigation	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0
Percolation Loss	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Farm Water Req.	0.0	0.0	0.0	0.0	0.0	112.9	0.0	53.7	0.0	0.0	0.0	0.0
Overall Efficiency	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Diversion Water Req.	0.0	0.0	0.0	0.0	0.0	209.0	0.0	99.5	0.0	0.0	0.0	0.0

Sample Intermediate Output in 1981  
 Crop : 4 Oilseeds  
 Land Preparation Requirement : 0. mm  
 Percolation Losses : 0. mm  
 Pre-irrigation : 50. mm  
 Growing Stages : 7 stages  
 Date of Water Issue : 6/1

Unit:mm

Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop Coefficient	0.00	0.00	0.00	0.00	0.00	0.23	0.99	1.17	0.64	0.00	0.00	0.00
Potential ET	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Crop ET	0.0	0.0	0.0	0.0	0.0	53.7	146.8	189.1	88.3	0.0	0.0	0.0
Rainfall	10.0	0.0	3.0	0.0	35.0	1.0	381.0	157.0	219.0	0.0	32.0	9.0
Effective Rainfall	0.0	0.0	0.0	0.0	0.0	0.6	265.8	123.9	100.6	0.0	0.0	0.0
Pre-irrigation	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0
Percolation Loss	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Farm Water Req.	0.0	0.0	0.0	0.0	0.0	103.1	0.0	65.3	0.0	0.0	0.0	0.0
Overall Efficiency	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Diversion Water Req.	0.0	0.0	0.0	0.0	0.0	190.9	0.0	120.9	0.0	0.0	0.0	0.0



Table F.28 Irrigation Water Requirement and Diversion Requirement of Sursa Area (3/6)

Sample Intermediate Output in 1981

Crop	: 8 Sugarcane
Land Preparation Requirement	: 0. mm
Percolation Losses	: 0. mm
Pre-irrigation	: 50. mm
Growing Stages	: 20 stages
Date of Water Issue	: 2/ 1

Unit:mm

Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop Coefficient	0.00	0.17	0.36	0.54	0.71	0.85	0.97	1.07	1.13	1.15	1.14	0.28
Potential ET	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Crop ET	0.0	18.4	62.4	126.9	190.2	195.2	143.8	173.7	156.6	150.6	101.2	17.3
Rainfall	10.0	0.0	3.0	0.0	35.0	1.0	381.0	157.0	219.0	0.0	32.0	9.0
Effective Rainfall	0.0	0.0	2.0	0.0	29.8	1.0	264.1	120.6	160.3	0.0	22.5	1.0
Pre-irrigation	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percolation Loss	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Farm Water Req.	0.0	68.4	60.3	126.9	160.4	194.2	0.0	53.1	0.0	150.6	78.7	16.3
Overall Efficiency	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Diversion Water Req.	0.0	126.6	111.7	235.0	297.1	359.6	0.0	98.3	0.0	279.0	145.8	30.3

Sample Intermediate Output in 1981  
Summary of Water Demand for Each Crop  
Unit Diversion Water Requirement

Unit:mm

Crop	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1 Paddy-nursery	0.	0.	0.	0.	170.	484.	3.	0.	0.	0.	0.	0.
2 Paddy	0.	0.	0.	0.	0.	173.	226.	197.	79.	54.	0.	0.
3 Pulses	0.	0.	0.	0.	0.	209.	0.	100.	0.	0.	0.	0.
4 Oilseeds	0.	0.	0.	0.	0.	191.	0.	121.	0.	0.	0.	0.
8 Sugarcane	0.	127.	112.	235.	297.	360.	0.	98.	0.	279.	146.	30.

Sample Intermediate Output in 1981  
Summary of Water Demand for Each Crop  
Diversion Water Requirement

Unit:x1000 m3

Crop	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1 Paddy-nursery	0.	0.	0.	0.	5.	14.	0.	0.	0.	0.	0.	0.
2 Paddy	0.	0.	0.	0.	0.	100.	131.	114.	46.	31.	0.	0.
3 Pulses	0.	0.	0.	0.	0.	46.	0.	22.	0.	0.	0.	0.
4 Oilseeds	0.	0.	0.	0.	0.	19.	0.	12.	0.	0.	0.	0.
8 Sugarcane	0.	13.	11.	23.	30.	36.	0.	10.	0.	28.	15.	3.
T o t a l	0.	13.	11.	23.	35.	216.	131.	158.	46.	59.	15.	3.

Diversion Water Requirement for Sursa Sub-Project Kharif Season  
( Total Area : 100. ha )

Unit:x1000 m3

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1981	0.	13.	11.	23.	35.	216.	131.	158.	46.	59.	15.	3.	710.
1982	0.	11.	12.	23.	40.	167.	184.	71.	99.	59.	19.	3.	688.
1983	0.	13.	12.	23.	40.	199.	168.	230.	147.	30.	19.	3.	885.
1984	0.	13.	12.	23.	40.	169.	171.	167.	163.	59.	19.	3.	839.
1985	0.	13.	12.	23.	39.	155.	126.	182.	23.	7.	19.	3.	602.
1986	0.	8.	11.	23.	39.	181.	135.	309.	155.	50.	6.	3.	920.
1987	0.	12.	11.	23.	33.	197.	298.	229.	146.	42.	19.	3.	1013.
1988	0.	12.	11.	23.	40.	136.	144.	62.	103.	53.	19.	3.	605.
1989	0.	13.	8.	23.	39.	167.	181.	176.	47.	58.	18.	3.	733.
1990	0.	11.	11.	23.	39.	212.	196.	59.	144.	59.	19.	3.	776.
Ave.	0.	12.	11.	23.	39.	180.	173.	164.	107.	48.	17.	3.	777.

Table F.28 Irrigation Water Requirement and Diversion Requirement of Sursa Area (4/6)

Summary of crop and basic assumption  
in Sursa Sub-Project Area Rabi Season

No.	C r o p	Cultiva. Area(ha)	Date of Water Issue	Land Preparation Period (stages)
5	5 Wheat	58.	11/ 1	2
3	3 Pulses	15.	10/16	1
4	4 Oilseeds	5.	10/16	1
6	6 Vegetables(Potatoes)	6.	10/16	1
7	7 Forage crops	6.	10/16	1
8	8 Sugarcane	10.	2/ 1	1
Total Project Area		100.		

Sample Intermediate Output in 1981

Crop : 5 Wheat  
Land Preparation Requirement : 0. mm  
Percolation Losses : 0. mm  
Pre-irrigation : 50. mm  
Growing Stages : 7 stages  
Date of Water Issue : 11/ 1

I t e m	Unit:mm											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop Coefficient	1.16	0.89	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.84
Potential ET	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Crop ET	89.6	96.1	26.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.8	52.7
Rainfall	10.0	0.0	3.0	0.0	35.0	1.0	381.0	157.0	219.0	0.0	32.0	9.0
Effective Rainfall	7.2	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.4	6.0
Pre-irrigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	16.7
Percolation Loss	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Farm Water Req.	82.4	96.1	26.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	46.8	63.4
Overall Efficiency	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Diversion Water Req.	152.6	178.0	48.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	86.7	117.4

Sample Intermediate Output in 1981

Crop : 3 Pulses  
Land Preparation Requirement : 0. mm  
Percolation Losses : 0. mm  
Pre-irrigation : 50. mm  
Growing Stages : 7 stages  
Date of Water Issue : 10/16

I t e m	Unit:mm											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop Coefficient	0.93	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.49	1.02
Potential ET	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Crop ET	71.4	14.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5	43.4	63.9
Rainfall	10.0	0.0	3.0	0.0	35.0	1.0	381.0	157.0	219.0	0.0	32.0	9.0
Effective Rainfall	6.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.9	5.9
Pre-irrigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	25.0	0.0
Percolation Loss	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Farm Water Req.	64.7	14.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.5	48.4	58.1
Overall Efficiency	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Diversion Water Req.	119.9	27.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	67.5	89.7	107.6

Sample Intermediate Output in 1981

Crop : 4 Oilseeds  
Land Preparation Requirement : 0. mm  
Percolation Losses : 0. mm  
Pre-irrigation : 50. mm  
Growing Stages : 7 stages  
Date of Water Issue : 10/16

I t e m	Unit:mm											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop Coefficient	1.05	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.59	1.16
Potential ET	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Crop ET	80.7	18.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.6	53.0	72.9
Rainfall	10.0	0.0	3.0	0.0	35.0	1.0	381.0	157.0	219.0	0.0	32.0	9.0
Effective Rainfall	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.8	6.1
Pre-irrigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	25.0	0.0
Percolation Loss	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Farm Water Req.	73.7	18.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.5	57.2	66.8
Overall Efficiency	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Diversion Water Req.	136.5	35.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	58.4	105.9	123.8

Table F.28 Irrigation Water Requirement and Diversion Requirement of Sursa Area (5/6)

Sample Intermediate Output in 1981

Crop : 6 Vegetables(Potatoes)  
 Land Preparation Requirement : 0. mm  
 Percolation Losses : 0. mm  
 Pre-irrigation : 50. mm  
 Growing Stages : 7 stages  
 Date of Water Issue : 10/16

Unit:mm

Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop Coefficient	1.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.53	1.03
Potential ET	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Crop ET	77.4	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.1	46.9	64.9
Rainfall	10.0	0.0	3.0	0.0	35.0	1.0	381.0	157.0	219.0	0.0	32.0	9.0
Effective Rainfall	6.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.3	5.9
Pre-irrigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	25.0	0.0
Percolation Loss	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Farm Water Req.	70.5	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37.1	51.7	59.0
Overall Efficiency	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Diversion Water Req.	130.6	37.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	68.7	95.7	109.3

Sample Intermediate Output in 1981

Crop : 7 Forage crops  
 Land Preparation Requirement : 0. mm  
 Percolation Losses : 0. mm  
 Pre-irrigation : 50. mm  
 Growing Stages : 9 stages  
 Date of Water Issue : 10/16

Unit:mm

Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop Coefficient	0.94	0.95	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.74	0.89
Potential ET	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Crop ET	72.8	192.6	40.8	0.0	0.0	0.0	0.0	0.0	0.0	16.4	65.6	56.4
Rainfall	10.0	0.0	3.0	0.0	35.0	1.0	381.0	157.0	219.0	0.0	32.0	9.0
Effective Rainfall	6.7	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.8	5.6
Pre-irrigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	25.0	0.0
Percolation Loss	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Farm Water Req.	66.0	102.6	40.4	0.0	0.0	0.0	0.0	0.0	0.0	41.4	68.9	50.8
Overall Efficiency	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Diversion Water Req.	122.3	190.0	74.8	0.0	0.0	0.0	0.0	0.0	0.0	76.6	127.5	94.0

Sample Intermediate Output in 1981

Crop : 8 Sugarcane  
 Land Preparation Requirement : 0. mm  
 Percolation Losses : 0. mm  
 Pre-irrigation : 50. mm  
 Growing Stages : 20 stages  
 Date of Water Issue : 2/ 1

Unit:mm

Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop Coefficient	0.00	0.17	0.36	0.54	0.71	0.85	0.97	1.07	1.13	1.15	1.14	0.28
Potential ET	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Crop ET	0.0	18.4	62.4	126.9	190.2	195.2	143.8	173.7	156.6	150.6	101.2	17.3
Rainfall	10.0	0.0	3.0	0.0	35.0	1.0	381.0	157.0	219.0	0.0	32.0	9.0
Effective Rainfall	0.0	0.0	2.0	0.0	29.8	1.0	264.1	120.6	160.3	0.0	22.5	1.0
Pre-irrigation	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percolation Loss	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Farm Water Req.	0.0	68.4	60.3	126.9	160.4	194.2	0.0	53.1	0.0	150.6	78.7	16.3
Overall Efficiency	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Diversion Water Req.	0.0	126.6	111.7	235.0	297.1	359.6	0.0	98.3	0.0	279.0	145.8	30.3

Table F.28 Irrigation Water Requirement and Diversion Requirement of Sursa Area (6/6)

Sample Intermediate Output in 1981

Summary of Water Demand for Each Crop

Unit Diversion Water Requirement

C r o p	Unit:mm											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
5 Wheat	153.	178.	48.	0.	0.	0.	0.	0.	0.	0.	87.	117.
3 Pulses	120.	27.	0.	0.	0.	0.	0.	0.	0.	68.	90.	108.
4 Oilseeds	136.	35.	0.	0.	0.	0.	0.	0.	0.	58.	106.	124.
6 Vegetables(Potatoes)	131.	37.	0.	0.	0.	0.	0.	0.	0.	69.	96.	109.
7 Forage crops	122.	190.	75.	0.	0.	0.	0.	0.	0.	77.	128.	94.
8 Sugarcane	0.	127.	112.	235.	297.	360.	0.	98.	0.	279.	146.	30.

Sample Intermediate Output in 1981

Summary of Water Demand for Each Crop

Diversion Water Requirement

C r o p	Unit:x1000 m3											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
5 Wheat	88.	103.	28.	0.	0.	0.	0.	0.	0.	0.	50.	68.
3 Pulses	18.	4.	0.	0.	0.	0.	0.	0.	0.	10.	13.	16.
4 Oilseeds	7.	2.	0.	0.	0.	0.	0.	0.	0.	3.	5.	6.
6 Vegetables(Potatoes)	8.	2.	0.	0.	0.	0.	0.	0.	0.	4.	6.	7.
7 Forage crops	7.	11.	4.	0.	0.	0.	0.	0.	0.	5.	8.	6.
8 Sugarcane	0.	13.	11.	23.	30.	36.	0.	10.	0.	28.	15.	3.
T o t a l	128.	135.	44.	23.	30.	36.	0.	10.	0.	50.	97.	106.

Diversion Water Requirement for Sursa Sub-Project Area Rabi Season  
( Total Area : 100. ha )

Year	Unit:x1000 m3												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1981	128.	135.	44.	23.	30.	36.	0.	10.	0.	50.	97.	106.	659.
1982	88.	117.	44.	23.	35.	24.	4.	0.	9.	50.	123.	116.	633.
1983	140.	135.	44.	23.	35.	32.	1.	17.	16.	25.	123.	112.	706.
1984	140.	135.	44.	23.	35.	24.	1.	11.	18.	49.	123.	113.	719.
1985	130.	135.	44.	23.	34.	21.	0.	12.	0.	6.	123.	89.	618.
1986	135.	95.	44.	23.	34.	27.	0.	26.	17.	42.	40.	116.	598.
1987	131.	126.	44.	23.	28.	31.	17.	17.	16.	35.	123.	116.	707.
1988	131.	128.	43.	23.	35.	16.	0.	0.	10.	45.	123.	92.	646.
1989	103.	135.	38.	23.	34.	24.	3.	12.	0.	48.	117.	116.	654.
1990	140.	116.	44.	23.	34.	35.	5.	0.	15.	50.	123.	108.	694.
Ava.	127.	126.	43.	23.	34.	27.	3.	11.	10.	40.	112.	108.	663.

Table F.29 Irrigation Water Requirement and Diversion Requirement of Purwa Area (1/6)

Input data of Purwa Area of Sharda Canal CAD Project  
Summary of Crop and Basic Assumption

No.	C r o p	Application Efficiency	Percolation Loss Code	Land preparation Code	Pre-irrigation Code	Growing Stages
1	1 Paddy-nursery	0.90	1	1	0	2
2	2 Paddy	0.90	1	1	0	6
3	3 Pulses	0.75	0	0	1	7
4	4 Oilseeds	0.75	0	0	1	7
5	5 Wheat	0.75	0	0	1	7
6	6 Vegetables(Potatoes)	0.75	0	0	1	7
7	7 Forage crops	0.75	0	0	1	9

No.	C r o p	Crop Coefficient ( by growing stage )							
1	1 Paddy-nursery	1.00	1.00						
2	2 Paddy	1.10	1.14	1.17	1.20	1.20	1.15		
3	3 Pulses	0.35	0.40	0.80	1.08	1.10	1.03	0.55	
4	4 Oilseeds	0.20	0.53	1.12	1.17	1.17	1.16	0.70	
5	5 Wheat	0.48	0.58	1.10	1.18	1.18	1.16	0.92	
6	6 Vegetables(Potatoes)	0.37	0.42	0.90	1.05	1.12	1.08	0.74	
7	7 Forage crops	0.50	0.80	0.85	0.90	0.93	0.95	0.95	0.95

Remark: 1 growing stage - 15 days  
 $RBI = RAIN - RB2 + EFR1 - AA1 * RAIN - BB1$   
 $RBI = 0.00$      $RB2 = 200.00$      $AA1 = 0.79$      $BB1 = 0.00$      $AA2 = 0.22$      $BB2 = 114.00$   
 $RB2 = RAIN + EFR1 - AA2 * RAIN + BB2$   
 Land preparation for paddy starts 0STAGE(S) BEFORE TRANSPLANTING

Summary of crop and basic assumption  
in Purwa Sub-Project Kharif Season

No.	C r o p	Cultiva. Area(ha)	Date of Water Issue	Land Preparation Period (stages)
1	1 Paddy-nursery	3.	5/16	2
2	2 Paddy	68.	6/16	2
3	3 Pulses	22.	6/1	1
4	4 Oilseeds	10.	6/1	1
Total Project Area		100.		

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Potential ET (mm)	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Conveyance Efficiency	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Return Flow Factor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Unit:mm

Code	1	2	3	4	5	6	7	8	9	10
Land Preparation	180.	0.	0.	0.	0.	0.	0.	0.	0.	0.
Percolation Losses	60.	90.	0.	0.	0.	0.	0.	0.	0.	0.
Pre-irrigation	50.	60.	0.	0.	0.	0.	0.	0.	0.	0.

Rainfall Data for Purwa Sub-Project Kharif Season  
Rainfall for Purwa area (Related Distributary Commands in Purwa)

Unit:mm

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1981	8	0	15	0	3	41	429	139	333	0	12	2	982
1982	31	17	0	0	0	34	165	273	291	0	30	12	853
1983	36	0	0	18	42	101	247	118	200	48	0	0	810
1984	0	0	0	0	0	76	233	253	193	27	0	0	782
1985	0	0	0	0	0	0	377	76	609	366	0	0	1428
1986	0	12	0	0	5	66	154	206	41	4	0	13	501
1987	11	5	0	0	4	0	38	61	82	70	0	3	274
1988	38	0	13	0	0	8	420	375	8	34	0	7	903
1989	32	9	6	0	2	68	185	170	344	8	11	0	835
1990	0	52	0	0	21	43	337	241	53	0	0	8	755
Ave.	15	9	3	1	7	43	258	191	215	55	5	4	812

Table F.29 Irrigation Water Requirement and Diversion Requirement of Purwa Area (2/6)

Sample Intermediate Output in 1981

Crop : 1 Paddy-nursery  
 Land Preparation Requirement : 180. mm  
 Percolation Losses : 60. mm  
 Pre-irrigation : 0. mm  
 Growing Stages : 2 stages  
 Date of Water Issue : 5/16

Unit:mm												
Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop Coefficient	0.00	0.00	0.00	0.00	0.17	0.67	0.17	0.00	0.00	0.00	0.00	0.00
Potential ET	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Crop ET	0.0	0.0	0.0	0.0	44.5	154.0	24.8	0.0	0.0	0.0	0.0	0.0
Rainfall	8.0	0.0	15.0	0.0	3.0	41.0	429.0	139.0	333.0	0.0	12.0	2.0
Effective Rainfall	0.0	0.0	0.0	0.0	0.4	21.5	34.4	0.0	0.0	0.0	0.0	0.0
Land Preparation	0.0	0.0	0.0	0.0	60.0	120.0	0.0	0.0	0.0	0.0	0.0	0.0
Percolation Loss	0.0	0.0	0.0	0.0	10.0	40.0	10.0	0.0	0.0	0.0	0.0	0.0
Farm Water Req.	0.0	0.0	0.0	0.0	114.1	292.5	0.4	0.0	0.0	0.0	0.0	0.0
Overall Efficiency	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Diversion Water Req.	0.0	0.0	0.0	0.0	176.1	451.4	0.6	0.0	0.0	0.0	0.0	0.0

Sample Intermediate Output in 1981

Crop : 2 Paddy  
 Land Preparation Requirement : 180. mm  
 Percolation Losses : 60. mm  
 Pre-irrigation : 0. mm  
 Growing Stages : 6 stages  
 Date of Water Issue : 6/16

Unit:mm												
Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop Coefficient	0.00	0.00	0.00	0.00	0.00	0.18	0.94	1.18	0.98	0.19	0.00	0.00
Potential ET	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Crop ET	0.0	0.0	0.0	0.0	0.0	42.4	140.3	191.2	135.7	25.1	0.0	0.0
Rainfall	8.0	0.0	15.0	0.0	3.0	41.0	429.0	139.0	333.0	0.0	12.0	2.0
Effective Rainfall	0.0	0.0	0.0	0.0	0.0	5.4	172.2	109.3	154.9	0.0	0.0	0.0
Land Preparation	0.0	0.0	0.0	0.0	0.0	60.0	120.0	0.0	0.0	0.0	0.0	0.0
Percolation Loss	0.0	0.0	0.0	0.0	0.0	10.0	50.0	60.0	50.0	10.0	0.0	0.0
Farm Water Req.	0.0	0.0	0.0	0.0	0.0	107.0	138.1	141.9	30.8	35.1	0.0	0.0
Overall Efficiency	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Diversion Water Req.	0.0	0.0	0.0	0.0	0.0	165.1	213.1	219.0	47.5	54.2	0.0	0.0

Sample Intermediate Output in 1981

Crop : 3 Pulses  
 Land Preparation Requirement : 0. mm  
 Percolation Losses : 0. mm  
 Pre-irrigation : 50. mm  
 Growing Stages : 7 stages  
 Date of Water Issue : 6/1

Unit:mm												
Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop Coefficient	0.00	0.00	0.00	0.00	0.00	0.28	0.77	1.08	0.53	0.00	0.00	0.00
Potential ET	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Crop ET	0.0	0.0	0.0	0.0	0.0	63.5	114.7	174.6	73.5	0.0	0.0	0.0
Rainfall	8.0	0.0	15.0	0.0	3.0	41.0	429.0	139.0	333.0	0.0	12.0	2.0
Effective Rainfall	0.0	0.0	0.0	0.0	0.0	22.1	275.7	107.6	141.6	0.0	0.0	0.0
Pre-irrigation	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0
Percolation Loss	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Farm Water Req.	0.0	0.0	0.0	0.0	0.0	91.4	0.0	66.9	0.0	0.0	0.0	0.0
Overall Efficiency	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Diversion Water Req.	0.0	0.0	0.0	0.0	0.0	169.2	0.0	124.0	0.0	0.0	0.0	0.0

Sample Intermediate Output in 1981

Crop : 4 Oilseeds  
 Land Preparation Requirement : 0. mm  
 Percolation Losses : 0. mm  
 Pre-irrigation : 50. mm  
 Growing Stages : 7 stages  
 Date of Water Issue : 6/1

Unit:mm												
Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop Coefficient	0.00	0.00	0.00	0.00	0.00	0.23	0.99	1.17	0.64	0.00	0.00	0.00
Potential ET	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Crop ET	0.0	0.0	0.0	0.0	0.0	53.7	146.8	189.1	88.3	0.0	0.0	0.0
Rainfall	8.0	0.0	15.0	0.0	3.0	41.0	429.0	139.0	333.0	0.0	12.0	2.0
Effective Rainfall	0.0	0.0	0.0	0.0	0.0	21.5	297.5	110.3	149.9	0.0	0.0	0.0
Pre-irrigation	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0
Percolation Loss	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Farm Water Req.	0.0	0.0	0.0	0.0	0.0	82.2	0.0	78.8	0.0	0.0	0.0	0.0
Overall Efficiency	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Diversion Water Req.	0.0	0.0	0.0	0.0	0.0	152.2	0.0	145.9	0.0	0.0	0.0	0.0

Table F.29 Irrigation Water Requirement and Diversion Requirement of Purwa Area (3/6)

Sample Intermediate Output in 1981  
 Summary of Water Demand for Each Crop  
 Unit Diversion Water Requirement

C r o p	Unit:mm											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1 Paddy-nursery	0.	0.	0.	0.	176.	451.	1.	0.	0.	0.	0.	0.
2 Paddy	0.	0.	0.	0.	0.	185.	213.	219.	47.	54.	0.	0.
3 Pulses	0.	0.	0.	0.	0.	169.	0.	124.	0.	0.	0.	0.
4 Oilseeds	0.	0.	0.	0.	0.	152.	0.	146.	0.	0.	0.	0.

Sample Intermediate Output in 1981  
 Summary of Water Demand for Each Crop  
 Diversion Water Requirement

C r o p	Unit:xl000 m3											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1 Paddy-nursery	0.	0.	0.	0.	6.	15.	0.	0.	0.	0.	0.	0.
2 Paddy	0.	0.	0.	0.	0.	112.	145.	149.	32.	37.	0.	0.
3 Pulses	0.	0.	0.	0.	0.	37.	0.	27.	0.	0.	0.	0.
4 Oilseeds	0.	0.	0.	0.	0.	15.	0.	15.	0.	0.	0.	0.
T o t a l	0.	0.	0.	0.	6.	180.	145.	191.	32.	37.	0.	0.

Diversion Water Requirement for Purwa Sub-Project Kharif Season  
 ( Total Area : 100. ha )

Year	Unit:xl000 m3												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1981	0.	0.	0.	0.	6.	180.	145.	191.	32.	37.	0.	0.	591.
1982	0.	0.	0.	0.	6.	183.	219.	82.	40.	37.	0.	0.	568.
1983	0.	0.	0.	0.	6.	153.	180.	217.	57.	30.	0.	0.	643.
1984	0.	0.	0.	0.	6.	164.	182.	87.	62.	33.	0.	0.	534.
1985	0.	0.	0.	0.	6.	200.	155.	271.	0.	3.	0.	0.	635.
1986	0.	0.	0.	0.	6.	168.	231.	110.	201.	36.	0.	0.	753.
1987	0.	0.	0.	0.	6.	200.	358.	290.	162.	27.	0.	0.	1044.
1988	0.	0.	0.	0.	6.	196.	147.	59.	233.	32.	0.	0.	673.
1989	0.	0.	0.	0.	6.	168.	201.	152.	30.	36.	0.	0.	593.
1990	0.	0.	0.	0.	6.	179.	162.	90.	190.	37.	0.	0.	664.
Ave.	0.	0.	0.	0.	6.	179.	198.	155.	101.	31.	0.	0.	670.

Table F.29 Irrigation Water Requirement and Diversion Requirement of Purwa Area (4/6)

Summary of crop and basic assumption  
in Purwa Sub-Project Area Rabi Season

No.	C r o p	Cultiva. Area(ha)	Date of Water Issue	Land Preparation Period (stages)
5	5 Wheat	68.	11/ 1	2
3	3 Pulses	15.	10/16	1
4	4 Oilseeds	5.	10/16	1
6	6 Vegetables(Potatoes)	6.	10/16	1
7	7 Forage crops	6.	10/16	1
	Total Project Area	100.		

Sample Intermediate Output in 1981

Crop : 5 Wheat  
Land Preparation Requirement : 0. mm  
Percolation Losses : 0. mm  
Pre-irrigation : 50. mm  
Growing Stages : 7 stages  
Date of Water Issue : 11/ 1

Unit:mm

I t e m	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop Coefficient	1.16	0.89	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.84
Potential ET	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Crop ET	89.6	96.1	26.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.8	52.7
Rainfall	8.0	0.0	15.0	0.0	3.0	41.0	429.0	139.0	333.0	0.0	12.0	2.0
Effective Rainfall	5.8	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7	1.4
Pre-irrigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	16.7
Percolation Loss	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Farm Water Req.	83.8	96.1	25.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	52.5	67.9
Overall Efficiency	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Diversion Water Req.	155.1	178.0	46.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	97.2	125.8

Sample Intermediate Output in 1981

Crop : 3 Pulses  
Land Preparation Requirement : 0. mm  
Percolation Losses : 0. mm  
Pre-irrigation : 50. mm  
Growing Stages : 7 stages  
Date of Water Issue : 10/16

Unit:mm

I t e m	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop Coefficient	0.93	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.49	1.02
Potential ET	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Crop ET	71.4	14.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5	43.4	63.9
Rainfall	8.0	0.0	15.0	0.0	3.0	41.0	429.0	139.0	333.0	0.0	12.0	2.0
Effective Rainfall	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.9	1.4
Pre-irrigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	25.0	0.0
Percolation Loss	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Farm Water Req.	66.0	14.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.5	60.5	62.5
Overall Efficiency	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Diversion Water Req.	122.2	27.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	67.5	112.1	115.8



Table F.29 Irrigation Water Requirement and Diversion Requirement of Purwa Area (5/6)

Sample Intermediate Output in 1981

Crop : 4 Oilseeds  
 Land Preparation Requirement : 0. mm  
 Percolation Losses : 0. mm  
 Pre-irrigation : 50. mm  
 Growing Stages : 7 stages  
 Date of Water Issue : 10/16

Unit:mm												
Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop Coefficient	1.05	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.59	1.16
Potential ET	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Crop ET	80.7	18.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.6	53.0	72.9
Rainfall	8.0	0.0	15.0	0.0	3.0	41.0	429.0	139.0	333.0	0.0	12.0	2.0
Effective Rainfall	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.2	1.5
Pre-irrigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	25.0	0.0
Percolation Loss	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Farm Water Req.	75.0	18.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.5	69.8	71.5
Overall Efficiency	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Diversion Water Req.	139.0	35.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	58.4	129.2	132.3

Sample Intermediate Output in 1981

Crop : 6 Vegetables(Potatoes)  
 Land Preparation Requirement : 0. mm  
 Percolation Losses : 0. mm  
 Pre-irrigation : 50. mm  
 Growing Stages : 7 stages  
 Date of Water Issue : 10/16

Unit:mm												
Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop Coefficient	1.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.53	1.03
Potential ET	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Crop ET	77.4	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.1	46.9	64.9
Rainfall	8.0	0.0	15.0	0.0	3.0	41.0	429.0	139.0	333.0	0.0	12.0	2.0
Effective Rainfall	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	1.4
Pre-irrigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	25.0	0.0
Percolation Loss	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Farm Water Req.	71.8	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37.1	64.0	63.5
Overall Efficiency	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Diversion Water Req.	133.0	37.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	68.7	118.5	117.6

Sample Intermediate Output in 1981

Crop : 7 Forage crops  
 Land Preparation Requirement : 0. mm  
 Percolation Losses : 0. mm  
 Pre-irrigation : 50. mm  
 Growing Stages : 9 stages  
 Date of Water Issue : 10/16

Unit:mm												
Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Crop Coefficient	0.94	0.95	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.74	0.89
Potential ET	77.0	108.0	172.0	235.0	267.0	231.0	149.0	162.0	138.0	131.0	89.0	63.0
Crop ET	72.8	102.6	40.8	0.0	0.0	0.0	0.0	0.0	0.0	16.4	65.6	56.4
Rainfall	8.0	0.0	15.0	0.0	3.0	41.0	429.0	139.0	333.0	0.0	12.0	2.0
Effective Rainfall	5.4	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.6	1.3
Pre-irrigation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	25.0	0.0
Percolation Loss	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Farm Water Req.	67.3	102.6	38.8	0.0	0.0	0.0	0.0	0.0	0.0	41.4	82.1	55.0
Overall Efficiency	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Diversion Water Req.	124.7	190.0	71.8	0.0	0.0	0.0	0.0	0.0	0.0	76.6	152.0	101.9

Table F.29 Irrigation Water Requirement and Diversion Requirement of Purwa Area (6/6)

Sample Intermediate Output in 1981  
 Summary of Water Demand for Each Crop  
 Unit Diversion Water Requirement

C r o p	Unit:mm											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
5 Wheat	155.	178.	47.	0.	0.	0.	0.	0.	0.	0.	97.	126.
3 Pulses	122.	27.	0.	0.	0.	0.	0.	0.	0.	68.	112.	116.
4 Oilseeds	139.	35.	0.	0.	0.	0.	0.	0.	0.	58.	129.	132.
6 Vegetables(Potatoes)	133.	37.	0.	0.	0.	0.	0.	0.	0.	69.	118.	118.
7 Forage crops	125.	190.	72.	0.	0.	0.	0.	0.	0.	77.	152.	102.

Sample Intermediate Output in 1981  
 Summary of Water Demand for Each Crop  
 Diversion Water Requirement

C r o p	Unit:x1000 m3											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
5 Wheat	105.	121.	32.	0.	0.	0.	0.	0.	0.	0.	66.	86.
3 Pulses	18.	4.	0.	0.	0.	0.	0.	0.	0.	10.	17.	17.
4 Oilseeds	7.	2.	0.	0.	0.	0.	0.	0.	0.	3.	6.	7.
6 Vegetables(Potatoes)	8.	2.	0.	0.	0.	0.	0.	0.	0.	4.	7.	7.
7 Forage crops	7.	11.	4.	0.	0.	0.	0.	0.	0.	5.	9.	6.
T o t a l	146.	141.	36.	0.	0.	0.	0.	0.	0.	22.	106.	123.

Diversion Water Requirement for Purwa Sub-Project Area Rabi Season  
 ( Total Area : 100. ha )

Year	Unit:x1000 m3												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1981	146.	141.	36.	0.	0.	0.	0.	0.	0.	22.	106.	123.	573.
1982	119.	126.	38.	0.	0.	0.	0.	0.	0.	22.	93.	111.	507.
1983	113.	141.	38.	0.	0.	0.	0.	0.	0.	18.	115.	125.	550.
1984	157.	141.	38.	0.	0.	0.	0.	0.	0.	20.	115.	125.	595.
1985	157.	141.	38.	0.	0.	0.	0.	0.	0.	0.	115.	125.	575.
1986	157.	130.	38.	0.	0.	0.	0.	0.	0.	21.	115.	110.	570.
1987	142.	136.	38.	0.	0.	0.	0.	0.	0.	17.	115.	121.	569.
1988	110.	141.	36.	0.	0.	0.	0.	0.	0.	19.	115.	117.	538.
1989	117.	132.	37.	0.	0.	0.	0.	0.	0.	21.	106.	125.	540.
1990	157.	97.	38.	0.	0.	0.	0.	0.	0.	22.	115.	115.	544.
Ave.	137.	132.	37.	0.	0.	0.	0.	0.	0.	18.	111.	120.	556.

Table F.30 Comparison of Seasonal Scheduled Discharge and Actual Discharge (1/2)

Year	Kharif Cropping						Year	Rabi Cropping					
	Water supply			Watering				Water supply			Watering		
	Roster (MCM)	Actual (MCM)	Rate (%)	Roster Nos.	Actual Nos.	Rate (%)		Roster (MCM)	Actual (MCM)	Rate (%)	Roster Nos.	Actual Nos.	Rate (%)
<b>Sharda Intake</b>													
1990	4,535	4,102	90	27	27	100	1989/90	2,774	3,021	109	25	25	100
1989	4,346	4,170	96	27	27	100	1988/89	-	2,986	-	-	25	-
1988	-	4,545	-	-	-	-	1987/88	-	2,599	-	-	-	-
1987	-	4,597	-	-	-	-	1986/87	-	3,358	-	-	-	-
1986	-	4,399	-	-	-	-	1985/86	-	-	-	-	-	-
<b>Hardoi Br. at Head</b>													
1990	2,211	2,172	98	24	27	113	1989/90	1,490	1,580	106	25	25	100
1989	2,196	2,168	99	24	25	104	1988/89	-	1,582	-	-	25	-
1988	-	2,444	-	-	-	-	1987/88	-	1,488	-	-	-	-
1987	-	2,366	-	-	-	-	1986/87	-	1,673	-	-	-	-
1986	-	2,242	-	-	-	-	1985/86	-	-	-	-	-	-
<b>at 13 mls</b>													
1990	2,076	2,090	101	24	27	113	1989/90	1,401	1,528	109	19	24	126
1989	2,086	2,004	96	23	25	109	1988/89	199	1,475	741	21	22	105
1988	-	2,121	-	-	-	-	1987/88	-	1,248	-	-	-	-
1987	-	2,153	-	-	-	-	1986/87	-	1,466	-	-	-	-
1986	-	1,893	-	-	-	-	1985/86	-	-	-	-	-	-
<b>at 53 mls</b>													
1990	1,741	1,676	96	24	27	113	1989/90	1,136	1,209	106	19	23	121
1989	1,844	1,565	85	23	25	109	1988/89	1,170	1,175	100	15	22	147
1988	-	1,734	-	-	-	-	1987/88	-	1,026	-	-	-	-
1987	-	1,803	-	-	-	-	1986/87	-	1,328	-	-	-	-
1986	-	1,682	-	-	-	-	1985/86	-	-	-	-	-	-
<b>at 99 mls</b>													
1990	676	-	-	-	24	-	1989/90	452	-	-	17	-	-
1989	668	656	98	22	27	123	1988/89	436	469	108	15	21	140
1988	-	646	-	-	-	-	1987/88	-	399	-	-	-	-
1987	-	639	-	-	-	-	1986/87	-	548	-	-	-	-
1986	-	664	-	-	-	-	1985/86	-	-	-	-	-	-
<b>at end</b>													
1990	289	290	100	15	26	173	1989/90	172	250	145	17	23	135
1989	278	272	98	22	27	123	1988/89	207	259	125	15	21	140
1988	-	284	-	-	-	-	1987/88	-	195	-	-	-	-
1987	-	250	-	-	-	-	1986/87	-	272	-	-	-	-
1986	-	252	-	-	-	-	1985/86	-	-	-	-	-	-

Sharda Intake : Intake discharge with 75 % irrigation dependability

Year : Rabi 1989/1990 - Kharif 1990

Discharge: 3,021 MCM (Rabi)

: 4,102 MCM (Kharif)

: 7,123 MCM (Annual)

Hardoi Br. at Head : Diversion discharge with 75 % irrigation dependability

Year : Rabi 1989/1990 - Kharif 1990

Discharge: 1,580 MCM (Rabi)

: 2,172 MCM (Kharif)

: 3,752 MCM (Annual)

Table F.30 Comparison of Seasonal Scheduled Discharge and Actual Discharge (2/2)

Kharif Cropping							Rabi Cropping						
Year	Water supply			Watering			Year	Water supply			Watering		
	Roster (MCM)	Actual (MCM)	Rate (%)	Roster Nos.	Actual Nos.	Rate (%)		Roster (MCM)	Actual (MCM)	Rate (%)	Roster Nos.	Actual Nos.	Rate (%)
<b>Lucknow Br.</b>													
at Head													
1990	723	717	99	23	26	113	1989/90	468	522	112	14	23	164
1989	805	674	84	24	25	104	1988/89	504	469	93	15	22	147
1988	-	746	-	-	-	-	1987/88	-	420	-	-	-	-
1987	-	779	-	-	-	-	1986/87	-	529	-	-	-	-
1986	-	724	-	-	-	-	1985/86	-	-	-	-	-	-
at 72 mls													
1990	257	254	99	23	27	117	1989/90	164	190	116	14	23	164
1989	273	231	85	24	23	96	1988/89	155	185	119	14	22	157
1988	-	270	-	-	-	-	1987/88	-	131	-	-	-	-
1987	-	221	-	-	-	-	1986/87	-	170	-	-	-	-
1986	-	301	-	-	-	-	1985/86	-	-	-	-	-	-
<b>Asiwan Br.</b>													
at Head													
1990	154	158	103	20	23	115	1989/90	103	136	132	13	23	177
1989	143	113	79	17	20	118	1988/89	86	91	106	8	17	213
1988	-	141	-	-	-	-	1987/88	-	71	-	-	-	-
1987	-	119	-	-	-	-	1986/87	-	109	-	-	-	-
1986	-	129	-	-	-	-	1985/86	-	-	-	-	-	-
<b>Purwa Br.</b>													
at Head													
1990	187	194	104	15	26	173	1989/90	104	152	146	8	23	288
1989	174	177	102	14	23	164	1988/89	130	167	128	10	21	210
1988	-	190	-	-	-	-	1987/88	-	125	-	-	-	-
1987	-	153	-	-	-	-	1986/87	-	164	-	-	-	-
1986	-	153	-	-	-	-	1985/86	-	-	-	-	-	-
at 30 mls													
1990	93	115	124	15	24	160	1989/90	51	69	135	8	20	250
1989	87	92	106	14	22	157	1988/89	65	100	154	10	22	220
1988	-	96	-	-	-	-	1987/88	-	71	-	-	-	-
1987	-	80	-	-	-	-	1986/87	-	87	-	-	-	-
1986	-	93	-	-	-	-	1985/86	-	-	-	-	-	-
<b>Unnao Br.</b>													
at Head													
1990	102	96	94	12	20	167	1989/90	68	98	144	10	23	230
1989	103	95	92	15	20	133	1988/89	77	92	119	9	21	233
1988	-	94	-	-	-	-	1987/88	-	70	-	-	-	-
1987	-	97	-	-	-	-	1986/87	-	108	-	-	-	-
1986	-	99	-	-	-	-	1985/86	-	-	-	-	-	-
at 33 mls													
1990	24	11	46	15	24	160	1989/90	16	17	106	10	22	220
1989	5	10	200	13	19	146	1988/89	18	15	83	7	21	300
1988	-	12	-	-	-	-	1987/88	-	11	-	-	-	-
1987	-	19	-	-	-	-	1986/87	-	37	-	-	-	-
1986	-	25	-	-	-	-	1985/86	-	-	-	-	-	-

Table F.31 Estimated Discharge of Maurawan Distributary (1/2) Kharif season  
(at beginning point of Sataon Area)

Unit : Cusec

No.	Roster starting	(1) Nari- chak Mr.	(2) Lotna Mr.	(3) Bamkat Mr.	(4) Bitar- gaon Mr.	(5) Unai Mr.	(6) Bardar Mr.	(7) Sataon Mr.	(8) Korihar Mr.	(9) Hajipur Mr.	(10) Sub-total	(11) Loss and Outlets	(12) Total
1990													
1	3-29	-	-	-	-	-	-	-	-	-	-	-	-
2	4-5	-	-	-	-	-	-	-	-	-	-	-	-
3	4-12	-	-	-	-	-	-	-	-	-	-	-	-
4	4-19	-	-	-	-	-	-	-	-	-	-	-	-
5	4-24	30	-	-	4	4	4	4	4	4	54	21	75
6	5-3	-	4	4	-	-	-	-	-	-	8	7	15
7	5-10	-	-	-	-	-	-	-	-	-	-	-	-
8	5-17	-	-	-	-	-	-	-	-	-	-	-	-
9	5-24	-	4	4	4	4	4	4	4	4	32	13	45
10	5-31	30	-	-	-	-	-	-	-	-	30	15	45
11	6-7	30	-	-	-	-	-	-	-	-	30	15	45
12	6-14	-	4	4	4	4	4	4	4	4	32	13	45
13	6-21	-	-	-	-	-	-	-	-	-	-	-	-
14	6-28	-	-	-	-	-	-	-	-	-	-	-	-
15	7-5	-	4	4	4	4	4	4	4	4	32	13	45
16	7-12	30	-	-	-	-	-	-	-	-	30	15	45
17	7-19	30	-	-	-	-	-	-	-	-	30	15	45
18	7-26	-	4	4	4	4	4	4	4	4	32	13	45
19	8-2	-	-	-	-	-	-	-	-	-	-	-	-
20	8-9	-	-	-	-	-	-	-	-	-	-	-	-
21	8-16	-	4	4	4	4	4	4	4	4	32	13	45
22	8-23	30	-	-	-	-	-	-	-	-	30	15	45
23	8-30	30	-	-	-	-	-	-	-	-	30	15	45
24	9-6	-	4	4	4	4	4	4	4	4	32	13	45
25	9-13	-	-	-	-	-	-	-	-	-	-	-	-
26	9-20	30	-	-	-	-	-	-	-	-	30	15	45
27	9-27	-	4	4	4	4	4	4	4	4	32	13	45

Table F.31 Estimated Discharge of Maurawan Distributary (2/2) Rabi season  
(at beginning point of Sataon Area)

Unit : Cusec

No.	Roster starting	(1) Nari- chak Mr.	(2) Lotna Mr.	(3) Bamkat Mr.	(4) Bitar- gaon Mr.	(5) Unai Mr.	(6) Bardar Mr.	(7) Sataon Mr.	(8) Korihar Mr.	(9) Hajipur Mr.	(10) Sub-tot	(11) Loss an Outlets	(12) Total
1989/90													
1	10-5	-	-	-	-	-	-	-	-	-	-	-	-
2	10-12	-	-	-	-	-	-	-	-	-	-	-	-
3	10-19	-	-	-	-	-	-	-	-	-	-	-	-
4	10-26	-	-	-	-	-	-	-	-	-	-	-	-
5	11-2	30	-	-	-	-	-	-	-	-	30	15	45
6	11-9	-	4	4	4	4	4	4	4	4	32	13	45
7	11-16	-	-	-	-	-	-	-	-	-	-	-	-
8	11-23	-	-	-	-	-	-	-	-	-	-	-	-
9	11-30	-	-	-	-	-	-	-	-	-	-	-	-
10	12-7	30	-	-	-	-	-	-	-	-	30	15	45
11	12-14	-	4	4	4	4	4	4	4	4	32	13	45
12	12-21	-	-	-	-	-	-	-	-	-	-	-	-
13	12-28	-	-	-	-	-	-	-	-	-	-	-	-
14	1-4	-	-	-	-	-	-	-	-	-	-	-	-
15	1-11	30	-	-	-	-	-	-	-	-	30	15	45
16	1-18	-	4	4	4	4	4	4	4	4	32	13	45
17	1-25	-	-	-	-	-	-	-	-	-	-	-	-
18	2-1	-	-	-	-	-	-	-	-	-	-	-	-
19	2-8	-	-	-	-	-	-	-	-	-	-	-	-
20	2-15	-	-	-	-	-	-	-	-	-	-	-	-
21	2-22	30	-	-	-	-	-	-	-	-	30	15	45
22	3-1	-	-	-	-	-	-	-	-	-	-	-	-
23	3-8	-	-	-	-	-	-	-	-	-	-	-	-
24	3-15	-	-	-	-	-	-	-	-	-	-	-	-
25	3-22	-	4	4	-	-	-	-	-	-	8	7	15

Table F.32 Water Balance in Amausi Distributary Command for Design Year (1/2)  
Kharif Season

No.	Roster starting	Roster discharge		Actual discharge				U.W.R.		D.W.R.		Water deficit		G. Water supply		
		cusec (1)	MCM (2)	Acc. dis. MCM		Wkly cusec (5)	Acc. dis. MCM		TCM/100ha (9)	MCM (10)	MCM (11)	MCM (12)	MCM (13)	MCM (14)	MCM (15)	
				(3)	(4)		(6)	(7)								(4)-(10)
1990																
									3,567 ha 3,567 ha							
1	3-29	0	0.00	0		0	0.00	0								
2	4-5	120	2.05	2.05		54	0.92	0.92	0	0.00	0.00					
3	4-12	0	0.00	2.05		9	0.15	1.08								
4	4-19	0	0.00	2.05		0	0.00	1.08								
5	4-24	0	0.00	2.05	2.05	0	0.00	1.08	1.08			2.05	1.08	-	-	
6	5-3	90	1.54	3.59		0	0.00	1.08	6	0.21	0.21					
7	5-10	0	0.00	3.59		54	0.92	2.00								
8	5-17	0	0.00	3.59		34	0.58	2.58								
9	5-24	120	2.05	5.65	3.59	64	1.10	3.68	2.60			3.38	2.39	-	-	
10	5-31	90	1.54	7.19		54	0.92	4.60	174	6.21	6.21					
11	6-7	0	0.00	7.19		0	0.00	4.60								
12	6-14	120	2.05	9.24		74	1.27	5.87								
13	6-21	90	1.54	10.78	5.13	13	0.22	6.09	2.41			-1.07	-3.79	1.07	3.79	
14	6-28	120	2.05	12.84		77	1.32	7.41	149	5.31	5.31					
15	7-5	0	0.00	12.84		12	0.21	7.62								
16	7-12	85	1.45	14.29		0	0.00	7.62								
17	7-19	120	2.05	16.35		46	0.79	8.40								
18	7-26	85	1.45	17.80	7.02	69	1.18	9.58	3.49			1.70	-1.82	-	1.82	
19	8-2	0	0.00	17.80		14	0.24	9.82	186	6.63	6.63					
20	8-9	120	2.05	19.85		90	1.54	11.36								
21	8-16	0	0.00	19.85		49	0.84	12.20								
22	8-23	120	2.05	21.91	4.11	43	0.74	12.94	3.35			-2.53	-3.28	2.53	3.28	
23	8-30	0	0.00	21.91		0	0.00	12.94	66	2.35	2.35					
24	9-6	80	1.37	23.28		0	0.00	12.94								
25	9-13	120	2.05	25.33		99	1.69	14.63								
26	9-20	0	0.00	25.33	3.42	19	0.33	14.96	2.02			1.07	-0.33	-	0.33	
27	9-27	120	2.05	27.39	2.05	69	1.18	16.14	1.18	36	1.28	1.28	0.77	-0.10	-	0.10
			27.39		27.38		16.14		16.14	617	22.01	22.01	5.37	-5.87	3.60	9.34

Table F.32 Water Balance in Amausi Distributary Command for Design Year (2/2)  
Rabi Season

No.	Roster starting	Roster discharge		Actual discharge				U.W.R.		D.W.R.		Water deficit		G. Water supply	
		cusec (1)	MCM (2)	Acc. dis. MCM (3)	Wkly cusec (5)	MCM (6)	Acc. dis. MCM (7)	(8)	TCM/100ha (9)	MCM (10)	MCM (11)	(Roster) MCM (12)	(Actual) MCM (13)	(Roster) MCM (14)	(Actual) MCM (15)
1989/90										3,716 ha 3,716 ha					
1	10-8	0	0.00	0	68.6	1.17	1.17		20	0.74	0.74				
2	10-15	0	0.00	0.00	0	0.00	1.17								
3	10-22	120	2.05	2.05	2.05	102.9	1.76	2.93	2.94			1.31	2.19		
4	10-29	0	0.00	2.05	65	1.11	4.04		110	4.09	4.09				
5	11-5	120	2.05	4.11	95	1.63	5.67								
6	11-12	0	0.00	4.11	103.6	1.77	7.44								
7	11-19	0	0.00	4.11	2.05	0	0.00	7.44	4.51			-2.03	0.42	2.03	
8	11-26	0	0.00	4.11	21.4	0.37	7.81		125	4.65	4.65				
9	12-3	80	1.37	5.48	30	0.51	8.32								
10	12-10	0	0.00	5.48	40.7	0.70	9.02								
11	12-17	120	2.05	7.53	91.4	1.56	10.58								
12	12-24	0	0.00	7.53	3.42	17.9	0.31	10.89	3.45			-1.22	-1.20	1.22	1.20
13	12-31	0	0.00	7.53	0	0.00	10.89		157	5.83	5.83				
14	1-7	0	0.00	7.53	0	0.00	10.89								
15	1-14	120	2.05	9.58	14.3	0.24	11.13								
16	1-21	0	0.00	9.58	39.4	0.67	11.81								
17	1-28	120	2.05	11.64	4.11	100.7	1.72	13.53	2.64			-1.73	-3.19	1.73	3.19
18	2-4	0	0.00	11.64	11.4	0.20	13.73		120	4.46	4.46				
19	2-11	0	0.00	11.64	0	0.00	13.73								
20	2-18	80	1.37	13.01	0	0.00	13.73								
21	2-25	120	2.05	15.06	3.42	41.4	0.71	14.44	0.90			-1.04	-3.56	1.04	3.56
22	3-4	0	0.00	15.06	50.7	0.87	15.30		38	1.41	1.41				
23	3-11	0	0.00	15.06	6.4	0.11	15.41								
24	3-18	0	0.00	15.06	0	0.00	15.41								
25	3-25	0	0.00	15.06	0.00	0	0.00	15.41	0.98			-1.41	-0.43	1.41	0.43
		15.06		15.06	15.42	15.42	570	21.18	21.18	-6.12	-5.76	7.43	8.38		



Table F.33 Water Balance in Maurawan Distributary Command for Design Year (1/2)  
Kharif Season

No.	Roster starting	Roster discharge		Actual discharge			U.W.R.		D.W.R.		Water deficit		G. Water supply			
		cusec (1)	MCM (2)	Acc. dis. MCM (3)	Wkly (4)	Acc. dis. MCM (5)	Wkly (6)	Acc. dis. MCM (7)	TCM/100ha (8)	MCM (9)	MCM (10)	MCM (11)	(Roster) (12)	(Actual) (13)	(Roster) (14)	(Roster) (15)
1990											3,090 ha		3,090 ha			
1	3-29	0	0	0		0	0	0								
2	4-5	0	0.00	0.00		0	0.00	0.00	0	0.00	0.00					
3	4-12	0	0.00	0.00		0	0.00	0.00								
4	4-19	0	0.00	0.00		0	0.00	0.00								
5	4-24	75	1.28	1.28	1.28	0	0.00	0.00	0.00			1.28	0.00			
6	5-3	15	0.26	1.54		0	0.00	0.00	6	0.19	0.19					
7	5-10	0	0.00	1.54		0	0.00	0.00								
8	5-17	0	0.00	1.54		0	0.00	0.00								
9	5-24	45	0.77	2.31	1.03	0	0.00	0.00	0.00			0.84	-0.19		0.19	
10	5-31	45	0.77	3.08		0	0.00	0.00	130	4.02	4.02					
11	6-7	45	0.77	3.85		0	0.00	0.00								
12	6-14	45	0.77	4.62		0	0.00	0.00								
13	6-21	0	0.00	4.62	2.31	0	0.00	0.00	0.00			-1.71	-4.02	1.71	4.02	
14	6-28	0	0.00	4.62		0	0.00	0.00	108	3.34	3.34					
15	7-5	45	0.77	5.39		0	0.00	0.00								
16	7-12	45	0.77	6.16		0	0.00	0.00								
17	7-19	45	0.77	6.93		0.6	0.01	0.01								
18	7-26	45	0.77	7.70	3.08	5.5	0.09	0.10	0.10			-0.26	-3.23	0.26	3.23	
19	8-2	0	0.00	7.70		4.8	0.08	0.19	166	5.13	5.13					
20	8-9	0	0.00	7.70		0	0.00	0.19								
21	8-16	45	0.77	8.47		0	0.00	0.19								
22	8-23	45	0.77	9.24	1.54	0	0.00	0.19	0.08			-3.59	-5.05	3.59	5.05	
23	8-30	45	0.77	10.01		0	0.00	0.19	117	3.62	3.62					
24	9-6	45	0.77	10.78		0	0.00	0.19								
25	9-13	0	0.00	10.78		0	0.00	0.19								
26	9-20	45	0.77	11.55	2.31	0	0.00	0.19	0.00			-1.30	-3.62	1.30	3.62	
27	9-27	45	0.77	12.32	0.77	0	0.00	0.19	0.00	35	1.08	1.08	-0.31	-1.08	0.31	1.08
		12.32		12.32		0.19		0.19		562	17.37	17.37	-5.04	-17.18	7.17	17.18

Table F.33 Water Balance in Maurawan Distributary Command for Design Year (2/2)  
Rabi Season

No.	Roster starting	Roster discharge		Actual discharge				U.W.R.		D.W.R.		Water deficit		G.Water supply		
		cusec (1)	MCM (2)	Acc.dis.MCM (3) (4)		cusec (5)	MCM (6) (7)		TCM/100ha (9)	MCM (10)	MCM (11)	MCM (12)	MCM (13)	MCM (14)	MCM (15)	
1989/90										3,219 ha	3,219 ha					
1	10-5	0	0	0		0	0	0	21	0.68	0.68					
2	10-12	0	0.00	0.00		0.0	0.00	0.00								
3	10-19	0	0.00	0.00	0.00	0.0	0.00	0.00	0.00			-0.68	-0.68	0.68	0.68	
4	10-26	0	0.00	0.00		4.6	0.08	0.08	115	3.70	3.70					
5	11-2	45	0.77	0.77		2.6	0.04	0.12								
6	11-9	45	0.77	1.54		0.0	0.00	0.12								
7	11-16	0	0.00	1.54	1.54	1.4	0.02	0.15	0.15			-2.16	-3.55	2.16	3.55	
8	11-23	0	0.00	1.54		2.7	0.05	0.19	123	3.96	3.96					
9	11-30	0	0.00	1.54		8.3	0.14	0.34								
10	12-7	45	0.77	2.31		21.0	0.36	0.69								
11	12-14	45	0.77	3.08		6.1	0.10	0.80								
12	12-21	0	0.00	3.08	1.54	0.0	0.00	0.80	0.65			-2.42	-3.31	2.42	3.31	
13	12-28	0	0.00	3.08		0.0	0.00	0.80	157	5.05	5.05					
14	1-4	0	0.00	3.08		0.0	0.00	0.80								
15	1-11	45	0.77	3.85		3.0	0.05	0.85								
16	1-18	45	0.77	4.62		5.3	0.09	0.94								
17	1-25	0	0.00	4.62	1.54	0.0	0.00	0.94	0.14			-3.51	-4.91	3.51	4.91	
18	2-1	0	0.00	4.62		0.0	0.00	0.94	108	3.48	3.48					
19	2-8	0	0.00	4.62		0.0	0.00	0.94								
20	2-15	0	0.00	4.62		0.0	0.00	0.94								
21	2-22	45	0.77	5.39	0.77	0.0	0.00	0.94	0.00			-2.71	-3.48	2.71	3.48	
22	3-1	0	0.00	5.39		0.0	0.00	0.94	38	1.22	1.22					
23	3-8	0	0.00	5.39		0.0	0.00	0.94								
24	3-15	0	0.00	5.39		0.0	0.00	0.94								
25	3-22	45	0.77	6.16	0.77	0.0	0.00	0.94	0.00			-0.45	-1.22	0.45	1.22	
		6.16		6.16		0.94		0.94		562	18.09	18.09	-11.93	-17.15	11.93	17.15

Table F.34 Water Balance in Badaicha Distributary Command for Design Year (1/2)  
Kharif season

Roster No. starting	Roaster discharge		Actual discharge				U.W.R.		D.W.R.		Water deficit		G.Water Supply			
	cusec (1)	MCM (2)	Acc.dis.MCM (3) (4)		cusec (5)	Acc.dis.MCM (6) (7) (8)		TCM/100ha (9)	MCM (10)	MCM (11)	MCM (12) (4)-(9)	MCM (13) (8)-(9)	MCM (14)	MCM (15)		
1990										3,761 ha		3,761 ha				
1	3-29	0	0.00	0	18	0.31	0.31	23	0.87	0.87						
2	4-5	0	0.00	0.00	35	0.60	0.91									
3	4-12	0	0.00	0.00	32	0.55	1.46									
4	4-19	0	0.00	0.00	0	0.00	1.46									
5	4-24	88	1.51	1.51	1.51	41	0.70	2.16	2.16		0.64	1.29				
6	5-3	0	0.00	1.51		54	0.92	3.08	39	1.47	1.47					
7	5-10	0	0.00	1.51		10	0.17	3.25								
8	5-17	60	1.03	2.53		45	0.77	4.02								
9	5-24	0	0.00	2.53	1.03	26	0.45	4.47	2.31		-0.44	0.84	0.44			
10	5-31	88	1.51	4.04		57	0.98	5.44	212	7.97	7.97					
11	6-7	0	0.00	4.04		64	1.10	6.54								
12	6-14	88	1.51	5.55		70	1.20	7.74								
13	6-21	88	1.51	7.05	4.52	83	1.42	9.16	4.69		-3.45	-3.28	3.45	3.28		
14	6-28	0	0.00	7.05		33	0.56	9.72	196	7.37	7.37					
15	7-5	88	1.51	8.56		53	0.91	10.63								
16	7-12	0	0.00	8.56		18	0.31	10.94								
17	7-19	88	1.51	10.06		33	0.56	11.50								
18	7-26	0	0.00	10.06	3.01	73	1.25	12.75	3.59		-4.36	-3.78	4.36	3.78		
19	8-2	88	1.51	11.57		72	1.23	13.99	59	2.22	2.22					
20	8-9	88	1.51	13.08		81	1.39	15.37								
21	8-16	0	0.00	13.08		42	0.72	16.09								
22	8-23	88	1.51	14.58	4.52	65	1.11	17.20	4.45		2.30	2.23				
23	8-30	60	1.03	15.61		78	1.34	18.54	144	5.42	5.42					
24	9-6	0	0.00	15.61		88	1.51	20.04								
25	9-13	88	1.51	17.12		83	1.42	21.47								
26	9-20	0	0.00	17.12	2.53	73	1.25	22.71	5.51		-2.88	0.10	2.88			
27	9-27	88	1.51	18.62	1.51	69	1.18	23.90	1.18	59	2.22	2.22	-0.71	-1.04	0.71	1.04
		18.62		18.63		23.89		23.89		732	27.53	27.53	-8.90	-3.64	11.85	8.10

Table F.34 Water Balance in Badaicha Distributary Command for Design Year (2/2)  
Rabi Season

No. starting	Roster discharge				Actual discharge				U.W.R.		D.W.R.		Water deficit		O. Water Supply	
	cusec (1)	MCM (2)	Acc.dis.MCM (3) (4)		cusec (5)	MCM (6)	Acc.dis.MCM (7) (8)		TCM/100ha (9)	MCM (10)	MCM (11)	MCM (12)	MCM (13)	MCM (14)	MCM (15)	
1989/90									3,917 ha		3,917 ha					
1	10-5	0	0.00	0	85	1.45	1.45		48	1.88	1.88					
2	10-12	0	0.00	0.00	83	1.42	2.87									
3	10-19	0	0.00	0.00	88	1.51	4.38									
4	10-26	88	1.51	1.51	1.51	75	1.28	5.66	5.67			-0.37	3.79	0.37		
5	11-2	0	0.00	1.51		61	1.04	6.70		117	4.58	4.58				
6	11-9	88	1.51	3.01		88	1.51	8.21								
7	11-16	60	1.03	4.04		34	0.58	8.79								
8	11-23	0	0.00	4.04	2.53	34	0.58	9.37	3.71			-2.05	-0.87	2.05	0.87	
9	11-30	60	1.03	5.07		34	0.58	9.96		116	4.54	4.54				
10	12-7	0	0.00	5.07		48	0.82	10.78								
11	12-14	88	1.51	6.57		75	1.28	12.06								
12	12-21	0	0.00	6.57		20	0.34	12.40								
13	12-28	0	0.00	6.57	2.53	0	0.00	12.40	3.03			-2.01	-1.51	2.01	1.51	
14	1-4	0	0.00	6.57		42	0.72	13.12		140	5.48	5.48				
15	1-11	88	1.51	8.08		37	0.63	13.76								
16	1-18	0	0.00	8.08		8	0.14	13.89								
17	1-25	0	0.00	8.08	1.51	41	0.70	14.59	2.19			-3.98	-3.29	3.98	3.29	
18	2-1	88	1.51	9.58		23	0.39	14.99		116	4.54	4.54				
19	2-8	0	0.00	9.58		0	0.00	14.99								
20	2-15	0	0.00	9.58		65	1.11	16.10								
21	2-22	0	0.00	9.58	1.51	52	0.89	16.99	2.40			-3.04	-2.15	3.04	2.15	
22	3-1	0	0.00	9.58		44	0.75	17.74		44	1.72	1.72				
23	3-8	0	0.00	9.58		0	0.00	17.74								
24	3-15	60	1.03	10.61		42	0.72	18.46								
25	3-22	88	1.51	12.12	2.53	29	0.50	18.96	1.97			0.81	0.24			
			12.12	12.12		18.96	18.96		581	22.76	22.76	-10.64	-3.79	11.45	7.82	

Table F.35 Water Balance in Marsa Minor Command for Design Year (1/2)  
Kharif Season

No.	Roster starting	Roster discharge		Actual discharge				U.W.R. TCM/100ha	D.W.R.		Water deficit		G. Water Supply			
		cusec (1)	MCM (2)	Acc. dis. MCM (3)	Wkly cusec (5)	MCM (6)	Acc. dis. MCM (7)		(8)	MCM (10)	MCM (11)	MCM (12) (4)-(9)	MCM (13) (8)-(9)	MCM (14)	MCM (15)	
										394 ha	394 ha					
1990																
1	3-29	0	0.00	0	5.6	0.10	0.10	23	0.09	0.09						
2	4-5	0	0.00	0.00	0.0	0.00	0.10									
3	4-12	0	0.00	0.00	0.0	0.00	0.10									
4	4-19	0	0.00	0.00	0.0	0.00	0.10									
5	4-24	20	0.34	0.34	0.34	7.4	0.13	0.22	0.22			0.25	0.13			
6	5-3	20	0.34	0.68		13.0	0.22	0.45		39	0.15	0.15				
7	5-10	0	0.00	0.68		5.6	0.10	0.54								
8	5-17	20	0.34	1.03		5.6	0.10	0.64								
9	5-24	20	0.34	1.37	1.03	13.0	0.22	0.86	0.64			0.87	0.48			
10	5-31	20	0.34	1.71		13.0	0.22	1.08		212	0.84	0.84				
11	6-7	20	0.34	2.05		13.0	0.22	1.30								
12	6-14	20	0.34	2.40		13.0	0.22	1.53								
13	6-21	20	0.34	2.74	1.37	13.0	0.22	1.75	0.89			0.53	0.05			
14	6-28	0	0.00	2.74		0.0	0.00	1.75		196	0.77	0.77				
15	7-5	20	0.34	3.08		7.4	0.13	1.88								
16	7-12	20	0.34	3.42		5.6	0.10	1.97								
17	7-19	20	0.34	3.77		11.1	0.19	2.16								
18	7-26	20	0.34	4.11	1.37	13.0	0.22	2.38	0.63			0.60	-0.14		0.14	
19	8-2	20	0.34	4.45		13.0	0.22	2.61		59	0.23	0.23				
20	8-9	20	0.34	4.79		13.0	0.22	2.83								
21	8-16	0	0.00	4.79		13.0	0.22	3.05								
22	8-23	20	0.34	5.13	1.03	13.0	0.22	3.27	0.89			0.79	0.66			
23	8-30	20	0.34	5.48		13.0	0.22	3.50		144	0.57	0.57				
24	9-6	20	0.34	5.82		13.0	0.22	3.72								
25	9-13	0	0.00	5.82		13.0	0.22	3.94								
26	9-20	20	0.34	6.16	1.03	13.0	0.22	4.16	0.89			0.46	0.32			
27	9-27	20	0.34	6.50	0.34	13.0	0.22	4.39	0.22	59	0.23	0.23	0.11	-0.01		0.01
			6.50		6.50		4.39		4.38	732	2.88	2.88	3.62	1.50	0.00	0.15

Table F.35 Water Balance in Marsa Minor Command for Design Year (2/2)  
Rabi Season

No.	Roster starting	Roster discharge		Actual discharge				U.W.R.		D.W.R.		Water deficit		G. Water Supply.		
		cusec (1)	MCM (2)	Acc. dis. MCM (3) (4)		cusec (5)	MCM (6)	Acc. dis. MCM (7) (8)		TCM/100ha (9)	MCM (10)	MCM (11)	(Roster) MCM (12) (4)-(10)	(Actual) MCM (13) (8)-(11)	(Roster) MCM (14)	(Actual) MCM (15)
1989/90										411 ha	411 ha					
1	10-5	0	0.00	0		7.4	0.13	1.45		48	0.20	0.20				
2	10-12	20	0.34	0.34		13.0	0.22	1.67								
3	10-19	20	0.34	0.68		13.0	0.22	1.90								
4	10-26	0	0.00	0.68	0.68	5.6	0.10	1.99	0.67				0.49	0.47	-	-
5	11-2	20	0.34	1.03		6.5	0.11	2.10		117	0.48	0.48				
6	11-9	0	0.00	1.03		6.4	0.11	2.21								
7	11-16	0	0.00	1.03		0.0	0.00	2.21								
8	11-23	20	0.34	1.37	0.68	0.0	0.00	2.21	0.22				0.20	-0.26	-	0.26
9	11-30	0	0.00	1.37		11.1	0.19	2.40		116	0.48	0.48				
10	12-7	0	0.00	1.37		13.0	0.22	2.62								
11	12-14	20	0.34	1.71		13.0	0.22	2.85								
12	12-21	0	0.00	1.71		3.7	0.06	2.91								
13	12-28	0	0.00	1.71	0.34	0.0	0.00	2.91	0.70				-0.13	0.22	0.13	-
14	1-4	0	0.00	1.71		5.6	0.10	3.01		140	0.58	0.58				
15	1-11	20	0.34	2.05		13.0	0.22	3.23								
16	1-18	0	0.00	2.05		5.6	0.10	3.32								
17	1-25	20	0.34	2.40	0.68	5.6	0.10	3.42	0.51				0.11	-0.07	-	0.07
18	2-1	0	0.00	2.40		0.0	0.00	3.42		116	0.48	0.48				
19	2-8	0	0.00	2.40		0.0	0.00	3.42								
20	2-15	0	0.00	2.40		9.3	0.16	3.58								
21	2-22	0	0.00	2.40	0.00	7.4	0.13	3.71	0.29				-0.48	-0.19	0.48	0.19
22	3-1	20	0.34	2.74		7.1	0.12	3.83		44	0.18	0.18				
23	3-8	0	0.00	2.74		0.0	0.00	3.83								
24	3-15	0	0.00	2.74		0.0	0.00	3.83								
25	3-22	0	0.00	2.74	0.34	5.6	0.10	3.92	0.22				0.16	0.04	-	-0.04
		2.74		2.74		2.60		2.60		581	2.39	2.39	0.35	0.21	0.61	0.48

Table F.36 Water Balance in Purwa Distributary Command for Design Year (1/2)  
Kharif Season

No.	Roster starting	Roster discharge		Actual discharge				U.W.R.	D.W.R.		Water deficit		G. Ware Supply			
		cusec (1)	MCM (2)	Acc.dis.MCM (3)	W'kly cusec (5)	MCM (6)	Acc.dis.MCM (7)	(8)	TCM/100ha (9)	MCM (10)	MCM (11)	MCM (12)	MCM (13)	MCM (14)	MCM (15)	
1990											1.274 ha		1.274 ha			
1	3-29	0	0.00	0	18	0.31	0.31	0	0.00	0.00						
2	4-5	57	0.98	0.98	28	0.48	0.79									
3	4-12	0	0.00	0.98	11	0.19	0.98									
4	4-19	0	0.00	0.98	0	0.00	0.98									
5	4-24	0	0.00	0.98	0.98	0	0.00	0.98	0.98		0.98	0.98				
6	5-3	57	0.98	1.95	8	0.14	1.11	6	0.08	0.08						
7	5-10	0	0.00	1.95	4	0.07	1.18									
8	5-17	0	0.00	1.95	14	0.24	1.42									
9	5-24	0	0.00	1.95	0.98	10	0.17	1.59	0.62		0.90	0.54				
10	5-31	57	0.98	2.93	16	0.27	1.87	179	2.28	2.28						
11	6-7	0	0.00	2.93	35	0.60	2.47									
12	6-14	0	0.00	2.93	23	0.39	2.86									
13	6-21	57	0.98	3.90	1.95	23	0.39	3.25	1.66		-0.33	-0.62	0.33	0.62		
14	6-28	57	0.98	4.88	22	0.38	3.63	162	2.06	2.06						
15	7-5	0	0.00	4.88	19	0.33	3.96									
16	7-12	0	0.00	4.88	0	0.00	3.96									
17	7-19	57	0.98	5.85	23	0.39	4.35									
18	7-26	0	0.00	5.85	1.95	19	0.33	4.67	1.42		-0.11	-0.64	0.11	0.64		
19	8-2	57	0.98	6.83	12	0.21	4.88	90	1.15	1.15						
20	8-9	57	0.98	7.80	38	0.65	5.53									
21	8-16	57	0.98	8.78	38	0.65	6.18									
22	8-23	0	0.00	8.78	2.93	15	0.26	6.44	1.76		1.78	0.62				
23	8-30	0	0.00	8.78	25	0.43	6.87	190	2.42	2.42						
24	9-6	0	0.00	8.78	0	0.00	6.87									
25	9-13	57	0.98	9.76	15	0.26	7.12									
26	9-20	57	0.98	10.73	1.95	32	0.55	7.67	1.23		-0.47	-1.19	0.47	1.19		
27	9-27	0	0.00	10.73	0.00	19	0.33	8.00	0.33	37	0.47	0.47	-0.47	-0.14	0.47	0.14
		10.73		10.73	7.99		8.00	664	8.46	8.46	2.27	-0.46	1.38	2.59		

Table F.36 Water Balance in Purwa Distributary Command for Design Year (2/2)  
Rabi Season

No.	Roster starting	Roster discharge		Actual discharge				U.W.R.	D.W.R.		Water deficit		G.water Supply		
		cusec (1)	MCM (2)	Acc.dis.MCM (3)	W'kly cusec (5)	MCM (6)	Acc.dis.MCM (7)	(8)	TCM/100ha (9)	MCM (10)	MCM (11)	(Roster) MCM (12)	(Actual) MCM (13)	(Roster) MCM (14)	(Actual) MCM (15)
1989/90										1,326 ha	1,326 ha				
1	10-5	0	0.00	0	25	0.43	0.43	21	0.28	0.28					
2	10-12	57	0.98	0.98	11	0.19	0.62								
3	10-19	57	0.98	1.95	9	0.15	0.77								
4	10-26	0	0.00	1.95	1.95	35	0.60	1.37	1.37		1.67	1.09	-	-	
5	11-2	0	0.00	1.95	25	0.43	1.80	106	1.41	1.41					
6	11-9	0	0.00	1.95	2	0.03	1.83								
7	11-16	0	0.00	1.95	22	0.38	2.21								
8	11-23	57	0.98	2.93	0.98	21	0.36	2.57	1.20		-0.43	-0.21	0.43	0.21	
9	11-30	57	0.98	3.90	5	0.09	2.66	125	1.66	1.66					
10	12-2	0	0.00	3.90	0	0.00	2.66								
11	12-14	0	0.00	3.90	0	0.00	2.66								
12	12-21	0	0.00	3.90	0.98	0	0.00	2.66	0.09		-0.68	-1.57	0.68	1.57	
13	12-28	0	0.00	3.90	0	0.00	2.66	157	2.08	2.08					
14	1-4	0	0.00	3.90	0	0.00	2.66								
15	1-11	0	0.00	3.90	11	0.19	2.84								
16	1-18	57	0.98	4.88	28	0.48	3.32								
17	1-25	57	0.98	5.85	1.95	10	0.17	3.49	0.84		-0.13	-1.24	0.13	1.24	
18	2-1	0	0.00	5.85	37	0.63	4.13	97	1.29	1.29					
19	2-8	0	0.00	5.85	20	0.34	4.47								
20	2-15	0	0.00	5.85	0	0.00	4.47								
21	2-22	0	0.00	5.85	0.00	15	0.26	4.73	1.23		-1.29	-0.05	1.29	0.05	
22	3-1	57	0.98	6.83	22	0.38	5.10	38	0.50	0.50					
23	3-8	57	0.98	7.80	6	0.10	5.21								
24	3-15	0	0.00	7.80	5	0.09	5.29								
25	3-22	0	0.00	7.80	1.95	2	0.03	5.33	0.60		1.45	0.10	-	-	
			7.80	7.80		5.32	5.32	544	7.21	7.21	0.59	-1.89	2.53	3.08	



Table F.37 Water Balance in Tikar Distributary Command for Design Year (1/2) Kharif Season

No.	Roster starting	Roster discharge		Actual discharge				U.W.R. TCM/100ha	D.W.R.		Water deficit		G.W. are Supply			
		cusec (1)	MCM (2)	Acc.dis.MCM (3)	W'kly cusec (5)	MCM (6)	Acc.dis.MCM (7)		(8)	MCM (10)	MCM (11)	(Roster) MCM (12)	(Actual) MCM (13)	(Roster) MCM (14)	(Actual) MCM (15)	
1990											1,021 ha	1,021 ha				
1	3-29	0	0.00	0	11.8	0.20	0.31		0	0.00	0.00					
2	4-5	25	0.43	0.43	14.6	0.25	0.56									
3	4-12	0	0.00	0.43	9.7	0.17	0.73									
4	4-19	0	0.00	0.43	0	0.00	0.73									
5	4-24	0	0.00	0.43	0.43	0	0.00	0.73	0.62			0.43	0.62			
6	5-3	25	0.43	0.86	8.3	0.14	0.87		6	0.06	0.06					
7	5-10	0	0.00	0.86	14.8	0.25	1.12									
8	5-17	0	0.00	0.86	8.6	0.15	1.27									
9	5-24	0	0.00	0.86	0.43	12.3	0.21	1.48	0.75			0.37	0.69			
10	5-31	25	0.43	1.28	7.8	0.13	1.61		179	1.83	1.83					
11	6-7	25	0.43	1.71	17.7	0.30	1.92									
12	6-14	0	0.00	1.71	8.4	0.14	2.06									
13	6-21	25	0.43	2.14	1.28	8.3	0.14	2.20	0.72			-0.54	-1.11		1.11	
14	6-28	25	0.43	2.57	11.7	0.20	2.40		162	1.65	1.65					
15	7-5	0	0.00	2.57	11.3	0.19	2.59									
16	7-12	0	0.00	2.57	0	0.00	2.59									
17	7-19	25	0.43	3.00	8.7	0.15	2.74									
18	7-26	0	0.00	3.00	0.86	12.7	0.22	2.96	0.76			-0.80	-0.89	0.80	0.89	
19	8-2	25	0.43	3.42	7	0.12	3.08		90	0.92	0.92					
20	8-9	25	0.43	3.85	12.6	0.22	3.30									
21	8-16	25	0.43	4.28	16.8	0.29	3.58									
22	8-23	25	0.43	4.71	1.71	7.3	0.12	3.71	0.75			0.79	-0.17			
23	8-30	0	0.00	4.71	7.1	0.12	3.83		190	1.94	1.94					
24	9-6	0	0.00	4.71	4.6	0.08	3.91									
25	9-13	25	0.43	5.13	8.6	0.15	4.06									
26	9-20	25	0.43	5.56	0.86	19.7	0.34	4.39	0.68			-1.08	-1.26	1.08	1.26	
27	9-27	0	0.00	5.56	0.00	0	0.00	4.39	0.00	37	0.38	0.38	-0.38	-0.38	0.38	0.38
		5.56		5.56	4.29		4.29	664	6.78	6.78	-1.22	-2.49	2.26	3.63		

Table F.37 Water Balance in Tikar Distributary Command for Design Year (2/2)  
Rabi Season

No.	Roster starting	Roster discharge		Actual discharge				U.W.R.		D.W.R.		Water deficit		G.water Supply	
		cusec (1)	MCM (2)	Acc.dis.MCM (3)	Wkly cusec (4)	MCM (5)	Acc.dis.MCM (6)	(7)	(8)	TCM/100ha (9)	MCM (10)	MCM (11)	(Roster) MCM (12)	(Actual) MCM (13)	(Roster) MCM (14)
1989/90										1,063 ha	1,063 ha				
1	10-5	0	0.00	0	13	0.22	0.22		21	0.22	0.22				
2	10-12	25	0.43	0.43	10	0.17	0.39								
3	10-19	25	0.43	0.86	20	0.34	0.74								
4	10-26	0	0.00	0.86	0.86	20	0.34	1.08	1.08			0.63	0.86		
5	11-2	0	0.00	0.86	15	0.26	1.34		106	1.13	1.13				
6	11-9	0	0.00	0.86	3	0.05	1.39								
7	11-16	25	0.43	1.28	14	0.24	1.63								
8	11-23	25	0.43	1.71	0.86	9	0.15	1.78	0.70			-0.27	-0.43	0.27	0.43
9	11-30	0	0.00	1.71	9	0.15	1.93		125	1.33	1.33				
10	12-2	0	0.00	1.71	0	0.00	1.93								
11	12-14	0	0.00	1.71	8	0.14	2.07								
12	12-21	0	0.00	1.71	0.00	5	0.09	2.16	0.38			-1.33	-0.95	1.33	0.95
13	12-28	0	0.00	1.71	0	0.00	2.16		157	1.67	1.67				
14	1-4	0	0.00	1.71	5	0.09	2.24								
15	1-11	0	0.00	1.71	12	0.21	2.45								
16	1-18	25	0.43	2.14	5	0.09	2.53								
17	1-25	25	0.43	2.57	0.86	17	0.29	2.82	0.67			-0.81	-1.00	0.81	1.00
18	2-1	0	0.00	2.57	10	0.17	3.00		97	1.03	1.03				
19	2-8	0	0.00	2.57	0	0.00	3.00								
20	2-15	0	0.00	2.57	3	0.05	3.05								
21	2-22	0	0.00	2.57	0.00	9	0.15	3.20	0.38			-1.03	-0.65	1.03	0.65
22	3-1	25	0.43	3.00	11	0.19	3.39		38	0.40	0.40				
23	3-8	25	0.43	3.42	11	0.19	3.58								
24	3-15	0	0.00	3.42	10	0.17	3.75								
25	3-22	0	0.00	3.42	0.86	5	0.09	3.83	0.63			0.45	0.23		
		3.42		3.42	3.83		3.83	544		5.78	5.78	-2.36	-1.95	3.44	3.03

Table F.38 Water Balance in Chmyani Dy. & Pakara Mr. Command for Design Year (1/2) Kharif Season

No.	Roster starting	Roster discharge		Actual discharge				U.W.R.		D.W.R.		Water deficit		G. Ware Supply		
		cusec (1)	MCM (2)	Acc. dis. MCM (3)	Wkly cusec (4)	MCM (5)	Acc. dis. MCM (6)	MCM (7)	TCM/100ha (8)	MCM (9)	MCM (10)	MCM (11)	(Roster) MCM (12)	(Actual) MCM (13)	(Roster) MCM (14)	(Actual) MCM (15)
1990										646 ha	646 ha					
1	3-29	0	0.00	0	14.7	0.25	0.25		41	0.26	0.26					
2	4-5	18	0.31	0.31	17.3	0.30	0.55									
3	4-12	0	0.00	0.31	10.3	0.18	0.72									
4	4-19	0	0.00	0.31	0	0.00	0.72									
5	4-24	0	0.00	0.31	0.31	0	0.00	0.72	0.72			0.04	0.46			
6	5-3	18	0.31	0.62	9.1	0.16	0.88		56	0.36	0.36					
7	5-10	0	0.00	0.62	15.7	0.27	1.15									
8	5-17	5	0.09	0.70	9.4	0.16	1.31									
9	5-24	0	0.00	0.70	0.39	14	0.24	1.55	0.82			0.03	0.46			
10	5-31	18	0.31	1.01	9.1	0.16	1.70		192	1.24	1.24					
11	6-7	5	0.09	1.10	20	0.34	2.05									
12	6-14	0	0.00	1.10	11.7	0.20	2.25									
13	6-21	18	0.31	1.40	0.70	17.4	0.30	2.54	1.00			-0.54	-0.24	0.54	0.24	
14	6-28	18	0.31	1.71	18	0.31	2.85		215	1.39	1.39					
15	7-5	0	0.00	1.71	13.2	0.23	3.08									
16	7-12	5	0.09	1.80	0	0.00	3.08									
17	7-19	18	0.31	2.11	12	0.21	3.28									
18	7-26	0	0.00	2.11	0.70	14.3	0.24	3.53	0.98			-0.69	-0.40	0.69	0.40	
19	8-2	18	0.31	2.41	8.1	0.14	3.67		118	0.76	0.76					
20	8-9	18	0.31	2.72	22	0.38	4.04									
21	8-16	18	0.31	3.03	21.1	0.36	4.40									
22	8-23	5	0.09	3.12	1.01	6.2	0.11	4.51	0.98			0.25	0.22			
23	8-30	0	0.00	3.12	8.9	0.15	4.66		215	1.39	1.39					
24	9-6	0	0.00	3.12	5.5	0.09	4.76									
25	9-13	18	0.31	3.42	9.4	0.16	4.92									
26	9-20	18	0.31	3.73	0.62	22	0.38	5.29	0.78			-0.77	-0.60	0.77	0.60	
27	9-27	0	0.00	3.73	0.00	4	0.07	5.36	0.07	49	0.32	0.32	-0.32	-0.25	0.32	0.25
			3.73		3.73		5.36		5.37	886	5.72	5.72	-1.99	-0.36	2.31	1.50

Table F.38 Water Balance in Chmyanii Dy. & Pakara Mr. Command for Design Year (2/2)  
Rabi Season

No.	Roster starting	Roster discharge		Actual discharge				U.W.R.		D.W.R.		Water deficit (Roster) (Actual)		G.water Supply (Roster) (Actual)			
		cusec (1)	MCM (2)	Acc.dis.MCM (3)	Wkly cusec (4)	MCM (5)	Acc.dis.MCM (6)	(7)	(8)	TCM/100ha (9)	MCM (10)	MCM (11)	MCM (12)	MCM (13)	MCM (14)	MCM (15)	
1989/90												673 ha		673 ha			
1	10-5	0	0.00	0		10	0.17	0.43		7	0.05	0.05					
2	10-12	18	0.31	0.31		4	0.07	0.50									
3	10-19	18	0.31	0.62		15	0.26	0.76									
4	10-26	0	0.00	0.62	0.62	22	0.38	1.13	0.87				0.57	0.83	-	-	
5	11-2	0	0.00	0.62		19	0.33	1.46		100	0.67	0.67					
6	11-9	0	0.00	0.62		8	0.14	1.59									
7	11-16	0	0.00	0.62		14	0.24	1.83									
8	11-23	18	0.31	0.92	0.31	12	0.21	2.04	0.91				-0.36	0.23	0.36	-	
9	11-30	18	0.31	1.23		14	0.24	2.28		128	0.86	0.86					
10	12-2	0	0.00	1.23		7	0.12	2.40									
11	12-14	0	0.00	1.23		5	0.09	2.48									
12	12-21	0	0.00	1.23	0.31	7	0.12	2.60	0.56				-0.55	-0.30	0.55	0.30	
13	12-28	0	0.00	1.23		0	0.00	2.60		164	1.10	1.10					
14	1-4	0	0.00	1.23		2	0.03	2.64									
15	1-11	0	0.00	1.23		10	0.17	2.81									
16	1-18	18	0.31	1.54		3	0.05	2.86									
17	1-25	18	0.31	1.85	0.62	14	0.24	3.10	0.50				-0.49	-0.61	0.49	0.61	
18	2-1	0	0.00	1.85		11	0.19	3.29		119	0.80	0.80					
19	2-8	0	0.00	1.85		0	0.00	3.29									
20	2-15	0	0.00	1.85		12	0.21	3.49									
21	2-22	0	0.00	1.85	0.00	18	0.31	3.80	0.70				-0.80	-0.10	0.80	0.10	
22	3-1	18	0.31	2.16		16	0.27	4.08		63	0.42	0.42					
23	3-8	18	0.31	2.46		8	0.14	4.21									
24	3-15	0	0.00	2.46		10	0.17	4.38									
25	3-22	0	0.00	2.46	0.62	6	0.10	4.49	0.68				0.19	0.26	-	-	
		2.46		2.46		4.23		4.23		581		3.91		3.91		-1.45 0.32 2.21 1.00	

Table F.39 Available Sai River Discharge

Measured Discharge

Unit : m<sup>3</sup>/sec  
 Station : Auras, Unnao  
 Catchment area : 1,950 km<sup>2</sup>

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total
1985	-	-	-	-	-	-	-	28.37	88.24	105.63	22.86	10.85	-
1986	5.09	4.31	2.90	2.68	1.92	2.33	29.54	20.03	11.31	7.83	4.30	0.99	93.23
1987	4.81	3.85	3.36	2.83	2.27	2.00	1.90	1.85	1.98	2.43	1.84	1.92	31.04
1988	1.97	1.98	2.01	2.06	1.88	2.18	9.73	21.75	20.57	15.20	6.90	3.77	90.00
1989	1.40	1.41	1.83	1.36	1.48	1.98	4.23	3.12	3.25	2.90	2.04	1.88	26.88
1990	1.54	1.42	1.47	2.31	2.33	2.66	3.80	3.80	-	-	-	-	-

Estimated Discharge at Mohanlalganj

Unit : m<sup>3</sup>/sec  
 Catchment area : 4,030 km<sup>2</sup>

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total
1985	-	-	-	-	-	-	-	58.44	181.77	217.60	47.09	22.35	-
1986	10.49	8.88	5.97	5.52	3.96	4.80	60.85	41.26	23.30	16.13	8.86	2.04	192.05
1987	9.91	7.93	6.92	5.83	4.68	4.12	3.91	3.81	4.08	5.01	3.79	3.96	63.94
1988	4.06	4.08	4.14	4.24	3.87	4.49	20.04	44.81	42.37	31.31	14.21	7.77	185.40
1989	2.88	2.90	3.77	2.80	3.05	4.08	8.71	6.43	6.70	5.97	4.20	3.87	55.37
1990	3.17	2.93	3.03	4.76	4.80	5.48	7.83	7.83	-	-	-	-	-

Estimated Discharge at Sataon

Unit : m<sup>3</sup>/sec  
 Catchment area : 5,080 km<sup>2</sup>

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total
1985	-	-	-	-	-	-	-	73.76	229.42	274.64	59.44	28.21	-
1986	13.23	11.21	7.54	6.97	4.99	6.06	76.80	52.08	29.41	20.36	11.18	2.57	242.40
1987	12.51	10.01	8.74	7.36	5.90	5.20	4.94	4.81	5.15	6.32	4.78	4.99	80.70
1988	5.12	5.15	5.23	5.36	4.89	5.67	25.30	56.55	53.48	39.52	17.94	9.80	234.00
1989	3.64	3.67	4.76	3.54	3.85	5.15	11.00	8.11	8.45	7.54	5.30	4.89	69.89
1990	4.00	3.69	3.82	6.01	6.06	6.92	9.88	9.88	-	-	-	-	-

Table F.40 Estimate of Delivery of Maurawan Distributary (1/3)

Rabi :1989/1990

Item	Command area (ha)		Delivery (MCM)		Unit water depth (m)		Remarks
	CCA	PIA	Actual (1)	Schedule (2)	Actual (5)	Schedule (6)	
1. Asiwani Branch at Head	85,511	21,378	131.80	113.00	0.62	0.53	
(1)Dy & Mr	39,387	9,825	51.87	47.93	0.53	0.49	
(2)Outlets dis. and losses	-	-	53.33	19.87	-	-	
a.Estimate of outlets dis.	13,594	3,420	18.13	16.76	0.53	0.49 1/	
b.Estimate of losses, (2)-a.	-	-	35.20	3.11	-	-	
Total	52,981	13,245	105.20	67.80			
2. Murawan Dy at Head	32,530	8,133	26.60	45.20	0.33	0.56	
(1)Dy & Mr(upto Lachi Khera Mr)	15,991	3,999	6.17	14.88	0.15	0.37	
(2)Outlets dis. and losses	-	-	19.36	22.92	-	-	
a.Estimate of outlet dis	3,665	915	1.37	3.39	0.15	0.37 1/	
b.Estimate of losses	-	-	17.98	19.54	-	-	
-----							
Murawan Dy							
(downstream from Nrchk dy)	12,874	3,219	1.07	7.40	0.03	0.23	
(1)Dy & Mr	7,219	1,806	0.59	3.90	0.03	0.22	
(2)Outlets dis. and losses	-	-	0.48	3.50	-	-	
a.Estimate of outlet dis	5,655	1,413	0.42	3.11	0.03	0.22 1/	
b.Estimate of losses	-	-	0.06	0.39	-	- 2/	

Kharif :1990

Item	Command area (ha)		Delivery (MCM)		Unit water depth(m)		Remarks
	CCA	PIA	Actual (1)	Rabi :1989/1990 (2)	Actual (5)	Schedule (6)	
1. Asiwani Branch at Head	85,511	20,523	165.30	157.50	0.81	0.77	
(1)Dy & Mr	39,387	11,940	69.06	62.15	0.58	0.52	
(2)Outlets dis. and losses	-	-	58.74	29.65	-	-	
a.Estimate of outlets dis.	13,594	776	4.49	4.04	0.58	0.52 1/	
b.Estimate of losses, (2)-a.	-	-	54.25	25.61	-	-	
Total	52,981	12,716	127.80	91.80			
2. Murawan Dy at Head	32,530	7,807	37.50	65.70	0.48	0.84	
(1)Dy & Mr(upto Lachi Khera Mr)	15,991	3,838	15.57	18.86	0.41	0.49	
(2)Outlets dis. and losses	-	-	21.67	33.13	-	-	
a.Estimate of outlet dis	3,665	879	3.57	4.32	0.41	0.49 1/	
b.Estimate of losses	-	-	18.10	28.81	-	-	
-----							
Murawan Dy							
(downstream from Nrchk dy)	12,874	3,090	0.26	13.71	0.01	0.44	
(1)Dy & Mr	9,465	2,599	0.16	8.45	0.01	0.33	
(2)Outlets dis. and losses	-	-	0.10	5.26	-	-	
a.Estimate of outlet dis	5,655	1,357	0.08	4.41	0.01	0.33 1/	
b.Estimate of losses	-	-	0.02	0.85	-	- 2/	

Note : 1/ :based on the assumption of the same unit depth for Dy & Mr  
2/ : based on the assumption of 10 % of the delivery of Dy & Mr

Table F.40 Estimate of Delivery of Maurawan Distributary (2/3)

Comparison of actual and scheduled discharges : Kharif 1990

Offtaking canal	Discharge (MCM)		Command area (ha)		Unit water depth	
	Actual	Schedule	CCA	PIA	Actual (m)	schedule (m)
Asiwam Branch (at Head)	165.30	157.50	85,511	20,523	0.81	0.77
1 Deogaon Dy	6.80	4.80	1,355	325	2.09	1.48
2 Rasulabad Dy	6.80	7.50	4,980	1,195	0.57	0.63
3 Suhani Khera Mr.	0.73	0.55	833	2,200	0.03	0.03
4 Khairanpur Mr.	0.57	0.55	244	59	0.97	0.93
5 Ahamadpur Mr.	0.37	0.55	301	72	0.51	0.76
6 Miyaganj Mr.	0.89	0.55	302	72	1.24	0.76
7 Mauhauli Mr.	7.80	3.80	1,947	467	1.67	0.81
8 Hasanganj Dy.	8.80	8.20	5,600	1,344	0.65	0.61
9 Munsiganj Mr.	0.42	0.55	650	156	0.27	0.35
10 Muftafabad Mr.	4.30	4.60	2,457	590	0.73	0.78
11 Nyotini Dy	11.80	13.40	7,043	1,690	0.70	0.79
12 Bhauli Dy	3.30	4.10	4,025	966	0.34	0.42
13 Madanpur	0.32	0.55	228	55	0.58	1.00
14 Ohrapur My.	1.02	0.55	620	149	0.68	0.37
15 Jhalothar Mr.	1.51	0.55	640	640	0.24	0.09
16 Ibrahimpur Mr.	0.43	0.55	818	196	0.22	0.28
17 Lakhanapur Mr.	3.40	2.80	1,473	354	0.96	0.79
18 Ajgain Dy.	2.70	2.60	3,198	768	0.35	0.34
19 Jaitipur Dy	7.10	5.40	2,673	642	1.11	0.84
Sub-total	69.06	62.15	39,387	11,940	0.58	0.52
20 Outlets(Aswn Br)	58.74	29.65	13,594	776	7.57	3.82
Total	127.80	91.80	52,981	12,716	1.01	0.72
Maurawan Dy (at Head)	37.50	65.70	32,530	7,807	0.48	0.84
21 Kusunbhi Mr.	0.20	0.51	160	38	0.53	1.34
22 Sahranwa Dy	3.00	3.00	2,368	568	0.53	0.53
23 Khantha Mr.	0.40	0.90	623	150	0.27	0.60
24 Asoha Dy.	2.40	3.10	2,420	581	0.41	0.53
25 Shahpur Dy	6.40	5.50	4,982	1,196	0.54	0.46
26 Sandauli Mr.	0.20	0.50	280	67	0.30	0.75
27 Bachaura Mr	1.02	0.82	1,032	248	0.41	0.33
28 Para Mr.	0.95	0.82	262	63	1.51	1.30
29 Hiluali Dy	0.70	2.10	2,924	702	0.10	0.30
30 Lakhanpura Mr.	0.30	1.10	756	181	0.17	0.61
31 Lachi Khera Mr.	0.00	0.51	184	44	0.00	1.16
Sub-total	15.57	18.86	15,991	3,838	0.41	0.49
32 Outlets(Mrwn Dy)	-	-	3,665	879	-	-
Total	-	-	19,656	4,717	-	-
Maurawan Dy (at head of Sataon study area)			12,874	3,090		
33 Narichak Dy	0.10	4.10	3,342	802	0.01	0.51
34 Lotna Mr.	0.00	0.50	150	36	0.00	0.00
35 Bankat Mr	0.00	0.55	805	193	0.00	0.28
36 Bhitargaon Mr.	0.00	0.55	612	147	0.00	0.37
37 Unai Mr.	0.00	0.55	583	140	0.00	0.39
38 Bardar Mr.	0.01	0.55	229	55	0.02	1.00
39 Sataon Mr.	0.02	0.55	608	146	0.01	0.38
40 Korihar Mr.	0.01	0.55	487	117	0.01	0.47
41 Hajipur Mr	0.02	0.55	403	97	0.02	0.57
Sub-total	0.16	8.45	7,219	1,733	0.01	0.49
42 Outlets(Mrwn dy)	-	-	5,655	1,357	-	-
Total	-	-	12,874	3,090	-	-

Table F.40 Estimate of Delivery of Maurawan Distributary (3/3)

Comparison of actual and scheduled discharges : Rabi 1989/1990

Offtaking canal	Discharge (MCM)		Command area (ha)		Unit water depth	
	Actual	Schedule	CCA	PIA	Actual (m)	schedule (m)
Asiwam Branch	131.80	113.00	85,511	21,378	0.62	0.53
(at Head)						
1 Deogaon Dy	5.10	4.30	1,355	339	1.50	1.27
2 Rasulabad Dy	8.20	7.80	4,980	1,245	0.66	0.63
3 Suhani Khera Mr.	0.34	0.27	833	208	0.16	0.13
4 Khairampur Mr.	0.46	0.27	244	61	0.75	0.44
5 Ahamadpur Mr.	0.49	0.27	301	75	0.65	0.36
6 Miyaganj Mr.	0.34	0.27	302	76	0.45	0.36
7 Mauhauli Mr.	6.20	2.60	1,947	487	1.27	0.53
8 Hasanganj Dy.	8.40	5.00	5,600	1,400	0.60	0.36
9 Munsiganj Mr.	0.19	0.27	650	163	0.12	0.17
10 Muftafabad Mr.	4.20	3.60	2,457	614	0.68	0.59
11 Nyotini Dy	7.30	9.60	7,043	1,761	0.41	0.55
12 Bhauli Dy	3.30	3.60	4,025	1,006	0.33	0.36
13 Madanpur	0.19	0.27	228	55	0.35	0.49
14 Ohrapur My.	0.61	0.27	620	149	0.41	0.18
15 Jhalothar Mr.	1.31	0.27	640	154	0.85	0.18
16 Ibrahimpur Mr.	0.34	0.27	818	196	0.17	0.14
17 Lakhnapur.Mr.	2.80	2.20	1,473	368	0.76	0.60
18 Aagain Dy.	2.10	2.00	3,198	800	0.26	0.25
19 Jaitipur Dy	0.00	4.80	2,673	668	0.00	0.72
Sub-total	51.87	47.93	39,387	9,825	0.53	0.49
20 Outlets(Aswn Br)	53.33	19.87	13,594	3,420	1.56	0.58
Total	105.20	67.80	52,981	13,245	0.79	0.51
Maurawan Dy	26.60	45.20	32,530	8,133	0.33	0.56
(at Head)						
21 Kusumbhi Mr.	0.00	0.21	160	40	0.00	0.53
22 Sahranwa Dy	0.00	2.40	2,368	592	0.00	0.41
23 Khantha Mr.	0.00	0.60	623	156	0.00	0.38
24 Asoha Dy.	0.00	3.00	2,420	605	0.00	0.50
25 Shahpur Dy	4.10	5.50	4,982	1,246	0.33	0.44
26 Sandauli Mr.	0.26	0.21	280	70	0.37	0.30
27 Bachaura Mr	0.54	0.55	1,032	258	0.21	0.21
28 Para Mr.	0.79	0.62	262	66	1.20	0.94
29 Hiluoli Dy	0.48	1.03	2,924	731	0.07	0.14
30 Lakhnapura Mr.	0.00	0.55	756	189	0.00	0.29
31 Lachi Khera Mr.	0.00	0.21	184	46	0.00	0.46
Sub-total	6.17	14.88	15,991	3,999	0.15	0.37
32 Outlets(Mrwn Dy)	-	-	3,665	915	-	-
Total	-	-	19,656	4,914	-	-
Maurawan Dy			12,874	3,219		
(at head of Sataon study area)						
33 Narichak Dy	0.20	2.10	3,342	836	0.02	0.25
34 Lotna Mr.	0.00	0.27	150	38	0.00	0.71
35 Bankat Mr	0.18	0.27	805	201	0.09	0.13
36 Bhitargaon Mr.	0.01	0.21	612	153	0.01	0.14
37 Unai Mr.	0.05	0.21	583	146	0.03	0.14
38 Bardar Mr.	0.05	0.21	229	57	0.09	0.37
39 Sataon Mr.	0.10	0.21	608	152	0.07	0.14
40 Korihar Mr.	0.00	0.21	487	122	0.00	0.17
41 Hajipur Mr.	0.00	0.21	403	101	0.00	0.21
Sub-total	0.59	3.90	7,219	1,806	0.03	0.22
42 Outlets(Mrwn dy)	-	-	5,655	1,413	-	-
Total	-	-	12,874	3,219	-	-



Table F.41 Proposed Roster Discharge of Maurawan Distributary at Head of Sataon Area

Kharif season				Rabi season			
No.	Roster starting	Unit:cusec		No.	Roster starting	Unit:cusec	
		Maurawan Dy. at Head	Maurawan Dy. at Sataon			Maurawan Dy. at Sataon area	
1990				1989/90			
1	3-29	-	-	1	10-5	-	-
2	4-5	-	-	2	10-12	-	-
3	4-12	-	-	3	10-19	-	-
4	4-19	-	-	4	10-26	240	75
5	4-24	240	75	5	11-2	240	75
6	5-3	240	75	6	11-9	240	75
7	5-10	-	-	7	11-16	-	-
8	5-17	-	-	8	11-23	-	-
9	5-24	240	75	9	11-30	240	75
10	5-31	240	75	10	12-7	240	75
11	6-7	240	75	11	12-14	240	75
12	6-14	240	75	12	12-21	-	-
13	6-21	-	-	13	12-28	-	-
14	6-28	-	-	14	1-4	240	75
15	7-5	240	75	15	1-11	240	75
16	7-12	240	75	16	1-18	240	75
17	7-19	240	75	17	1-25	-	-
18	7-26	240	75	18	2-1	-	-
19	8-2	-	-	19	2-8	-	-
20	8-9	-	-	20	2-15	-	-
21	8-16	240	75	21	2-22	-	-
22	8-23	240	75	22	3-1	240	75
23	8-30	240	75	23	3-8	-	-
24	9-6	240	75	24	3-15	-	-
25	9-13	-	-	25	3-22	240	75
26	9-20	240	75				
27	9-27	240	75				
Tota cusec		3,840	1,200	Tota cusec		2,640	825
MCM		66	21	MCM		45	14

NOTE  
Water Allocation of Maurawan Distributary Command

	Proposed irrigation area			delivery schedule		
	Maurawan command area (ha)	Sataon area (ha)	(%)	Maurawan command area (MCM)	Sataon area (MCM)	(%)
Kharif	7,807	3,090	39	65.7	21	31
Rabi	8,133	3,219	39	45.2	14	31

Table F.42 Summary of Water Balance and Water Source Plan

Sub-project	Area (ha)	Water Supply		Diversion Require- ment (MCM)	Water Deficit		Additional Water Source Plan					Overall Deficit (MCM)
		Roster (MCM)	Actual (MCM)		Roster (MCM)	Actual (MCM)	Sai river pump lift			Ground Roster		
							Command (ha)	Unit W.R. (m3/ha)	Total (MCM)	water (MCM)	adjustment (MCM)	
<b>Sarajini Nagar</b>												
<b>Amausi Dy.</b>												
CCA	14,862						2,167					
PIA, Kharif	3,567	27.38	16.14	22.01	5.37	-5.87	520	6,170	3.21	-	-	0
PIA, Rabi	3,716	15.06	15.42	21.18	-6.12	-5.76	542	5,700	3.09	3.03	-	0
<b>Sataon</b>												
<b>Maurawan Dy.</b>												
CCA	12,874						2,822					
PIA, Kharif	3,090	12.32	0.19	17.37	-5.04	-17.18	677	5,620	3.80	-	1.24	0
PIA, Rabi	3,219	6.16	0.94	18.09	-11.93	-17.15	706	5,620	3.97	-	7.96	0
<b>Sursa</b>												
<b>Badaicha Dy.</b>												
CCA	15,671											
PIA, Kharif	3,761	18.62	23.89	27.53	-8.90	-3.64	-	-	-	5.28	3.62	0
PIA, Rabi	3,917	12.12	18.96	22.76	-10.64	-3.79	-	-	-	10.29	0.35	0
<b>Marsa Mr.</b>												
CCA	1,642											
PIA, Kharif	394	6.5	4.39	2.88	3.62	1.50	-	-	-	-	-	0
PIA, Rabi	411	2.74	2.6	2.39	0.35	0.21	-	-	-	-	-	0
<b>Purwa</b>												
<b>Purwa Dy.</b>												
CCA	5,300											
PIA, Kharif	1,274	10.73	7.99	8.46	2.27	-0.46	-	-	-	-	-	0
PIA, Rabi	1,326	7.8	5.32	7.21	0.59	-1.89	-	-	-	-	-	0
<b>Chimyani &amp; Pakara Mr.</b>												
CCA	2,695											
PIA, Kharif	646	3.73	5.37	5.72	-1.99	-0.36	-	-	-	0.94	1.05	0
PIA, Rabi	673	2.46	4.23	3.91	-1.45	0.32	-	-	-	1.25	0.20	0
<b>Tikar Dy.</b>												
CCA	4,257											
PIA, Kharif	1,021	5.56	4.29	6.78	-1.22	-2.49	-	-	-	0.00	1.22	0
PIA, Rabi	1,063	3.42	3.83	5.78	-2.36	-1.95	-	-	-	1.97	0.39	0
<b>Total</b>												
CCA	57,301						5,152					
PIA, Kharif	13,753	84.84	62.26	90.75	-5.89	-28.50	1,236	-	7.25	6.22	7.13	0
PIA, Rabi	14,325	49.76	51.30	81.32	-31.56	-30.01	1,288	-	7.29	16.31	8.9	0

Table F.43 Design Diversion Water Requirement in Sarojini Nagar Study Area (1/2) (Kharif Cropping)

Description	Unit	JUN		JUL		AUG		SEP		OCT
		I	II	I	II	I	II	I	II	I
<b>A. Paddy (Crop Intensity : 68% )</b>										
(1) Potential Evapotranspiration	mm/h-month	116	116	75	75	81	81	69	69	66
(2) Crop Coefficient Kc	-	-	1.10	1.14	1.17	1.20	1.20	1.15	-	-
	-	-	-	1.10	1.14	1.17	1.20	1.20	1.15	-
	-	-	-	-	1.10	1.14	1.17	1.20	1.20	1.15
(3) Average Kc	-	-	1.10	1.12	1.14	1.17	1.19	1.18	1.18	1.15
(4) Consumptive Use of Water	mm/h-month	-	127	83	85	95	96	82	81	75
(5) Monthly Rainfall	mm/month	96	-	130	-	272	-	147	-	17
(6) Effective Rainfall	mm/h-month	38	38	51	51	87	87	58	58	7
(7) Percolation	mm	-	30	31	31	31	31	30	30	31
(4) - (6) + (7)	mm/h-month	-	119	63	64	39	40	54	53	100
(8) Area Index	-	-	0.33	0.67	1.00	1.00	1.00	1.00	0.67	0.33
(9) Puddling Water	mm	-	60	60	60	-	-	-	-	-
(10) Net Water Requirement	mm	-	99	102	124	39	40	54	36	33
(11) Field Requirement	mm	-	110	114	138	43	45	60	39	37
(12) Unit Water Requirement	l/sec/ha	-	1.00	1.03	1.25	0.39	0.41	0.54	0.36	0.33
- at watercourse head	-	-	1.18	1.21	1.48	0.46	0.48	0.64	0.42	0.39
<b>B. Pulse (Crop Intensity : 22% )</b>										
(1) Potential Evapotranspiration	mm/h-month	116	116	75	75	81	81	69	69	-
(2) Crop Coefficient Kc	-	0.35	0.40	0.80	1.08	1.10	1.03	0.55	-	-
	-	-	0.35	0.40	0.80	1.08	1.10	1.03	0.55	-
(3) Average Kc	-	0.35	0.38	0.77	0.94	1.09	1.07	0.79	0.55	-
(4) Consumptive Use of Water	mm/h-month	40	43	57	70	88	86	55	38	-
(5) Monthly Rainfall	mm/month	96	-	130	-	272	-	147	-	-
(6) Effective Rainfall	mm/h-month	24	25	36	38	82	82	40	35	-
(4) - (6)	mm/h-month	16	19	22	32	6	4	15	3	-
(7) Area Index	-	0.50	1.00	1.00	1.00	1.00	1.00	1.00	0.50	-
(8) Pre-Irrigation	mm	25	25	-	-	-	-	-	-	-
(9) Net Water Requirement	mm	33	44	22	32	6	4	15	1	-
(10) Field Requirement	mm	44	58	29	43	8	6	20	2	-
(11) Unit Water Requirement	l/sec/ha	0.40	0.53	0.26	0.39	0.07	0.05	0.18	0.02	-
- at watercourse head	-	0.47	0.62	0.31	0.46	0.08	0.06	0.21	0.02	-
- at distributary head	-	-	-	-	-	-	-	-	-	-
<b>C. Oilseeds (Crop Intensity : 10% )</b>										
(1) Potential Evapotranspiration	mm/h-month	116	116	75	75	81	81	69	69	-
(2) Crop Coefficient Kc	-	0.20	0.53	1.12	1.17	1.17	1.16	0.70	-	-
	-	-	0.20	0.53	1.12	1.17	1.17	1.16	0.70	-
(3) Average Kc	-	0.20	0.37	0.83	1.15	1.17	1.17	0.93	0.70	-
(4) Consumptive Use of Water	mm/h-month	23	42	61	85	95	94	64	48	-
(5) Monthly Rainfall	mm/month	96	-	130	-	272	-	147	-	-
(6) Effective Rainfall	mm/h-month	20	24	37	40	84	84	42	38	-
(4) - (6)	mm/h-month	3	18	25	45	11	10	23	10	-
(7) Area Index	-	0.50	1.00	1.00	1.00	1.00	1.00	1.00	0.50	-
(8) Pre-Irrigation	mm	25	25	-	-	-	-	-	-	-
(9) Net Water Requirement	mm	26	43	25	45	11	10	23	5	-
(10) Field Requirement	mm	35	57	33	60	14	14	30	7	-
(11) Unit Water Requirement	l/sec/ha	0.32	0.52	0.30	0.54	0.13	0.12	0.27	0.06	-
- at watercourse head	-	0.38	0.61	0.35	0.64	0.15	0.15	0.32	0.07	-
- at distributary head	-	-	-	-	-	-	-	-	-	-
<b>Overall Water Requirement in Kharif Cropping</b>										
- at watercourse head	l/sec/ha	0.12	0.85	0.79	0.99	0.29	0.30	0.43	0.25	0.23
- at distributary head	l/sec/ha	0.14	1.00	0.93	1.17	0.35	0.35	0.51	0.30	0.27

Note : 1. Irrigation efficiency

- Field application efficiency	Paddy	0.90
	Pulse	0.75
	Oilseeds	0.75

- Conveyance efficiency

Field channel	0.85
Minor and Distributary	(0.92 x 0.92) 0.85

2. Effective Rainfall

- for paddy	R < 200 mm	ER = 0.79 x R
	R ≥ 200 mm	ER = 0.22 x R + 144
- for upland crop		ER = 0.2 x R <sup>0.95</sup> x Cu <sup>0.31</sup>

Table F.43 Unit Diversion Water Requirement of Sarojini Nagar Area (2/2) (Rabi Cropping)

Description	Unit	OCT		NOV		DEC		JAN		FEB		MAR	
		I	II	I	II	I	II	I	II	I	II	I	II
<b>A. Wheat (Crop Intensity : 68% )</b>													
(1) Potential Evapotranspiration	mm/h-month	66	45	45	32	32	39	39	54	54	86		
(2) Crop Coefficient Kc	-	-	0.48	0.58	1.10	1.18	1.18	1.16	0.92	-	-	-	-
(3) Average Kc	-	-	0.48	0.53	0.72	0.95	1.15	1.17	1.09	1.04	0.92	-	-
(4) Consumptive Use of Water	mm/h-month	-	21	24	23	30	44	45	59	56	79	-	-
(5) Monthly Rainfall	mm/month	-	0	0	13	3	27	7	24	7	38	-	-
(6) Effective Rainfall	mm/h-month	-	0	0	3	3	7	7	7	7	12	-	-
(4) - (6)	mm/h-month	-	21	24	20	27	37	38	51	49	67	-	-
(7) Area Index	-	-	0.33	0.67	1.00	1.00	1.00	1.00	1.00	0.67	0.33	-	-
(8) Pre-Irrigation	mm	-	25	25	-	-	-	-	-	-	-	-	-
(9) Net Water Requirement	mm	-	32	16	20	27	37	38	51	33	22	-	-
(10) Field Requirement	mm	-	43	21	26	36	49	50	69	44	30	-	-
(11) Unit Water Requirement	l/sec/ha	-	0.39	0.19	0.24	0.32	0.45	0.46	0.62	0.40	0.27	-	-
- at watercourse head	-	-	0.46	0.22	0.28	0.38	0.53	0.54	0.73	0.47	0.32	-	-
- at distributary head	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>B. Pulse (Crop Intensity : 15% )</b>													
(1) Potential Evapotranspiration	mm/h-month	66	45	45	32	32	39	39	54	54	86		
(2) Crop Coefficient Kc	-	-	0.35	0.40	0.80	1.08	1.10	1.03	0.55	-	-	-	-
(3) Average Kc	-	-	0.35	0.375	0.60	0.94	1.09	1.065	0.79	0.55	-	-	-
(4) Consumptive Use of Water	mm/h-month	-	23	17	27	30	34	41	30	30	-	-	-
(5) Monthly Rainfall	mm/month	-	17	0	13	3	27	7	24	6	-	-	-
(6) Effective Rainfall	mm/h-month	-	4	0	0	3	3	7	7	6	-	-	-
(4) - (6)	mm/h-month	-	19	17	27	26	31	34	24	24	-	-	-
(7) Area Index	-	-	0.50	1.00	1.00	1.00	1.00	1.00	0.50	-	-	-	-
(8) Pre-Irrigation	mm	-	25	25	-	-	-	-	-	-	-	-	-
(9) Net Water Requirement	mm	-	35	42	27	26	31	34	24	12	-	-	-
(10) Field Requirement	mm	-	46	56	36	35	41	45	32	16	-	-	-
(11) Unit Water Requirement	l/sec/ha	-	0.42	0.50	0.32	0.32	0.37	0.41	0.29	0.14	-	-	-
- at watercourse head	-	-	0.49	0.59	0.38	0.38	0.44	0.48	0.34	0.17	-	-	-
- at distributary head	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>C. Oilseeds (Crop Intensity : 5% )</b>													
(1) Potential Evapotranspiration	mm/h-month	66	45	45	32	32	39	39	54	54	86		
(2) Crop Coefficient Kc	-	-	0.20	0.53	1.12	1.17	1.17	1.16	0.70	-	-	-	-
(3) Average Kc	-	-	0.20	0.37	0.83	1.15	1.17	1.17	0.93	0.70	-	-	-
(4) Consumptive Use of Water	mm/h-month	-	13	16	37	36	37	45	36	38	-	-	-
(5) Monthly Rainfall	mm/month	-	17	0	13	3	27	7	24	6	-	-	-
(6) Effective Rainfall	mm/h-month	-	3	0	0	3	3	7	7	6	-	-	-
(4) - (6)	mm/h-month	-	10	16	37	33	33	37	29	31	-	-	-
(7) Area Index	-	-	0.50	1.00	1.00	1.00	1.00	1.00	0.50	-	-	-	-
(8) Pre-Irrigation	mm	-	25	25	-	-	-	-	-	-	-	-	-
(9) Net Water Requirement	mm	-	30	41	37	33	33	37	29	16	-	-	-
(10) Field Requirement	mm	-	40	55	49	43	44	50	38	21	-	-	-
(11) Unit Water Requirement	l/sec/ha	-	0.36	0.50	0.44	0.39	0.40	0.45	0.35	0.19	-	-	-
- at watercourse head	-	-	0.43	0.59	0.52	0.46	0.47	0.53	0.41	0.22	-	-	-
- at distributary head	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>D. Vegetable (Crop Intensity : 6% )</b>													
(1) Potential Evapotranspiration	mm/h-month	66	45	45	32	32	39	39	54	54	86		
(2) Crop Coefficient Kc	-	-	0.37	0.42	0.90	1.05	1.12	1.08	0.74	-	-	-	-
(3) Average Kc	-	-	0.37	0.40	0.66	0.98	1.09	1.10	0.91	0.74	-	-	-
(4) Consumptive Use of Water	mm/h-month	-	24	18	29	31	34	42	35	40	-	-	-
(5) Monthly Rainfall	mm/month	-	17	0	13	3	27	7	24	6	-	-	-
(6) Effective Rainfall	mm/h-month	-	4	0	0	3	3	7	7	6	-	-	-
(4) - (6)	mm/h-month	-	20	18	29	27	31	35	28	34	-	-	-
(7) Area Index	-	-	0.50	1.00	1.00	1.00	1.00	1.00	0.50	-	-	-	-
(8) Pre-Irrigation	mm	-	25	25	-	-	-	-	-	-	-	-	-
(9) Net Water Requirement	mm	-	35	43	29	27	31	35	28	17	-	-	-
(10) Field Requirement	mm	-	47	57	39	37	41	47	38	22	-	-	-
(11) Unit Water Requirement	l/sec/ha	-	0.43	0.52	0.36	0.33	0.37	0.42	0.34	0.20	-	-	-
- at watercourse head	-	-	0.50	0.61	0.42	0.39	0.44	0.50	0.40	0.24	-	-	-
- at distributary head	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>E. Forage Crops (Crop Intensity : 6% )</b>													
(1) Potential Evapotranspiration	mm/h-month	66	45	45	32	32	39	39	54	54	86		
(2) Crop Coefficient Kc	-	-	0.50	0.80	0.85	0.90	0.93	0.95	0.95	0.95	0.95	-	-
(3) Average Kc	-	-	0.50	0.65	0.83	0.88	0.92	0.94	0.95	0.95	0.95	-	-
(4) Consumptive Use of Water	mm/h-month	-	33	29	37	28	29	36	37	51	51	82	-
(5) Monthly Rainfall	mm/month	-	17	0	13	3	27	7	24	7	38	-	-
(6) Effective Rainfall	mm/h-month	-	4	0	0	3	3	7	7	7	12	-	-
(4) - (6)	mm/h-month	-	28	29	37	24	26	29	30	44	69	-	-
(7) Area Index	-	-	0.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.50	-	-
(8) Pre-Irrigation	mm	-	25	25	-	-	-	-	-	-	-	-	-
(9) Net Water Requirement	mm	-	39	54	37	24	26	29	30	44	35	-	-
(10) Field Requirement	mm	-	52	72	49	32	34	39	39	59	46	-	-
(11) Unit Water Requirement	l/sec/ha	-	0.47	0.65	0.44	0.29	0.31	0.35	0.36	0.54	0.42	-	-
- at watercourse head	-	-	0.56	0.77	0.52	0.35	0.36	0.42	0.42	0.63	0.49	-	-
- at distributary head	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Overall Water Requirement in Rabi Cropping</b>													
- at watercourse head	l/sec/ha	-	0.13	0.44	0.25	0.27	0.34	0.43	0.41	0.50	0.30	0.21	-
- at distributary head	l/sec/ha	-	0.16	0.51	0.29	0.31	0.40	0.51	0.49	0.59	0.35	0.23	-
<b>Note :</b>													
1. Irrigation efficiency													
- Field application efficiency	Wheat	0.75											
	Pulse	0.75											
	Oilseeds	0.75											
	Vegetable	0.75											
	Forage Crop	0.75											
2. Effective Rainfall													
- for paddy	R<200 mm	ER=0.79 x R											
	R>=200 mm	ER=0.22 x R + 144											
- for upland crop	ER=0.2 x R^0.95 x Cu^0.31												
- Conveyance efficiency													
Field channel	0.85												
Minor and Distributary	(0.92 x 0.92)	0.85											

Table F.44 Unit Diversion Water Requirement of Sataon Area (1/2) (Kharif Cropping)

Description	Unit	JUN		JUL		AUG		SEP		OCT
		I	II	I	II	I	II	I	II	I
<b>A. Paddy (Crop Intensity : 68% )</b>										
(1) Potential Evapotranspiration	mm/h-month	112	112	102	102	94	94	80	80	68
(2) Crop Coefficient Kc	-	-	1.10	1.14	1.17	1.20	1.20	1.15	-	-
	-	-	-	1.10	1.14	1.17	1.20	1.20	1.15	-
	-	-	-	-	1.10	1.14	1.17	1.20	1.20	1.15
(3) Average Kc	-	-	1.10	1.12	1.14	1.17	1.19	1.18	1.18	1.15
(4) Consumptive Use of Water	mm/h-month	-	123	114	115	110	112	94	93	78
(5) Monthly Rainfall	mm/month	45	-	192	-	315	-	227	-	2
(6) Effective Rainfall	mm/h-month	18	18	76	76	92	92	82	82	1
(7) Percolation	mm	-	30	31	31	31	31	30	30	31
(4) - (6) + (7)	mm/h-month	-	135	69	71	49	51	42	41	108
(8) Area Index	-	-	0.33	0.67	1.00	1.00	1.00	1.00	0.67	0.33
(9) Puddling Water	mm	-	60	60	60	-	-	-	-	-
(10) Net Water Requirement	mm	-	105	106	131	49	51	42	28	36
(11) Field Requirement	mm	-	116	118	145	55	57	47	31	40
(12) Unit Water Requirement	l/sec/ha	-	-	-	-	-	-	-	-	-
- at watercourse head	-	-	1.05	1.07	1.32	0.50	0.52	0.42	0.28	0.36
- at distributary head	-	-	1.24	1.26	1.55	0.59	0.61	0.50	0.33	0.42
<b>B. Pulse (Crop Intensity : 22% )</b>										
(1) Potential Evapotranspiration	mm/h-month	112	112	102	102	94	94	80	80	68
(2) Crop Coefficient Kc	-	0.35	0.40	0.80	1.08	1.10	1.03	0.55	-	-
	-	-	0.35	0.40	0.80	1.08	1.10	1.03	0.55	-
(3) Average Kc	-	0.35	0.38	0.77	0.94	1.09	1.07	0.79	0.55	-
(4) Consumptive Use of Water	mm/h-month	39	42	78	95	102	100	63	44	-
(5) Monthly Rainfall	mm/month	45	-	192	-	315	-	227	-	2
(6) Effective Rainfall	mm/h-month	12	12	57	61	99	99	62	56	-
(4) - (6)	mm/h-month	27	30	21	35	3	2	0	0	-
(7) Area Index	-	0.50	1.00	1.00	1.00	1.00	1.00	1.00	0.50	-
(8) Pre-Irrigation	mm	25	25	-	-	-	-	-	-	-
(9) Net Water Requirement	mm	39	55	21	35	3	2	0	0	-
(10) Field Requirement	mm	52	73	28	46	4	2	0	0	-
(11) Unit Water Requirement	l/sec/ha	-	-	-	-	-	-	-	-	-
- at watercourse head	-	0.47	0.67	0.26	0.42	0.04	0.02	0.00	0.00	-
- at distributary head	-	0.55	0.78	0.30	0.50	0.05	0.02	0.00	0.00	-
<b>C. Oilseeds (Crop Intensity : 10% )</b>										
(1) Potential Evapotranspiration	mm/h-month	112	112	102	102	94	94	80	80	68
(2) Crop Coefficient Kc	-	0.20	0.53	1.12	1.17	1.17	1.16	0.70	-	-
	-	-	0.20	0.53	1.12	1.17	1.17	1.16	0.70	-
(3) Average Kc	-	0.20	0.37	0.83	1.15	1.17	1.17	0.93	0.70	-
(4) Consumptive Use of Water	mm/h-month	22	41	84	116	110	110	74	56	-
(5) Monthly Rainfall	mm/month	45	-	192	-	315	-	227	-	2
(6) Effective Rainfall	mm/h-month	10	12	58	64	101	101	66	60	-
(4) - (6)	mm/h-month	13	29	25	52	9	8	8	0	-
(7) Area Index	-	0.50	1.00	1.00	1.00	1.00	1.00	1.00	0.50	-
(8) Pre-Irrigation	mm	25	25	-	-	-	-	-	-	-
(9) Net Water Requirement	mm	31	54	25	52	9	8	8	0	-
(10) Field Requirement	mm	42	72	34	69	11	11	11	0	-
(11) Unit Water Requirement	l/sec/ha	-	-	-	-	-	-	-	-	-
- at watercourse head	-	0.38	0.65	0.31	0.63	0.10	0.10	0.10	0.00	-
- at distributary head	-	0.45	0.77	0.36	0.74	0.12	0.12	0.12	0.00	-
<b>Overall Water Requirement in Kharif Cropping</b>										
- at watercourse head	l/sec/ha	0.14	0.93	0.82	1.05	0.36	0.37	0.30	0.19	0.24
- at distributary head	l/sec/ha	0.17	1.09	0.96	1.24	0.42	0.43	0.35	0.22	0.29

Note : 1. Irrigation efficiency

- Field application efficiency	Paddy	0.90
	Pulse	0.75
	Oilseeds	0.75
- Conveyance efficiency		
Field channel		0.85
Minor and Distributary	(0.92 x 0.92)	0.85

2. Effective Rainfall

- for paddy		
R < 200 mm	ER = 0.79 x R	
R >= 200 mm	ER = 0.22 x R + 144	
- for upland crop		
	ER = 0.2 x R <sup>0.95</sup> x Cu <sup>0.31</sup>	

Table F.44 Unit Diversion Water Requirement of Sataon Area (2/2) (Rabi Cropping)

Description	Unit	OCT		NOV		DEC		JAN		FEB		MAR	
		II	I	II	I	II	I	II	I	II	I	II	I
<b>A. Wheat (Crop Intensity: 68%)</b>													
(1) Potential Evapotranspiration	mm/h-month	68	47	47	35	35	38	38	48	48	77		
(2) Crop Coefficient Kc	-	-	0.48	0.58	1.10	1.18	1.18	1.16	0.92	-	-	-	-
(3) Average Kc	-	-	0.48	0.53	0.72	0.95	1.15	1.17	1.09	1.16	0.92	-	-
(4) Consumptive Use of Water	mm/h-month	-	23	25	25	33	43	44	52	50	71		
(5) Monthly Rainfall	mm/month	78	2	7	7	42	5	0					
(6) Effective Rainfall	mm/h-month	-	1	1	2	2	11	11	2	2	0		
(4) - (6)	mm/h-month	-	22	24	23	31	32	33	51	48	71		
(7) Area Index	-	-	0.33	0.67	1.00	1.00	1.00	1.00	1.00	0.67	0.33		
(8) Pre-Irrigation	mm	-	25	25	-	-	-	-	-	-	-		
(9) Net Water Requirement	mm	-	32	16	23	31	32	33	51	32	24		
(10) Field Requirement	mm	-	43	22	31	41	43	44	67	43	31		
(11) Unit Water Requirement	l/sec/ha	-	-	-	-	-	-	-	-	-	-		
- at watercourse head	-	-	0.39	0.20	0.28	0.38	0.39	0.40	0.61	0.39	0.29		
- at distributary head	-	-	0.46	0.23	0.33	0.44	0.46	0.47	0.72	0.46	0.34		
<b>B. Pulse (Crop Intensity: 15%)</b>													
(1) Potential Evapotranspiration	mm/h-month	68	47	47	35	35	38	38	48	48	77		
(2) Crop Coefficient Kc	-	0.35	0.40	0.80	1.08	1.10	1.03	0.55	-	-	-		
(3) Average Kc	-	0.35	0.38	0.60	0.94	1.09	1.07	0.79	0.55	-	-		
(4) Consumptive Use of Water	mm/h-month	24	18	28	32	38	40	30	26	-	-		
(5) Monthly Rainfall	mm/month	78	2	7	7	42	5	0					
(6) Effective Rainfall	mm/h-month	17	0	1	2	2	11	10	1	-	-		
(4) - (6)	mm/h-month	7	17	28	31	36	29	20	25	-	-		
(7) Area Index	-	0.50	1.00	1.00	1.00	1.00	1.00	1.00	0.50	-	-		
(8) Pre-Irrigation	mm	25	25	-	-	-	-	-	-	-	-		
(9) Net Water Requirement	mm	28	42	28	31	36	29	20	13	-	-		
(10) Field Requirement	mm	38	56	37	41	48	39	25	17	-	-		
(11) Unit Water Requirement	l/sec/ha	-	-	-	-	-	-	-	-	-	-		
- at watercourse head	-	0.34	0.51	0.33	0.37	0.43	0.35	0.24	0.15	-	-		
- at distributary head	-	0.41	0.60	0.39	0.44	0.51	0.41	0.28	0.18	-	-		
<b>C. Oilseeds (Crop Intensity: 5%)</b>													
(1) Potential Evapotranspiration	mm/h-month	68	47	47	35	35	38	38	48	48	77		
(2) Crop Coefficient Kc	-	0.20	0.53	1.12	1.17	1.17	1.16	0.70	-	-	-		
(3) Average Kc	-	0.20	0.37	0.83	1.15	1.17	1.17	0.93	0.70	-	-		
(4) Consumptive Use of Water	mm/h-month	14	17	39	40	40	44	35	34	-	-		
(5) Monthly Rainfall	mm/month	78	2	7	7	42	5	0					
(6) Effective Rainfall	mm/h-month	14	0	1	2	2	11	10	1	-	-		
(4) - (6)	mm/h-month	0	17	38	38	38	32	24	32	-	-		
(7) Area Index	-	0.50	1.00	1.00	1.00	1.00	1.00	1.00	0.50	-	-		
(8) Pre-Irrigation	mm	25	25	-	-	-	-	-	-	-	-		
(9) Net Water Requirement	mm	25	42	38	38	38	32	24	16	-	-		
(10) Field Requirement	mm	33	56	51	50	51	43	33	21	-	-		
(11) Unit Water Requirement	l/sec/ha	-	-	-	-	-	-	-	-	-	-		
- at watercourse head	-	0.30	0.50	0.46	0.45	0.46	0.39	0.30	0.20	-	-		
- at distributary head	-	0.36	0.59	0.54	0.53	0.55	0.46	0.35	0.23	-	-		
<b>D. Vegetable (Crop Intensity: 6%)</b>													
(1) Potential Evapotranspiration	mm/h-month	68	47	47	35	35	38	38	48	48	77		
(2) Crop Coefficient Kc	-	0.37	0.42	0.90	1.05	1.12	1.08	0.74	-	-	-		
(3) Average Kc	-	0.37	0.40	0.66	0.98	1.09	1.10	0.91	0.74	-	-		
(4) Consumptive Use of Water	mm/h-month	25	19	31	34	37	41	34	36	-	-		
(5) Monthly Rainfall	mm/month	78	2	7	7	42	5	0					
(6) Effective Rainfall	mm/h-month	17	0	1	2	2	11	10	1	-	-		
(4) - (6)	mm/h-month	8	18	30	32	35	30	24	34	-	-		
(7) Area Index	-	0.50	1.00	1.00	1.00	1.00	1.00	1.00	0.50	-	-		
(8) Pre-Irrigation	mm	25	25	-	-	-	-	-	-	-	-		
(9) Net Water Requirement	mm	29	43	30	32	35	30	24	17	-	-		
(10) Field Requirement	mm	39	57	41	42	47	40	32	23	-	-		
(11) Unit Water Requirement	l/sec/ha	-	-	-	-	-	-	-	-	-	-		
- at watercourse head	-	0.35	0.52	0.37	0.38	0.43	0.37	0.29	0.21	-	-		
- at distributary head	-	0.41	0.61	0.43	0.45	0.51	0.43	0.34	0.24	-	-		
<b>E. Forage Crops (Crop Intensity: 6%)</b>													
(1) Potential Evapotranspiration	mm/h-month	68	47	47	35	35	38	38	48	48	77		
(2) Crop Coefficient Kc	-	0.50	0.80	0.85	0.90	0.93	0.95	0.95	0.95	0.95	0.95		
(3) Average Kc	-	0.50	0.65	0.83	0.88	0.92	0.94	0.95	0.95	0.95	0.95		
(4) Consumptive Use of Water	mm/h-month	34	31	39	30	32	35	36	46	46	73		
(5) Monthly Rainfall	mm/month	78	2	7	7	42	5	0					
(6) Effective Rainfall	mm/h-month	19	1	1	2	2	11	11	2	2	0		
(4) - (6)	mm/h-month	15	30	38	28	30	25	25	44	44	73		
(7) Area Index	-	0.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.50		
(8) Pre-Irrigation	mm	25	25	-	-	-	-	-	-	-	-		
(9) Net Water Requirement	mm	33	55	38	28	30	25	25	44	44	37		
(10) Field Requirement	mm	43	73	51	38	40	33	33	59	59	49		
(11) Unit Water Requirement	l/sec/ha	-	-	-	-	-	-	-	-	-	-		
- at watercourse head	-	0.39	0.67	0.46	0.34	0.36	0.30	0.30	0.53	0.53	0.44		
- at distributary head	-	0.46	0.78	0.54	0.40	0.42	0.35	0.36	0.63	0.63	0.52		
<b>Overall Water Requirement in Rabi Cropping</b>													
- at watercourse head	l/sec/ha	0.11	0.44	0.26	0.31	0.39	0.38	0.36	0.49	0.30	0.22		
- at distributary head	l/sec/ha	0.13	0.52	0.30	0.37	0.46	0.44	0.42	0.58	0.35	0.26		

Note 1. Irrigation efficiency

- Field application efficiency	Wheat	0.75
	Pulse	0.75
	Oilseeds	0.75
	Vegetable	0.75
	Forage Crop	0.75
- Conveyance efficiency		
- Field channel		0.85
- Minor and Distributary	(0.92 x 0.92)	0.85

2. Effective Rainfall

- for paddy		
	R<200 mm	ER=0.79 x R
	R>200 mm	ER=0.22 x R + 144
- for upland crop		
		ER=0.2 x R^0.95 x Cu^0.31

Table F.45 Unit Diversion Water Requirement of Sursa Area (1/2) (Kharif Cropping)

Description	Unit	JUN		JUL		AUG		SEP		OCT	
		I	II	I	II	I	II	I	II	I	II
<b>A. Paddy (Crop Intensity : 58% )</b>											
(1) Potential Evapotranspiration	mm/h-month	96	96	79	79	76	76	65	65	55	55
(2) Crop Coefficient Kc	-	-	1.10	1.14	1.17	1.20	1.20	1.15	-	-	-
	-	-	-	1.10	1.14	1.17	1.20	1.20	1.15	-	-
(3) Average Kc	-	-	1.10	1.12	1.14	1.17	1.19	1.18	1.18	1.15	-
(4) Consumptive Use of Water	mm/h-month	-	106	88	90	89	90	76	76	63	-
(5) Monthly Rainfall	mm/month	82	-	173	-	266	-	144	-	0	-
(6) Effective Rainfall	mm/h-month	32	32	68	68	86	86	57	57	0	-
(7) Percolation	mm	-	30	31	31	31	31	30	30	31	-
(4) - (6) + (7)	mm/h-month	-	103	51	52	34	35	49	49	94	-
(8) Area Index	-	-	0.33	0.67	1.00	1.00	1.00	1.00	0.67	0.33	-
(9) Puddling Water	mm	-	60	60	60	-	-	-	-	-	-
(10) Net Water Requirement	mm	-	94	94	112	34	35	49	33	31	-
(11) Field Requirement	mm	-	105	105	125	37	39	55	36	35	-
(12) Unit Water Requirement	l/sec/ha	-	0.95	0.95	1.13	0.34	0.35	0.50	0.33	0.31	-
- at watercourse head	-	-	-	-	-	-	-	-	-	-	-
- at distributary head	-	-	1.12	1.12	1.33	0.40	0.42	0.59	0.39	0.37	-
<b>B. Pulse (Crop Intensity : 22% )</b>											
(1) Potential Evapotranspiration	mm/h-month	96	96	79	79	76	76	65	65	55	55
(2) Crop Coefficient Kc	-	0.35	0.40	0.80	1.08	1.10	1.03	0.55	-	-	-
	-	-	0.35	0.40	0.80	1.08	1.10	1.03	0.55	-	-
(3) Average Kc	-	0.35	0.38	0.77	0.94	1.09	1.07	0.79	0.55	-	-
(4) Consumptive Use of Water	mm/h-month	34	36	61	74	83	81	51	35	-	-
(5) Monthly Rainfall	mm/month	82	-	173	-	266	-	144	-	-	-
(6) Effective Rainfall	mm/h-month	20	20	48	51	79	79	38	34	-	-
(4) - (6)	mm/h-month	14	16	13	23	4	2	13	2	-	-
(7) Area Index	-	0.50	1.00	1.00	1.00	1.00	1.00	1.00	0.50	-	-
(8) Pre-Irrigation	mm	25	25	-	-	-	-	-	-	-	-
(9) Net Water Requirement	mm	32	41	13	23	4	2	13	1	-	-
(10) Field Requirement	mm	43	55	17	31	5	3	17	1	-	-
(11) Unit Water Requirement	l/sec/ha	0.39	0.50	0.16	0.28	0.05	0.03	0.16	0.01	-	-
- at watercourse head	-	0.46	0.58	0.19	0.33	0.05	0.03	0.18	0.01	-	-
- at distributary head	-	-	-	-	-	-	-	-	-	-	-
<b>C. Oilseeds (Crop Intensity : 10% )</b>											
(1) Potential Evapotranspiration	mm/h-month	96	96	79	79	76	76	65	65	55	55
(2) Crop Coefficient Kc	-	0.20	0.53	1.12	1.17	1.17	1.16	0.70	-	-	-
	-	-	0.20	0.53	1.12	1.17	1.17	1.16	0.70	-	-
(3) Average Kc	-	0.20	0.37	0.83	1.15	1.17	1.17	0.93	0.70	-	-
(4) Consumptive Use of Water	mm/h-month	19	35	65	90	89	89	60	45	-	-
(5) Monthly Rainfall	mm/month	82	-	173	-	266	-	144	-	0	-
(6) Effective Rainfall	mm/h-month	16	20	49	54	81	81	40	37	-	-
(4) - (6)	mm/h-month	3	15	16	36	8	8	20	9	-	-
(7) Area Index	-	0.50	1.00	1.00	1.00	1.00	1.00	1.00	0.50	-	-
(8) Pre-Irrigation	mm	25	25	-	-	-	-	-	-	-	-
(9) Net Water Requirement	mm	26	40	16	36	8	8	20	4	-	-
(10) Field Requirement	mm	35	54	22	49	11	10	27	6	-	-
(11) Unit Water Requirement	l/sec/ha	0.32	0.49	0.20	0.44	0.10	0.09	0.24	0.05	-	-
- at watercourse head	-	0.38	0.57	0.23	0.52	0.11	0.11	0.29	0.06	-	-
- at distributary head	-	-	-	-	-	-	-	-	-	-	-
<b>D. Sugercane (Crop Intensity : 10% )</b>											
(1) Potential Evapotranspiration	mm/h-month	96	96	79	79	76	76	65	65	55	55
(2) Crop Coefficient Kc	-	0.85	0.90	0.97	1.02	1.08	1.11	1.14	1.15	1.15	1.15
	-	0.78	0.85	0.90	0.97	1.02	1.08	1.11	1.14	1.15	1.15
(3) Average Kc	-	0.82	0.88	0.94	1.00	1.05	1.10	1.13	1.15	1.15	1.15
(4) Consumptive Use of Water	mm/h-month	78	84	74	79	80	83	73	74	63	63
(5) Monthly Rainfall	mm/month	82	-	173	-	266	-	144	-	0	-
(6) Effective Rainfall	mm/h-month	25	26	51	52	78	79	42	43	0	0
(4) - (6)	mm/h-month	53	58	23	27	2	4	30	31	63	63
(7) Area Index	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(8) Pre-Irrigation	mm	-	-	-	-	-	-	-	-	-	-
(9) Net Water Requirement	mm	53	58	23	27	2	4	30	31	63	63
(10) Field Requirement	mm	70	77	31	36	2	5	40	42	84	84
(11) Unit Water Requirement	l/sec/ha	0.64	0.70	0.28	0.33	0.02	0.05	0.37	0.38	0.77	0.77
- at watercourse head	-	0.75	0.83	0.33	0.38	0.02	0.06	0.43	0.44	0.90	0.90
- at distributary head	-	-	-	-	-	-	-	-	-	-	-
<b>Overall Water Requirement in Kharif Cropping</b>											
- at watercourse head	l/sec/ha	0.18	0.85	0.66	0.83	0.22	0.23	0.42	0.27	0.34	0.08
- at distributary head	l/sec/ha	0.21	1.00	0.78	0.98	0.26	0.27	0.50	0.32	0.39	0.09

Note : 1. Irrigation efficiency

- Field application efficiency	Paddy	0.90
	Pulse	0.75
	Oilseeds	0.75
	Sugercane	0.75
- Conveyance efficiency		
Field channel		0.85
Minor and Distributary	(0.92 x 0.92)	0.85

2. Effective Rainfall

- for paddy		
	R < 200 mm	ER = 0.79 x R
	R > 200 mm	ER = 0.22 x R + 144
- for upland crop		
		ER = 0.2 x R^0.95 x Cu^0.31





Table F.46 Unit Diversion Water Requirement of Purwa Area (1/2) (Kharif Cropping)

Description	Unit	JUN		JUL		AUG		SEP		OCT
		I	II	I	II	I	II	I	II	I
<b>A. Paddy (Crop Intensity : 68% )</b>										
(1) Potential Evapotranspiration	mm/h-month	112	112	102	102	94	94	80	80	68
(2) Crop Coefficient Kc	-	-	1.10	1.14	1.17	1.20	1.20	1.15	-	-
	-	-	-	1.10	1.14	1.17	1.20	1.20	1.15	-
	-	-	-	-	1.10	1.14	1.17	1.20	1.20	1.15
(3) Average Kc	-	-	1.10	1.12	1.14	1.17	1.19	1.18	1.18	1.15
(4) Consumptive Use of Water	mm/h-month	-	123	114	115	110	112	94	93	78
(5) Monthly Rainfall	mm/month	34	-	165	-	273	-	291	-	0
(6) Effective Rainfall	mm/h-month	13	13	65	65	87	87	89	89	0
(7) Percolation	mm	-	30	31	31	31	31	30	30	31
(4) - (6) + (7)	mm/h-month	-	139	80	81	54	56	35	34	109
(8) Area Index	-	-	0.33	0.67	1.00	1.00	1.00	1.00	0.67	0.33
(9) Puddling Water	mm	-	60	60	60	-	-	-	-	-
(10) Net Water Requirement	mm	-	106	113	141	54	56	35	23	36
(11) Field Requirement	mm	-	118	126	157	60	62	39	26	40
(12) Unit Water Requirement	l/sec/ha	-	-	-	-	-	-	-	-	-
- at watercourse head	-	-	1.07	1.14	1.42	0.54	0.56	0.35	0.23	0.36
- at distributary head	-	-	1.26	1.34	1.68	0.64	0.66	0.42	0.27	0.43
<b>B. Pulse (Crop Intensity : 22% )</b>										
(1) Potential Evapotranspiration	mm/h-month	112	112	102	102	94	94	80	80	68
(2) Crop Coefficient Kc	-	0.35	0.40	0.80	1.08	1.10	1.03	0.55	-	-
	-	-	0.35	0.40	0.80	1.08	1.10	1.03	0.55	-
(3) Average Kc	-	0.35	0.38	0.77	0.94	1.09	1.07	0.79	0.55	-
(4) Consumptive Use of Water	mm/h-month	39	42	78	95	102	100	63	44	-
(5) Monthly Rainfall	mm/month	34	-	165	-	273	-	291	-	0
(6) Effective Rainfall	mm/h-month	9	9	49	53	87	86	79	71	-
(4) - (6)	mm/h-month	30	33	29	43	16	14	0	0	-
(7) Area Index	-	0.50	1.00	1.00	1.00	1.00	1.00	1.00	0.50	-
(8) Pre-Irrigation	mm	25	25	-	-	-	-	-	-	-
(9) Net Water Requirement	mm	40	58	29	43	16	14	0	0	-
(10) Field Requirement	mm	53	77	38	57	21	19	0	0	-
(11) Unit Water Requirement	l/sec/ha	-	-	-	-	-	-	-	-	-
- at watercourse head	-	0.49	0.70	0.35	0.52	0.19	0.17	0.00	0.00	-
- at distributary head	-	0.57	0.82	0.41	0.61	0.23	0.20	0.00	0.00	-
<b>C. Oilseeds (Crop Intensity : 10% )</b>										
(1) Potential Evapotranspiration	mm/h-month	112	112	102	102	94	94	80	80	68
(2) Crop Coefficient Kc	-	0.20	0.53	1.12	1.17	1.17	1.16	0.70	-	-
	-	-	0.20	0.53	1.12	1.17	1.17	1.16	0.70	-
(3) Average Kc	-	0.20	0.37	0.83	1.15	1.17	1.17	0.93	0.70	-
(4) Consumptive Use of Water	mm/h-month	22	41	84	116	110	110	74	56	-
(5) Monthly Rainfall	mm/month	34	-	165	-	273	-	291	-	0
(6) Effective Rainfall	mm/h-month	7	9	50	56	89	88	83	76	-
(4) - (6)	mm/h-month	15	32	33	60	21	21	0	0	-
(7) Area Index	-	0.50	1.00	1.00	1.00	1.00	1.00	1.00	0.50	-
(8) Pre-Irrigation	mm	25	25	-	-	-	-	-	-	-
(9) Net Water Requirement	mm	32	57	33	60	21	21	0	0	-
(10) Field Requirement	mm	43	76	44	81	29	28	0	0	-
(11) Unit Water Requirement	l/sec/ha	-	-	-	-	-	-	-	-	-
- at watercourse head	-	0.39	0.69	0.40	0.73	0.26	0.26	0.00	0.00	-
- at distributary head	-	0.46	0.81	0.47	0.86	0.31	0.30	0.00	0.00	-
<b>Overall Water Requirement in Kharif Cropping</b>										
- at watercourse head	l/sec/ha	0.15	0.95	0.89	1.16	0.44	0.45	0.24	0.16	0.25
- at distributary head	l/sec/ha	0.17	1.12	1.05	1.36	0.52	0.52	0.28	0.19	0.29

Note : 1. Irrigation efficiency

- Field application efficiency	Paddy	0.90
	Pulse	0.75
	Oilseeds	0.75
- Conveyance efficiency		
Field channel		0.85
Minor and Distributary	(0.92 x 0.92)	0.85

2. Effective Rainfall

- for paddy		
	R < 200 mm	ER = 0.79 x R
	R ≥ 200 mm	ER = 0.22 x R + 144
- for upland crop		
		ER = 0.2 x R <sup>0.95</sup> x Cu <sup>0.31</sup>

Table F.46 Unit Diversion Water Requirement of Purwa Area (2/2) (Rabi Cropping)

Description	Unit	OCT		NOV		DEC		JAN		FEB		MAR		
		II	I	II	I	II	I	II	I	II	I	II		
<b>A. Wheat (Crop Intensity : 68% )</b>														
(1) Potential Evapotranspiration	mm/h-month	68	47	47	35	35	38	38	48	48	77	77		
(2) Crop Coefficient Kc	-	-	0.48	0.58	1.10	1.18	1.18	1.16	0.92	-	-	-	-	
(3) Average Kc	-	-	0.48	0.53	0.72	0.95	1.15	1.17	1.09	1.04	0.92	-	-	
(4) Consumptive Use of Water	mm/h-month	-	23	25	25	33	43	44	52	50	71	-	-	
(5) Monthly Rainfall	mm/month	0	30		12		31		17		0	-	-	
(6) Effective Rainfall	mm/h-month	-	7	7	3	3	8	8	5	5	0	-	-	
(4) - (6)	mm/h-month	-	16	18	22	30	35	36	47	45	71	-	-	
(7) Area Index	-	-	0.33	0.67	1.00	1.00	1.00	1.00	1.00	0.67	0.33	-	-	
(8) Pre-Irrigation	mm	-	25	25								-	-	
(9) Net Water Requirement	mm	-	30	12	22	30	35	36	47	30	24	-	-	
(10) Field Requirement	mm	-	40	16	29	40	46	47	63	40	31	-	-	
(11) Unit Water Requirement	l/sec/ha	-	0.37	0.15	0.27	0.36	0.42	0.43	0.57	0.36	0.29	-	-	
- at watercourse head	-	-	0.43	0.17	0.31	0.42	0.50	0.51	0.67	0.43	0.34	-	-	
<b>B. Pulao (Crop Intensity : 15% )</b>														
(1) Potential Evapotranspiration	mm/h-month	68	47	47	35	35	38	38	48	48	77	77		
(2) Crop Coefficient Kc	-	-	0.35	0.40	0.80	1.08	1.10	1.03	0.55	-	-	-	-	
(3) Average Kc	-	-	0.35	0.38	0.60	0.94	1.09	1.07	0.79	0.55	-	-	-	
(4) Consumptive Use of Water	mm/h-month	24	18	28	32	38	40	30	26	-	-	-	-	
(5) Monthly Rainfall	mm/month	0	30		12		31		17		0	-	-	
(6) Effective Rainfall	mm/h-month	0	6	7	3	3	8	7	4	-	-	-	-	
(4) - (6)	mm/h-month	24	11	21	29	34	32	22	22	-	-	-	-	
(7) Area Index	-	0.50	1.00	1.00	1.00	1.00	1.00	1.00	0.50	-	-	-	-	
(8) Pre-Irrigation	mm	25	25							-	-	-	-	
(9) Net Water Requirement	mm	37	36	21	29	34	32	22	11	-	-	-	-	
(10) Field Requirement	mm	49	49	28	39	46	42	30	15	-	-	-	-	
(11) Unit Water Requirement	l/sec/ha	-	0.45	0.44	0.26	0.35	0.42	0.38	0.27	0.14	-	-	-	
- at watercourse head	-	-	0.52	0.52	0.30	0.42	0.49	0.45	0.32	0.16	-	-	-	
<b>C. Oilseeds (Crop Intensity: 5% )</b>														
(1) Potential Evapotranspiration	mm/h-month	68	47	47	35	35	38	38	48	48	77	77		
(2) Crop Coefficient Kc	-	-	0.20	0.53	1.12	1.17	1.17	1.16	0.70	-	-	-	-	
(3) Average Kc	-	-	0.20	0.37	0.83	1.15	1.17	0.93	0.70	-	-	-	-	
(4) Consumptive Use of Water	mm/h-month	14	17	39	40	40	44	35	34	-	-	-	-	
(5) Monthly Rainfall	mm/month	0	30		12		31		17		0	-	-	
(6) Effective Rainfall	mm/h-month	0	6	8	3	3	8	8	4	-	-	-	-	
(4) - (6)	mm/h-month	14	11	31	36	37	35	27	29	-	-	-	-	
(7) Area Index	-	0.50	1.00	1.00	1.00	1.00	1.00	1.00	0.50	-	-	-	-	
(8) Pre-Irrigation	mm	25	25							-	-	-	-	
(9) Net Water Requirement	mm	32	36	31	36	37	35	27	15	-	-	-	-	
(10) Field Requirement	mm	42	48	41	48	49	47	36	19	-	-	-	-	
(11) Unit Water Requirement	l/sec/ha	-	0.38	0.44	0.37	0.44	0.45	0.43	0.33	0.18	-	-	-	
- at watercourse head	-	-	0.45	0.51	0.44	0.52	0.53	0.50	0.38	0.21	-	-	-	
<b>D. Vegetable (Crop Intensity 6% )</b>														
(1) Potential Evapotranspiration	mm/h-month	68	47	47	35	35	38	38	48	48	77	77		
(2) Crop Coefficient Kc	-	-	0.37	0.42	0.90	1.05	1.12	1.08	0.74	-	-	-	-	
(3) Average Kc	-	-	0.37	0.40	0.66	0.98	1.09	1.10	0.91	0.74	-	-	-	
(4) Consumptive Use of Water	mm/h-month	25	19	31	34	37	41	34	36	-	-	-	-	
(5) Monthly Rainfall	mm/month	0	30		12		31		17		0	-	-	
(6) Effective Rainfall	mm/h-month	0	6	7	3	3	8	8	4	-	-	-	-	
(4) - (6)	mm/h-month	25	12	24	30	34	33	26	31	-	-	-	-	
(7) Area Index	-	0.50	1.00	1.00	1.00	1.00	1.00	1.00	0.50	-	-	-	-	
(8) Pre-Irrigation	mm	25	25							-	-	-	-	
(9) Net Water Requirement	mm	37	37	24	30	34	33	26	16	-	-	-	-	
(10) Field Requirement	mm	50	50	32	41	46	44	35	21	-	-	-	-	
(11) Unit Water Requirement	l/sec/ha	-	0.45	0.45	0.29	0.37	0.41	0.40	0.32	0.19	-	-	-	
- at watercourse head	-	-	0.53	0.53	0.34	0.43	0.49	0.47	0.37	0.22	-	-	-	
<b>E. Forage Crops (Crop Inters 6% )</b>														
(1) Potential Evapotranspiration	mm/h-month	68	47	47	35	35	38	38	48	48	77	-	-	
(2) Crop Coefficient Kc	-	-	0.50	0.80	0.85	0.90	0.93	0.95	0.95	0.95	0.95	-	-	
(3) Average Kc	-	-	0.50	0.65	0.83	0.88	0.92	0.94	0.95	0.95	0.95	-	-	
(4) Consumptive Use of Water	mm/h-month	34	31	39	30	32	35	36	46	46	73	-	-	
(5) Monthly Rainfall	mm/month	0	30		12		31		17		0	-	-	
(6) Effective Rainfall	mm/h-month	0	7	8	3	3	8	8	5	5	0	-	-	
(4) - (6)	mm/h-month	34	23	31	27	28	27	28	41	41	73	-	-	
(7) Area Index	-	0.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.50	-	-	
(8) Pre-Irrigation	mm	25	25							-	-	-	-	
(9) Net Water Requirement	mm	42	48	31	27	28	27	28	41	41	37	-	-	
(10) Field Requirement	mm	56	64	41	36	38	36	37	54	54	49	-	-	
(11) Unit Water Requirement	l/sec/ha	-	0.51	0.58	0.37	0.33	0.34	0.33	0.34	0.49	0.49	0.44	-	
- at watercourse head	-	-	0.60	0.69	0.44	0.39	0.41	0.39	0.39	0.58	0.58	0.52	-	
<b>Overall Water Requirement in Rabi Cropping</b>														
- at watercourse head	l/sec/ha	0.14	0.40	0.20	0.30	0.38	0.41	0.39	0.46	0.28	0.22	-	-	
- at distributary head	l/sec/ha	0.17	0.47	0.23	0.35	0.44	0.48	0.46	0.54	0.33	0.26	-	-	
<b>Note 1. Irrigation efficiency</b>														
- Field application efficiency		<b>2. Effective Rainfall</b>												
Wheat	0.75	- for paddy												
Pulao	0.75	R<200 mm ER=0.79 x R												
Oilseeds	0.75	R>=200 mm ER=0.22 x R + 144												
Vegetable	0.75	- for upland crop												
Forage Crop	0.75	ER=0.2 x R^0.95 x Cu^0.31												
<b>- Conveyance efficiency</b>														
Field channel	0.85													
Minor and Distributary	(0.92 x 0.92) 0.85													

Table F.47 Groundwater Use Plan

## 1. Sursa Badaicha Distributary

Unit: MCM

	Diversion Requirement	Canal Supply	Roster Adjustment	Groundwater Use		
				Drainage Scheme 1/	Tubewell	2/ (%)
Kharif	27.53	18.62	3.62	1.1	5.28	19
Rabi	22.76	12.12	0.35	1.1	10.29	45
Total	50.29	30.74	3.97	2.2	15.57	31

Required no. of Shallow Tubewell  
Unit annual draft : 18,000 m<sup>3</sup>/no.

Required number of shallow tubewell  
(15.57/0.018) = 865 nos.  
(= 900 nos.)

## 2. Purwa Chimyani Dy. Pakra Mr.

Unit: MCM

	Diversion Requirement	Canal Supply	Roster Adjustment	Groundwater Use		
				Drainage Scheme 1/	Tubewell	2/ (%)
Kharif	5.72	3.73	1.05	0.00	0.94	16
Rabi	3.91	2.46	0.20	0.00	1.25	32
Total	9.63	6.19	1.25	0.00	2.19	23

Required no. of Shallow Tubewell  
Unit annual draft : 15,000 m<sup>3</sup>/no.

Required number of shallow tubewell  
(2.19/0.015) = 146 nos.  
(= 150 nos.)

## 3. Purwa Tikar Dy.

Unit: MCM

	Diversion Requirement	Canal Supply	Roster Adjustment	Groundwater Use		
				Drainage Scheme 1/	Tubewell	2/ (%)
Kharif	6.78	5.56	1.22	0.00	0.00	0
Rabi	5.78	3.42	0.39	0.00	1.97	34
Total	12.56	8.98	1.61	0.00	1.97	16

Required no. of Shallow Tubewell  
Unit annual draft : 15,000 m<sup>3</sup>/no.

Required number of shallow tubewell  
(1.97/0.015) = 131 nos.  
(= 130 nos.)

Note : 1/: Drainage scheme along Hardoi Branch  
Drainage capacity : 189 l/sec  
Drainage draft /season ; 0.189 m<sup>3</sup>/sec x 86,400 sec x 90 day  
= 1.1 MCM

2/: % to total diversion requirement

Table F.48 General Features of Improvement Plan of Existing Irrigation System in Sarojini Nagar Area

1

Canal Name	C.C.A. (ha)	Proposed Irrigation Area		Design Capacity		Nos. of Outlet		Canal Length (km)	Lining Length (km)
		Kharif	Rabi	Existing (cumec)	Proposed (cumec)	Existing (nos.)	Proposed (nos.)		
<b>A. Irrigated by Amausi Distributory Canal System</b>									
1 Amausi Disty.(Head -- M17-1	3,547	851	887	3.40	3.40	110	88	27.61	3.18
- By New Minor Canals	(2,925)	(702)	(731)			(92)	(73)		
- By Direct Supply	(622)	(149)	(156)			(18)	(15)		
2 Gehru Disty.	3,357	806	839	1.12	1.01	72	62	19.95	5.96
3 Banthra Mr.	409	98	102	0.10	0.11	17	15	4.26	1.27
4 Rahimabad Mr.	437	105	109	0.08	0.17	17	15	4.20	1.25
5 Sahadat Khera Mr.	212	51	53	0.04	0.06	7	6	1.80	0.54
6 Khotara Mr.	402	96	101	0.20	0.19	8	7	2.94	0.88
7 Bakauli Mr.	290	70	73	0.04	0.08	4	3	1.18	0.35
8 Mati Mr.	525	126	131	0.20	0.27	13	11	4.20	1.25
9 Raisingh Khera Mr.	151	36	38	0.06	0.04	3	3	0.80	0.24
10 Alinagar Mr.	338	81	85	0.10	0.09	14	12	3.80	1.13
11 Bhadswa Mr.	886	213	222	0.23	0.24	32	27	7.70	2.30
12 Rani Khera Mr.	505	121	126	0.09	0.14	13	11	3.40	1.02
13 Dehwa Mr.	962	231	241	0.20	0.26	26	22	6.40	1.91
14 Govindpur Mr.	373	90	93	0.25	0.14	15	13	3.20	0.96
15 Bhasinda Mr.	138	33	35	0.06	0.04	5	4	0.80	0.24
16 Gautam Khera Mr.	169	41	42	0.04	0.05	7	6	1.20	0.36
<b>Sub-Total</b>	<b>12,701</b>	<b>3,048</b>	<b>3,175</b>			<b>363</b>	<b>305</b>	<b>93.43</b>	<b>22.84</b>
<b>B. Irrigated by Pump System from the Sai river</b>									
1 Amausi Disty.(M17-1-160 -- 1	1,280	307	320	0.45	1.10	32	27	7.22	7.22
17 Manoharpur Mr.	151	36	38	0.08	1.43	10	9	2.00	0.60
18 Meerampur Mr.	317	76	79	0.06	0.23	12	10	2.80	0.84
19 Davalia Mr.	26	6	7	0.03	0.02	2	2	0.80	0.24
20 Bhajmanmau Mr.	248	60	62	0.05	0.16	11	9	1.80	0.54
21 Akbarpur Mr.	139	33	35	0.05	0.09	4	3	1.50	0.45
<b>Sub-Total</b>	<b>2,161</b>	<b>519</b>	<b>540</b>			<b>71</b>	<b>61</b>	<b>16.12</b>	<b>9.88</b>
<b>Total</b>	<b>14,862</b>	<b>3,567</b>	<b>3,716</b>			<b>434</b>	<b>365</b>	<b>109.55</b>	<b>32.71</b>

- Note: 1 Design diversion water requirem<sub>t</sub> 1.38 liter/sec/ha at the head of Amausi distributory canal against the present capacity of 1.11 liter/sec/ha except for pump irrigated area.  
2 Total command area of Amausi Disty. is 4,827 ha.

Table F.49 General Features of Improvement Plan of Existing Irrigation System in Sataon Nagar Area

1

Canal Name	C.C.A. (ha)	Proposed Irrigation Area		Design Capacity		Nos. of Outlet		Canal Length (km)	Lining Length (km)
		Khariif	Rabi	Existing (cumec)	Proposed (cumec)	Existing (nos.)	Proposed (nos.)		
<b>A. Irrigated by Amausi Distributary Canal System</b>									
1. Maurawan Disty. *1	4,331	1,039	1083	0.96	1.68	82		19.95	3.72
By New Minor Canals	1,692	406			0.36		46		7.69
By Direct Supply	2,639	633			0.56		1		
2. Narichak Disty.	3,102	744	776	0.48	0.65	41		62	19.00
3. Kunsa Mr.	240	58	60	0.08	0.05	*2		6	1.00
4. Lotna Mr.	150	36	38	0.14	0.03	*2		3	0.50
5. Bankat Mr.	805	193	201	0.11	0.17	21		32	2.50
6. Bhatargaon Mr.	612	147	153	0.11	0.13	8		12	2.20
7. Unai Mr.	583	140	146	0.14	0.12	16		24	3.20
8. Bardar Mr.	229	55	57	0.14	0.05	7		11	3.50
Sub-Total	10,052	2,412	3,596			175		197	51.85
<b>B. Irrigated by Pump System from the Sai river</b>									
1. Maurawan Disty. *1	1,324	318	331	0.45	0.66	32		49	8.65
9. Sataon Mr.	608	146	152	0.14	0.84	11		17	1.18
10. Korihar Mr.	487	117	122	0.14	0.14	12		18	4.20
11. Hajipur Mr.	403	97	101	0.14	0.12	14		21	0.80
Sub-Total	2,822	677	706			37		105	14.83
Total	12,874	3,090	4,301			212		302	66.68

Note: 1 Design diversion water requirement is 1.24 liter/sec/ha at the head of Amausi distributary canal against the present capacity of 0.88 liter/sec/ha except for pump irrigated area.

Table F.50 General Features of Improvement Plan of Existing Irrigation System in Sursa Area

1.00

Canal Name	C.C.A. (ha)	Proposed Irrigation Area(ha)		Design Capacity		Nos. of Outlet		Canal Length (km)	Lining Length (km)
		Kharif	Rabi	Existing (cumec)	Proposed (cumec)	Existing (nos.)	Proposed (nos.)		
<b>HARDOI BRANCH CANAL</b>									
1. Bhadaicha Disty.	7,135	1,712	1,784	3.51	3.51	116	167	34.78	19.52
Direct	1,823	438	456	0.00	0.41		50		
New Canal	5,312	1,275	1,328	0.00	1.19		117		
2. Kamrauli Mr.	1,225	294	306	0.24	0.27	29	27	7.84	4.40
3. Sikandarpur Mr.	1,825	438	456	0.36	0.47	30	40	8.34	4.68
4. Isauli Mr.	261	63	65	0.08	0.06	13	5	3.82	2.14
5. Sursa Mr.	1,123	270	281	0.25	0.30	24	24	7.8	4.38
6. Udra Mr.	195	47	49	0.07	0.04	4	4	2.76	1.55
7. Barha Mr.	1,194	287	299	0.22	0.27	17	26	5.49	3.08
8. Khajurahra Mr.	1,435	344	359	0.42	0.49	29	31	10.2	5.72
9. Tikari Mr.	755	181	189	0.16	0.17	20	16	3.52	1.98
10. Pachkohra Mr.	523	126	131	0.07	0.12	9	11	2.41	1.35
<b>TOTAL</b>	<b>15,671</b>	<b>5,473</b>	<b>5,702</b>			<b>291</b>	<b>351</b>	<b>86.96</b>	<b>48.81</b>
11. Marsa Mr.	1,085	260	271	0.35	0.35	20	24	7.5	4.21
12. Salkupur Mr.	350	84	88	0.08	0.07	7	7	3.4	1.91
13. Sauntera Mr.	207	50	52	0.05	0.04	5	4	1.8	1.01
<b>SUB-TOTAL</b>	<b>1642</b>	<b>394</b>	<b>411</b>			<b>32</b>	<b>35</b>	<b>12.7</b>	<b>7.13</b>
<b>TOTAL</b>	<b>17,313</b>	<b>5,868</b>	<b>6,112</b>			<b>323</b>	<b>386</b>	<b>99.66</b>	<b>55.93</b>

Table F.51 General Features of Improvement Plan of Existing Irrigation System in Purwa Area

Canal Name	C.C.A. (ha)	Proposed Irrigation Area		Design Capacity		Nos. of Outlet		Canal Length (km)	Lining Length (km)
		Kharif	Rabi	Existing (cumec)	Proposed (cumec)	Existing (nos.)	Proposed (nos.)		
<b>PURWA BRANCH CANAL</b>									
1. Purwa Disty.	3,145	755	786	1.61	1.61	72	73	22.87	11.52
Direct	1,245	299	311		0.38		28		
New Canal	1,900	456	475		0.58		45		
2. Bhopatpur Mr.	398	96	100	0.10	0.12	8	8	1.70	0.86
3. Bhadnang Mr.	310	74	78	0.12	0.09	8	6	2.33	1.17
4. Bangaon Mr.	803	193	201	0.18	0.24	29	17	7.26	3.66
5. Badi Khera Mr.	204	49	51	0.05	0.06	8	4	2.60	1.31
6. Tupra Mr.	203	49	51	0.05	0.06	8	4	1.80	0.91
7. Pinjra Mr.	239	57	60	0.04	0.07	8	5	1.60	0.81
SUB-TOTAL	5,302	1,272	1,326			141	117	40.16	20.23
8. Chimyani Mr.	1,602	384	400	0.20	0.20	29	35	8.60	4.33
9. Simremau Mr.	584	140	146	0.10	0.05	20	12	4.52	2.28
SUB-TOTAL	2,186	525	546			49	47	13.12	6.61
10. Tikar Disty.	1,976	474	494	0.45	0.45	43	42	12.40	6.25
Direct	1,456	349	364		0.15		30		
New Canal	520	125	130		0.05		12		
11. Ahamdabad Mr.	378	91	94	0.07	0.04	8	8	1.63	0.82
12. Panhan Mr.	1,376	330	344	0.19	0.20	21	30	6.58	3.31
13. Tiwaria Mr.	527	126	132	0.10	0.06	10	11	3.23	1.63
SUB-TOTAL	4,256	1,021	1,064			82	91	23.84	12.01
14. Pakra Mr.	509	122	127	0.14	0.14	18	11	4.26	2.15
SUB-TOTAL	509	122	127			18	11	4.26	2.15
<b>TOTAL</b>	<b>12,252</b>	<b>2,941</b>	<b>3,063</b>			<b>290</b>	<b>266</b>	<b>81.38</b>	<b>40.99</b>

Table F.52 General Features of Proposed Minor Irrigation Canal in Sarojini Nagar Area

Canal Name	Position	Distance on Amausi Dy.		Canal Length (km)	Diverted from	Proposed Irrigation Area		Proposed Canal Capacity Base		Nos. of Structure			Lining				
		BP	EP			(ha)	Kharif	Rabi	(cumec)	HR	Outlet	Bridge	DRB	VRB	FP	Drainage Crossing	Length (km)
<b>A. Parallel Irrigation Canal</b>																	
1. Amausi No.1	R	0 1 420 -	1 3 210	1.95	Amausi Dy.	126	30	32	0.03	0.60	1	4	0	1	0	0	0.56
2. Amausi No.2	L	0 1 330 -	4 6 330	7.44	Amausi Dy.	519	125	130	0.14	1.20	1	15	0	3	0	0	2.14
3. Amausi No.3	R	1 7 560 -	4 5 560	4.43	Amausi Dy.	197	47	49	0.05	0.60	1	4	0	2	0	0	1.27
4. Amausi No.4	L	5 1 0 -	9 6 83	7.47	Amausi Dy.	535	128	134	0.14	1.20	1	13	0	6	1	1	2.15
5. Amausi No.5	R	5 1 0 -	8 6 248	5.91	Amausi Dy.	622	149	156	0.17	1.20	1	14	0	5	1	1	1.70
6. Amausi No.6	R	9 2 400 -	11 0 545	2.86	Amausi Dy.	189	45	47	0.05	0.60	1	5	1	0	0	0	0.82
7. Amausi No.7	L	10 1 0 -	11 5 658	2.61	Amausi Dy.	170	41	43	0.05	0.60	1	4	1	0	0	0	0.75
8. Amausi No.8	R	11 2 0 -	11 7 570	Outlet Only	Amausi Dy.	40	10	10	0.01		0	1	0	0	0	0	0.00
9. Amausi No.9	R	12 3 0 -	15 2 0	4.63	Amausi Dy.	229	55	57	0.06	0.60	1	6	0	4	0	0	1.33
10. Amausi No.10	L	12 1 0 -	13 2 5	1.81	Amausi Dy.	298	72	75	0.08	0.90	1	7	0	1	0	0	0.52
Sub-Total				39.11		2,925	702	731			9	73	2	22	2	2	11.24
<b>B. Lift Irrigation Canal</b>																	
11. Amausi No.11				2.50		(2,161)	(519)	(540)	0.72	2.00	0	0	0	0	0	0	0
Total						2,925	702	731			9	73	2	22	2	2	11.24

Not Abbreviation DRB : District Road Bridge  
 VRB : Village Road Bridge  
 FP : Foot Path  
 HR : Head Regulator



Table F.53 General Features of Proposed Minor Irrigation Canal in Sataon Area

Canal Name	Location on Maurawan Dy.		Canal Length (km)	Diverted from	Proposed Irrigation Area		Proposed Canal Capacity (cumec)	Canal Base HR (m)	Nos. of Structure		Lining Length (km)					
	Position	BP			EP	C.C.A. (ha)			Rabi	Outlet		Bridge				
1. Maurawan No.1	R	0 1 100	- 1 6 130	2.62 Maurawan Disty.	180	43	45	0.04	0.60	1	4	1	0	1	0	1.04
2. Maurawan No.2	L	0 1 286	- 0 1 286	Outlet Only Maurawan Disty.	4	1	1	0.00	-	1	1	0	0	0	0	0
3. Maurawan No.3	L	0 3 0	- 3 6 0	5.43 Kusumbi Mr.	286	69	72	0.06	0.60	0	7	2	1	1	1	2.16
4. Maurawan No.4	R	2 0 420	- 4 0 130	3.13 Maurawan Disty.	353	85	88	0.07	0.90	1	8	0	1	0	1	1.24
5. Maurawan No.5	L	4 3 330	- 4 5 60	0.32 Maurawan Disty.	171	41	43	0.04	0.60	1	4	0	0	0	0	0.13
6. Maurawan No.6	R	4 4 500	- 6 4 475	3.21 Maurawan Disty.	243	58	61	0.05	0.60	1	5	0	1	0	0	1.28
7. Maurawan No.7	L	4 6 0	- 8 1 500	5.58 Sahrawan Mr.	292	70	73	0.06	0.60	0	4	1	2	0	1	2.22
8. Maurawan No.8	R	6 4 0	- 10 0 30	5.64 Kanthara	382	92	96	0.08	0.90	0	9	2	1	0	0	2.24
9. Maurawan No.9	L	8 4 0	- 10 1 400	2.74 Asoha Mr.	359	86	90	0.08	0.90	0	8	0	0	0	0	1.09
10. Maurawan No.10	R	10 4 400	- 12 5 300	3.39 Maurawan Disty.	561	135	140	0.12	0.90	1	12	0	1	0	0	1.35
11. Maurawan No.11	L	10 7 350	- 13 7 600	4.90 Maurawan Disty.	547	131	137	0.12	0.90	1	12	0	3	0	1	1.95
12. Maurawan No.12	R	13 2 500	- 16 0 0	4.27 Maurawan Disty.	243	58	61	0.05	0.60	1	6	0	1	0	2	1.70
13. Maurawan No.13	L	14 7 500	- 18 2 300	5.37 Maurawan Disty.	299	72	75	0.06	0.60	1	7	0	2	0	1	2.14
14. Maurawan No.14	R	16 1 60	- 19 2 0	5.01 Shahpur Mr.	237	57	59	0.05	0.60	0	6	0	3	0	0	1.99
15. Maurawan No.15	L	18 7 80	- 19 4 100	1.01 Sandauli Mr.	116	28	29	0.02	0.60	0	2	1	0	0	0	0.40
16. Maurawan No.16	R	19 4 30	- 21 2 25	2.81 Bachhaura Mr.	228	55	57	0.05	0.60	0	5	0	0	0	1	1.12
17. Maurawan No.17	L	19 5 70	- 22 6 100	5.04 Para Mr.	834	200	209	0.18	1.20	0	19	0	0	0	1	2.00
18. Maurawan No.18	R	21 3 650	- 25 1 200	5.90 Maurawan Disty.	499	120	125	0.10	0.90	1	15	0	3	0	0	2.35
19. Maurawan No.19	L	22 7 330	- 25 0 100	3.35 Maurawan Disty.	372	89	93	0.08	0.90	1	12	0	1	0	0	1.33
20. Maurawan No.20	R	25 4 400	- 27 6 484	3.65 Lachhi Khara Mr.	297	71	74	0.06	0.60	0	7	0	2	0	0	1.45
21. Maurawan No.21	L	25 4 600	- 28 0 100	3.87 Lakhampur Mr.	278	67	70	0.06	0.60	0	6	0	2	0	0	1.54
Sub-Total				77.26	6,781	1,627	1,695			11	159	7	24	2	9	30.72
Sataon Study Area																
22. Maurawan No.22	R	28 3 500	- 31 3 330	4.78 Maurawan Disty.	288	69	72	0.06	0.60	1	7	0	2	0	1	2.07
23. Maurawan No.23	L	28 0 600	- 30 7 330	4.54 Narichak Disty.	215	52	54	0.05	0.60	0	15	1	2	0	1	1.97
24. Maurawan No.24	L	31 2 400	- 35 2 330	6.42 Maurawan Disty.	359	86	90	0.08	0.90	1	3	1	3	0	1	2.78
25. Maurawan No.25	R	31 5 550	- 33 2 390	2.57 Maurawan Disty.	191	46	48	0.04	0.60	1	7	0	2	0	0	1.11
26. Maurawan No.26	R	34 3 540	- 36 0 0	2.45 Maurawan Disty.	186	45	47	0.04	0.60	1	4	1	0	0	1	1.06
27. Maurawan No.27	R	35 4 0	- 39 1 620	6.02 Bankat Mr.	453	109	113	0.10	0.90	0	10	3	1	0	0	2.60
Sub-Total				26.78	1,692	406	423			4	46	6	10	0	4	11.58
Total				104.04	8,473	2,034	2,118			15	205	13	34	2	13	42.30
LIFT CANAL																
28. Maurawan No.28				1.00 Lift Canal	2,822	677	706	0.84	2.00	0	0	0	0	0	0	1.00
Total				105.04	8,473	2,034	2,118			15	205	13	34	2	13	43.30

Table F.54 General Features of Proposed Minor Irrigation Canal in Sursa Area

Canal Name	Location on Badaicha Dy.		Canal Length (km)	Diverted from	Proposed Irrigation Area		Proposed Capacity (cumec)	Canal Base (m)	HR	Nos. of Structure			Lining Length (km)					
	Position	BP			EP	C.C.A. (ha)				Kharif Rabi	Outlet	Bridge		Drain	Cross.			
A. Parallel Irrigation Canal																		
1. Badaicha No.1	R	0 1 226	- 0 1 226	Outlet Only	Badaicha Disty.	22	5	6	0.00	0.60	0	1	0	0	0	-		
2. Badaicha No.2	L	0 2 467	- 1 3 300	1.76	Badaicha Disty.	123	30	31	0.03	0.60	1	3	0	0	0	1.02		
3. Badaicha No.3	R	0 2 134	- 4 2 625	6.59	Kamrauli Mr.	598	144	150	0.13	1.20	0	14	1	3	0	0	3.82	
4. Badaicha No.4	L	1 7 396	- 5 2 603	5.49	Badaicha Disty.	684	164	171	0.15	1.20	1	16	1	2	1	0	3.19	
5. Badaicha No.5	R	4 3 441	- 4 7 49	0.69	Sursa Mr.	148	36	37	0.03	0.60	0	4	0	0	0	0	0.40	
6. Badaicha No.6	L	5 4 118	- 9 3 115	6.24	Barha Mr.	327	78	82	0.07	0.90	0	8	0	3	1	0	3.62	
7. Badaicha No.7	R	6 2 160	- 9 4 155	5.23	Badaicha Disty.	407	98	102	0.09	0.90	1	9	0	2	1	0	3.03	
8. Badaicha No.8	L	9 6 241	- 14 0 613	6.95	Pachkohra Mr.	936	225	234	0.21	1.50	0	21	0	4	0	0	4.03	
9. Badaicha No.9	R	9 7 200	- 12 7 180	4.82	Badaicha Disty.	987	237	247	0.22	1.50	1	25	0	3	0	0	2.80	
10. Badaicha No.10	R	13 2 278	- 17 6 396	7.28	Badaicha Disty.	1,080	259	270	0.24	1.50	1	16	1	3	0	0	4.22	
Total										45.04	5	117	3	20	3	0	1	26.14

Not. Abbreviation  
 DRB : District Road Bridge  
 VRB : Village Road Bridge  
 FP : Foot Path  
 HR : Head Regulator

Table F.55 General Features of Proposed Minor Irrigation Canal in Purwa Area

Canal Name	Location on Dy. Concerned		Canal Length (km)	Diverted from	C.C.A. (ha)	Proposed Irrigation Area		Proposed Capacity (cumec)	Canal Base (m)	Nos. of Structure			Lining Length (km)				
	Position	BP				EP	Kharif			Rabi	HR	Outlet		DRB	VRB	FP	
<b>A. Parallel Irrigation Canal</b>																	
1. Purwa	L	0 1 430	-	1 7 628	2.88	Purwa Disty.	133	32	33	0.04	0.60	1	4	1	1	0	1.45
2. Purwa	R	0 3 50	-	1 7 321	2.50	Purwa Disty.	180	43	45	0.05	0.60	1	4	1	1	0	1.25
3. Purwa	L	2 1 330	-	2 3 200	0.36	Bhopapur Mr.	89	21	22	0.03	0.60	0	2	0	0	0	0.18
4. Purwa	R	2 4 545	-	2 7 175	0.49	Purwa Disty.	88	21	22	0.03	0.60	1	2	0	0	0	0.25
5. Purwa	R	3 2 330	-	4 3 380	1.83	Bhadnang Mr.	376	90	94	0.11	0.90	0	2	0	1	0	0.92
6. Purwa	L	3 3 479	-	4 5 330	1.97	Purwa Disty.	71	17	18	0.02	0.60	1	8	0	1	0	0.99
7. Purwa	L	5 4 200	-	9 1 590	5.95	Purwa Disty.	627	150	157	0.19	1.20	1	15	0	5	0	2.99
8. Purwa	R	6 1 232	-	7 4 170	2.19	Purwa Disty.	97	23	24	0.03	0.60	1	2	0	2	0	1.10
9. Purwa	R	7 7 350	-	9 3 110	2.34	Tupra Mr.	239	57	60	0.07	0.90	0	6	0	2	1	1.18
10. Purwa	R	9 5 330	-	9 6 181	Only Outlet	Pinjura Mr.	35	8	9	0.01	0.60	0	1	0	0	0	-
Sub-Total					20.51		1,900	456	475			6	45	2	13	1	10.30
<b>B. TTKR Irrigation Canal</b>																	
1. Ttkar	L	0 0 300	-	1 5 580	2.70	Ttkar Disty.	269	65	67	0.03	0.60	1	6	0	2	0	1.36
2. Ttkar	R	0 2 400	-	2 2 612	3.28	Ttkar Disty.	251	60	63	0.03	0.60	1	6	0	2	0	1.65
Sub-Total					5.98		520	125	130			2	12	0	4	0	3.01
Total					52.98		2,420	581	605			8	57	2	17	1	13.31

Non-Abbreviation      DRB District Road Bridge  
                                   VRB Village Road Bridge  
                                   FP : Foot Path  
                                   HR : Head Regulator

Table F.56 General Features of Sai River Pump Lift Irrigation Schemes

Description	Sarojini Nagar Area	Sataon Area
1. C.C.A.	2,161 ha	2,822 ha
2. P.I.A.	519 ha	677 ha
3. U.W.R.	1.20 liter/sec/ha	1.25 liter/sec/ha
	1.60 liter/sec/ha	1.67 liter/sec/ha
4. Pump Capacity	18hrs./day operation in max.	18hrs./day operation in max.
	0.83 m3/sec	1.13 m3/sec
	50 m3/min./1 no.	68 m3/min./1 no.
	25 m3/min./2 no.	34 m3/min./2 no.
5. Head		
River Bed El.	109 m	100.5 m
Water Level	110.5 m	101.5 m
Pump Outlet El.	120 m	114 m
Net Head	9.5 m	12.5 m
Total Head	10.25 m	12.95 m
	Say	11.0 m
# Head Loss		
	C=	100
	Pipe Dia.	450 mm
	Velocity	2.1 m/sec
	Loss	1.5 m/100m
6. Pump Type		
Horse Power	68 kw	102 kw
Pump Dia.	450 mm	500 mm

Table F.57 Cost Estimate of Improvement of Control Facilities of Hardoi Branch

Description	Work Quantity					HARDOI BRANCH	Unit Price			Amount (1,000 RS)			Remarks
	Amausi	Sataon	Sursa	Purwa	Total		F/C	L/C	F/C	L/C	Total		
Canal Length (km)	39	104	45	53	241	690							
C.C.A. (ha)	2,925	8,473	5,312	2,420	19,130	54,712							
Nos. of Structure													
HR	9	15	5	8	37	106	2,230	60,610	236	6,414	6,650	MST-03	
Outlet	73	205	117	57	452	1,293	530	4,260	685	5,507	6,192	MST-04	
Bridge DRB	2	13	3	2	20	57	5,080	213,410	291	12,207	12,498	MST-11	
VRB	22	34	20	17	93	266	3,400	156,720	904	41,685	42,589	MST-12	
FP	2	2	3	1	8	23	120	1,850	3	42	45	MST-13	
Drainage Crossing	2	13	0	0	15	43	940	34,080	40	1,462	1,502	MST-06	
Striping 1000m2	83	191	111	49	434	1,241	11	3	13,656	3,724	17,380	E-02	
Excavai Volume 1000m3	30	59	42	16	147	420	19	3	7,971	1,259	9,230	E-03	
Filling Volume 1000m3	89	119	84	32	323	924	7	47	6,467	43,424	49,891	E-08	
Sub-Total									30,253	115,724	145,977		
Replacement of Head Regulator along Hardoi Branch Canal													
Type-A nos.						52	5,790	7,680	301	399	700	MST-05	
Type-B nos.						1	10,890	17,400	11	17	28	MST-05-1	
Type-C nos.						2	19,820	24,720	40	49	89	MST-05-2	
Sub-Total									352	466	818		
Total									30,605	116,190	146,795		

Note : Unit price of Sursa Study Area is applied for the estimation.

## **FIGURES**



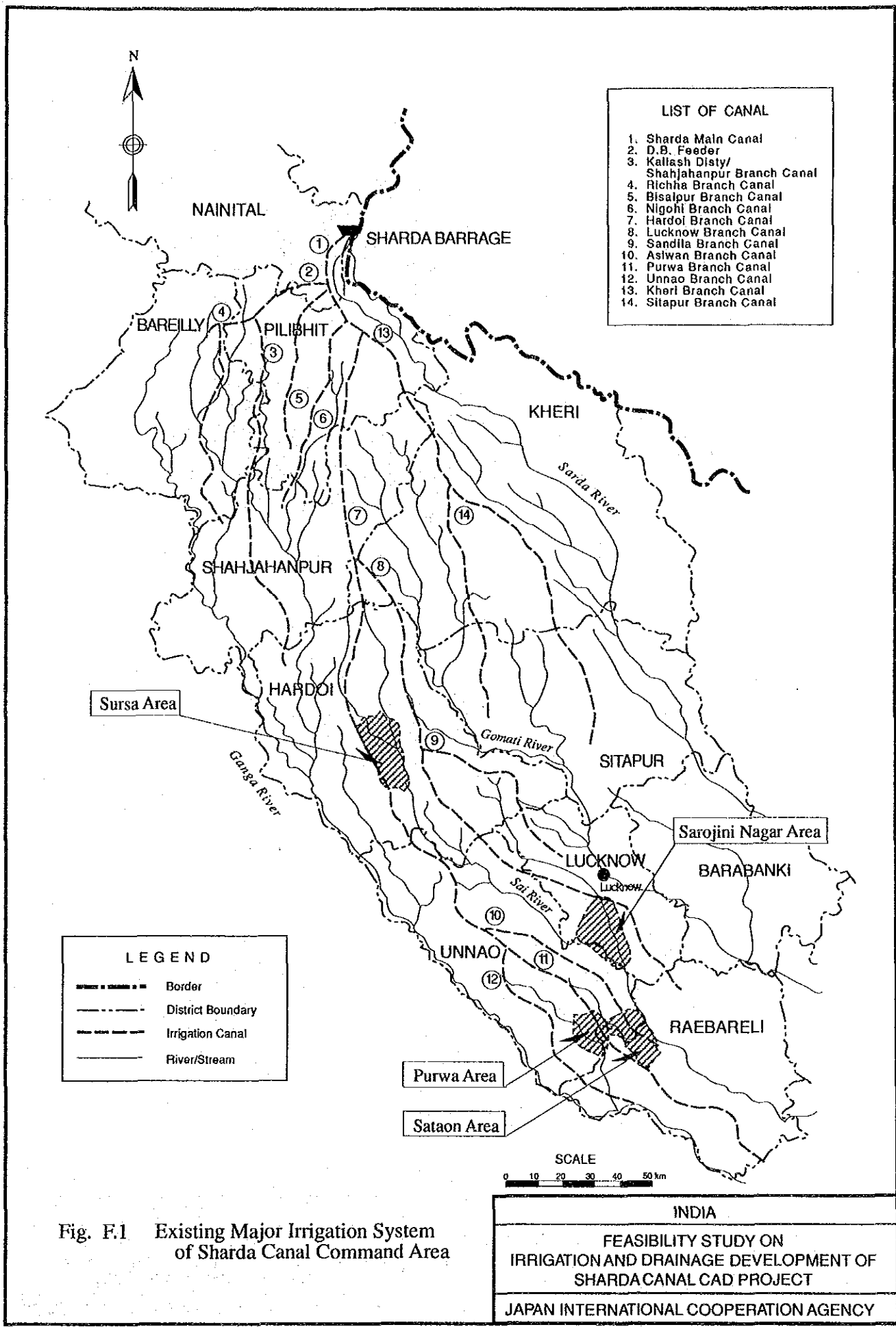
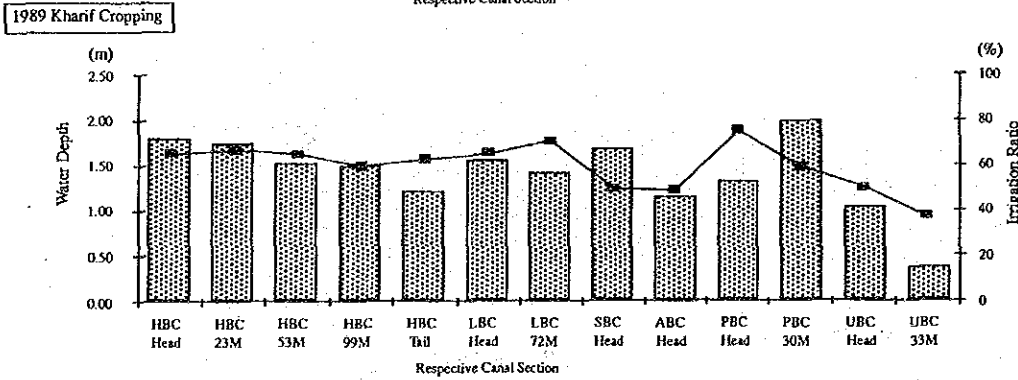
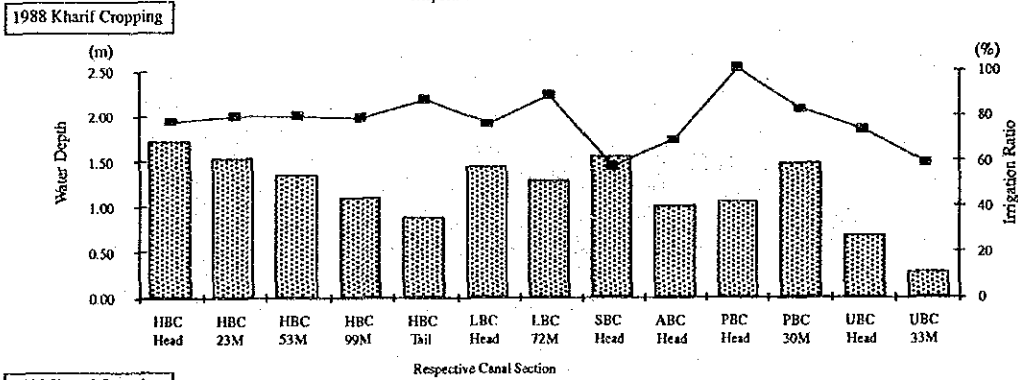
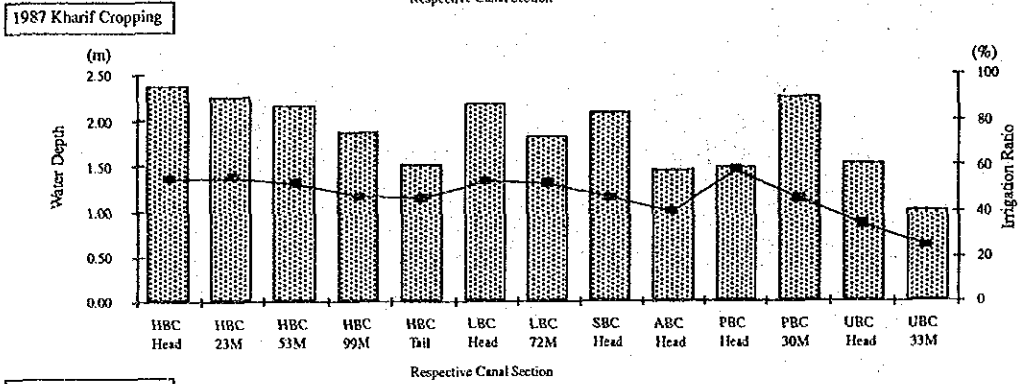
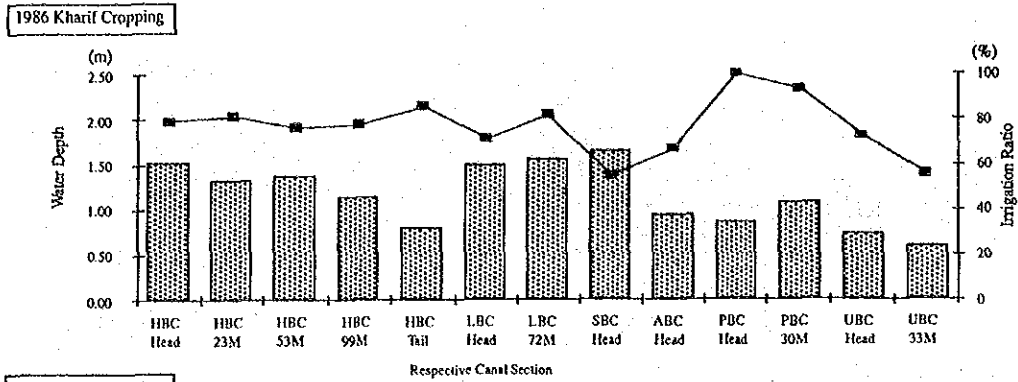


Fig. F.1 Existing Major Irrigation System of Sharda Canal Command Area

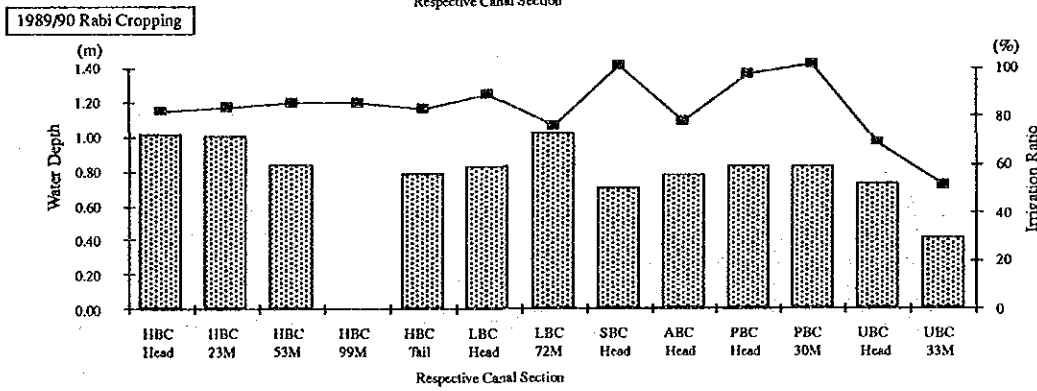
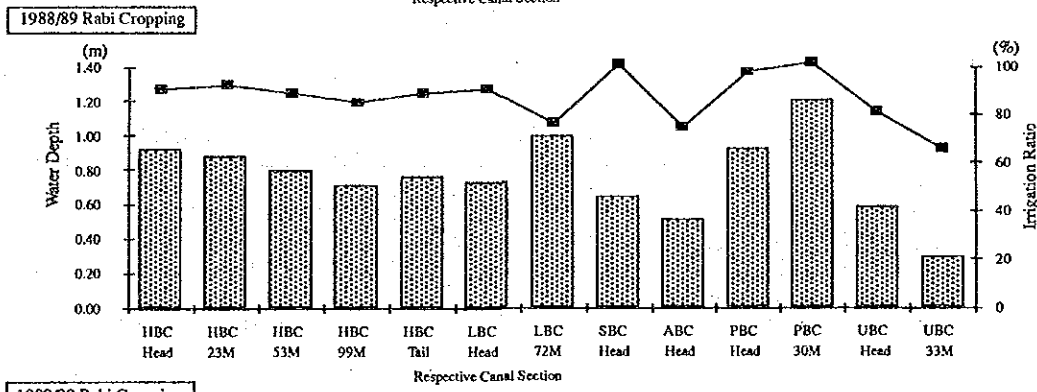
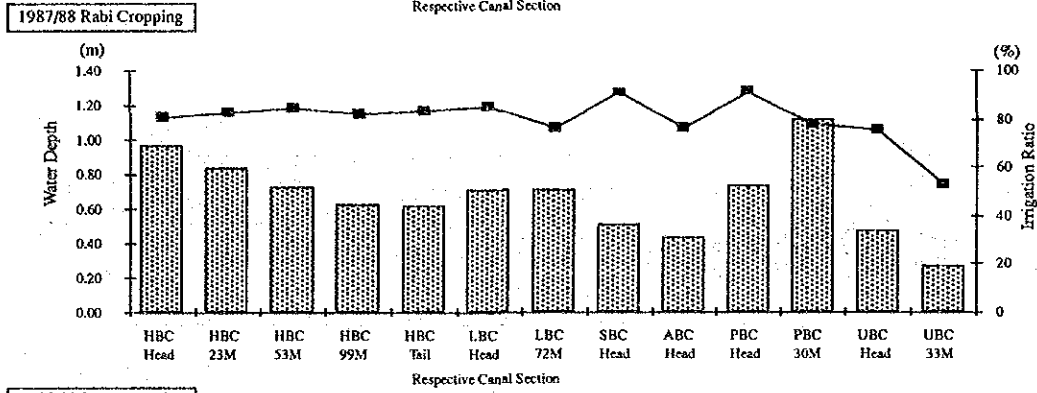
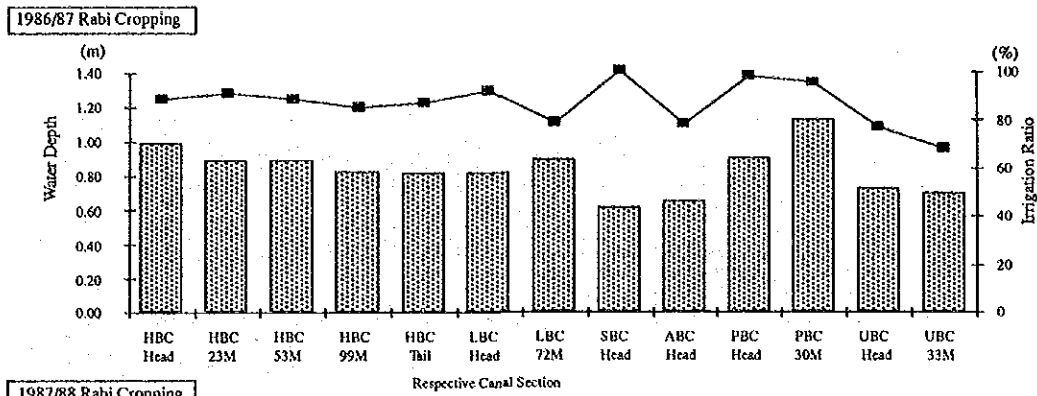




Legend :   
 [Bar] Unit Supply Water Depth    [Line] Irrigation Ratio  
 HBC : Hardoi Branch Canal    LBC : Lucknow Branch Canal    SBC : Sandila Branch Canal  
 ABC : Asiwani Branch Canal    PBC : Purwa Branch Canal    UBC : Unnao Branch Canal

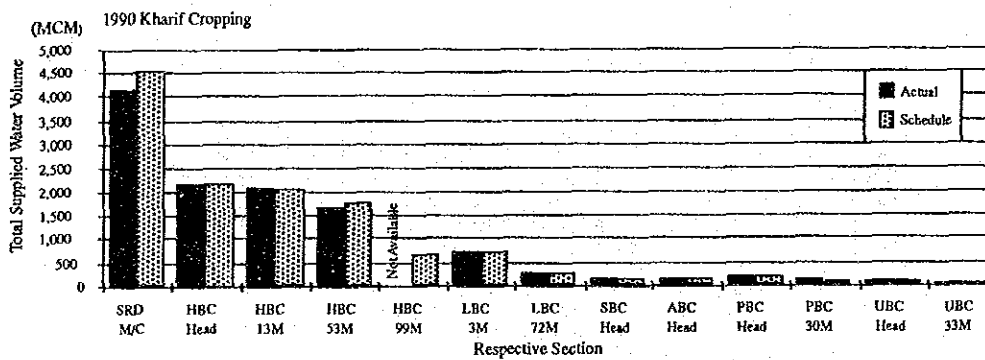
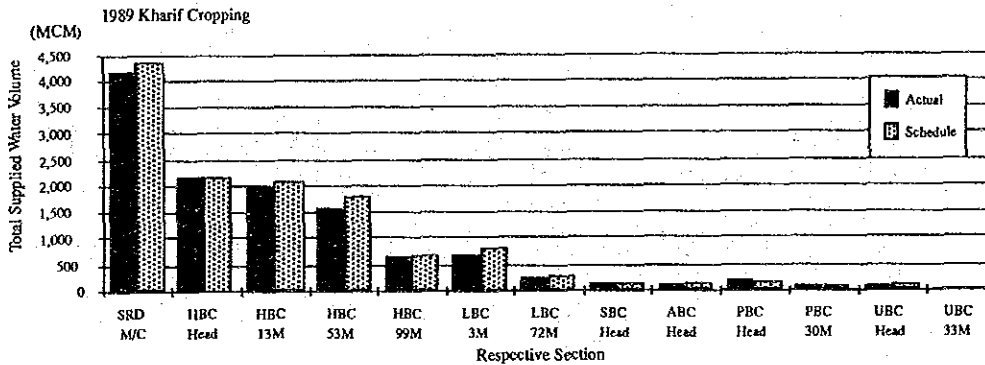
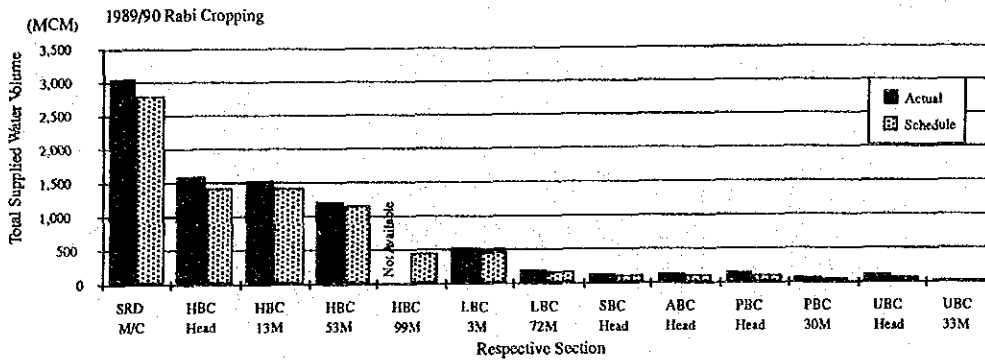
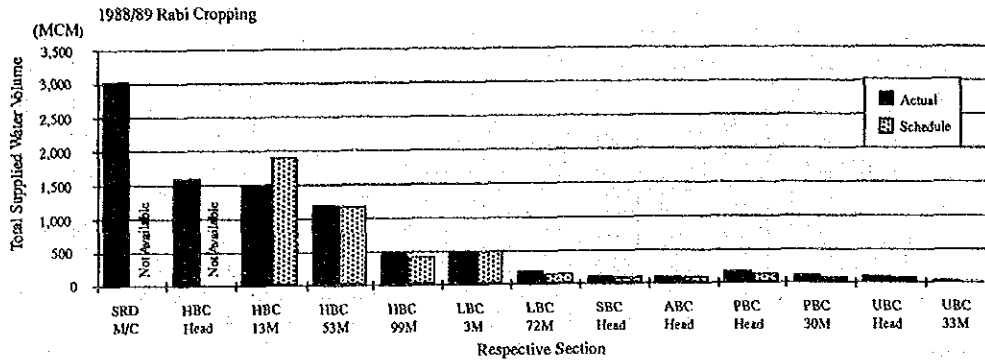
Fig. F.2 Relationship between Unit Supply Water Depth and Irrigation Ratio (1/2) (Kharif Cropping)

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Legend :   
 Unit Supply Water Depth   
 Irrigation Ratio   
 HBC : Hardoi Branch Canal    LBC : Lucknow Branch Canal    SBC : Sandila Branch Canal   
 ABC : Asiwān Branch Canal    PBC : Purwa Branch Canal    UBC : Unnao Branch Canal

Fig. F.2 Relationship between Unit Supply Water Depth and Irrigation Ratio (2/2) (Rabi Cropping)



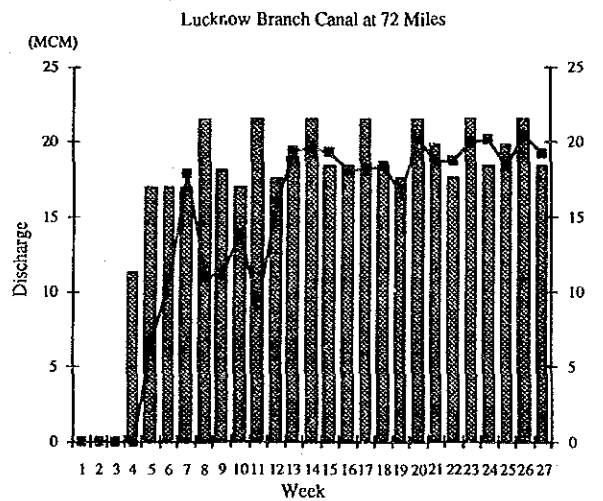
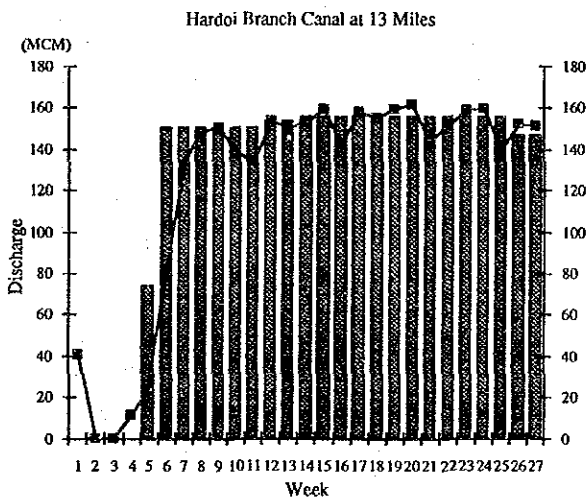
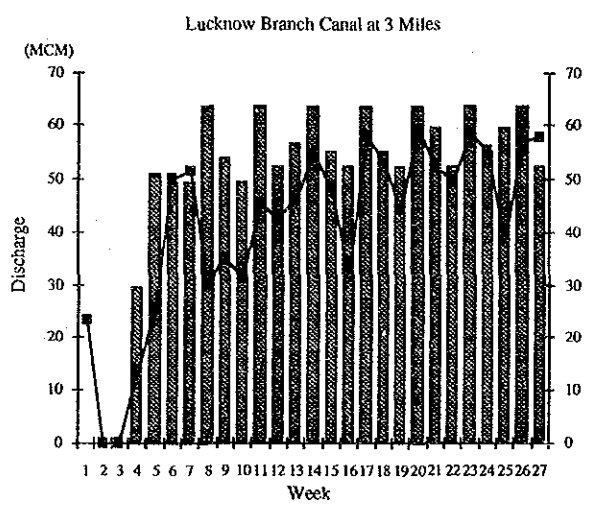
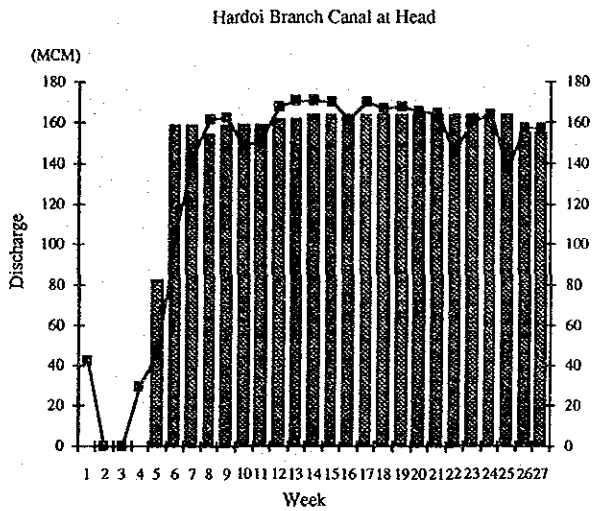
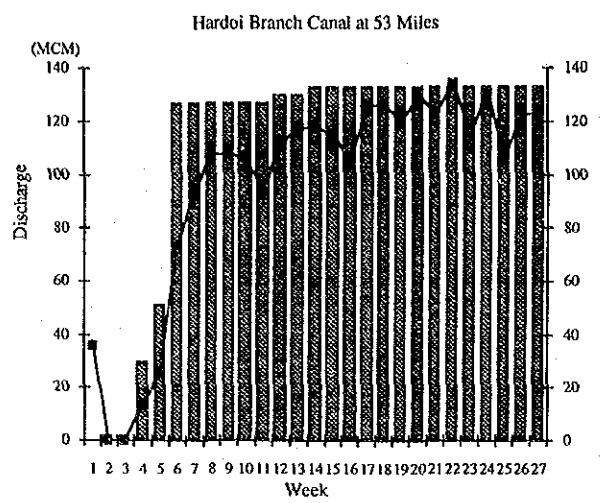
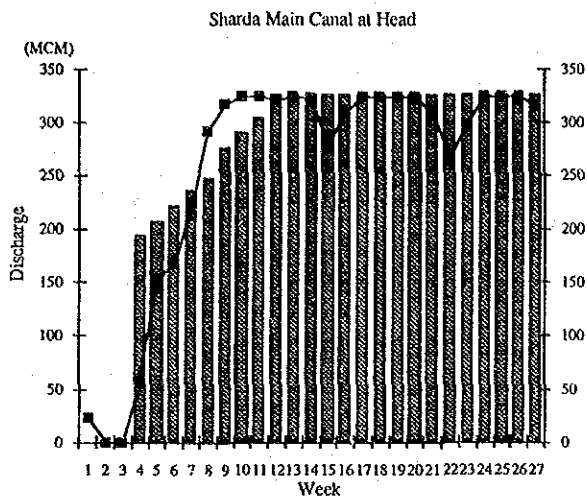
Remarks : HBC : Hardoi Branch Canal    LBC : Lucknow Branch Canal    SBC : Sandila Branch Canal  
 ABC : Asiwani Branch Canal    PBC : Purwa Branch Canal    UBC : Unnao Branch Canal

Fig. F.3 Comparison between Schedule and Actual Water Supply

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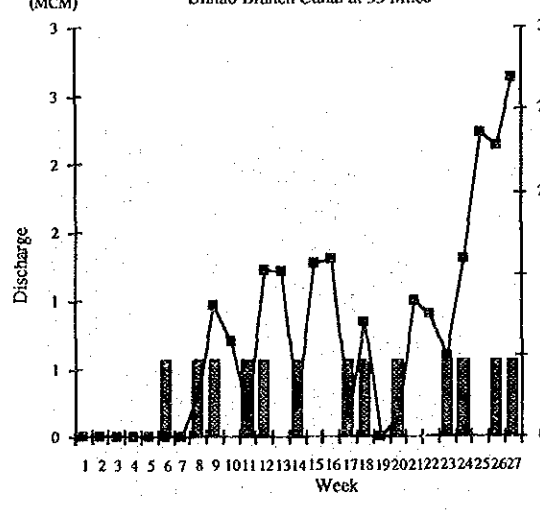
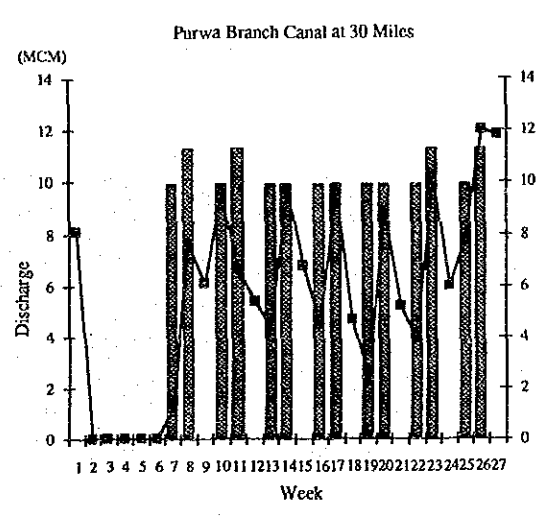
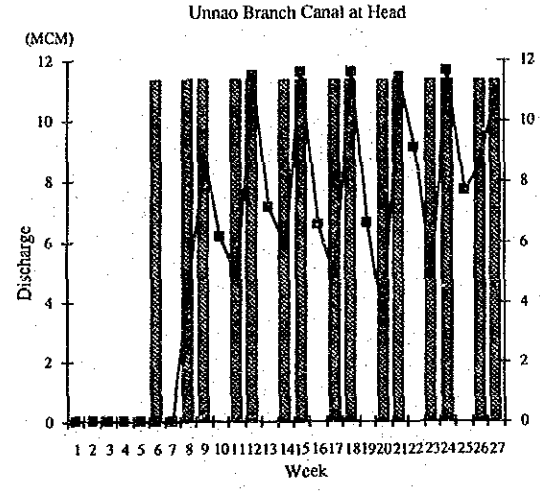
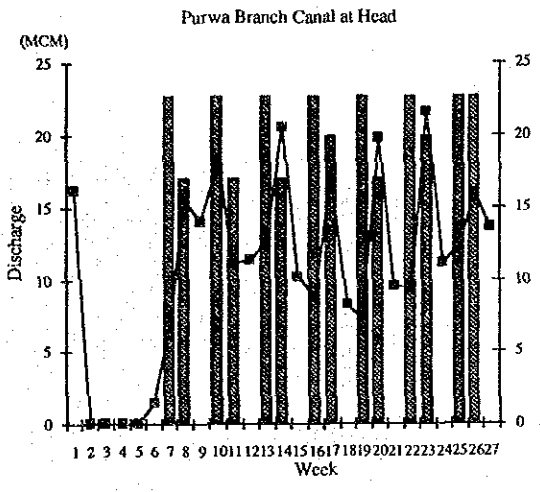
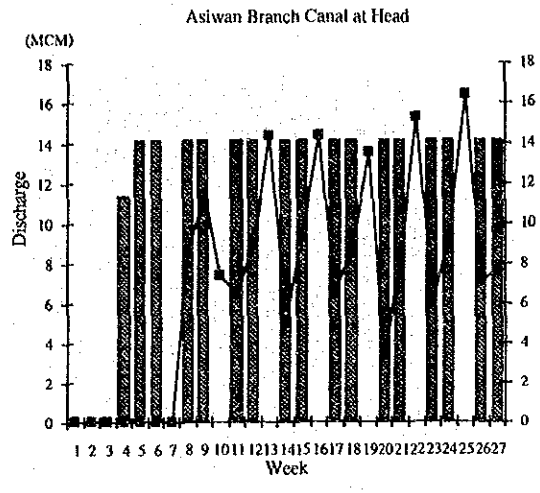
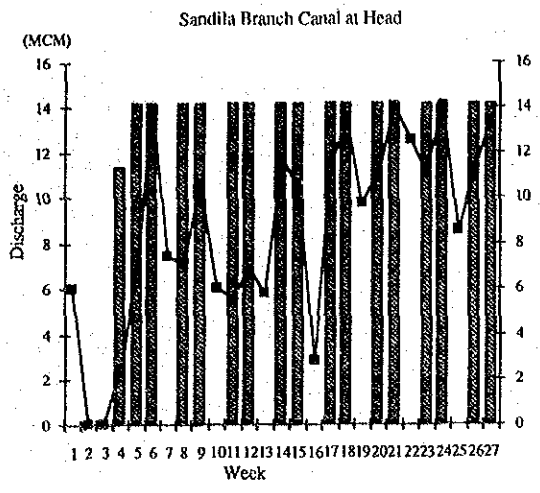
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Schedule  
 Actual

Fig. F.4 Comparison of Weekly Discharge between Schedule and Actual Supply (1/4) (1989 Kharif Cropping)

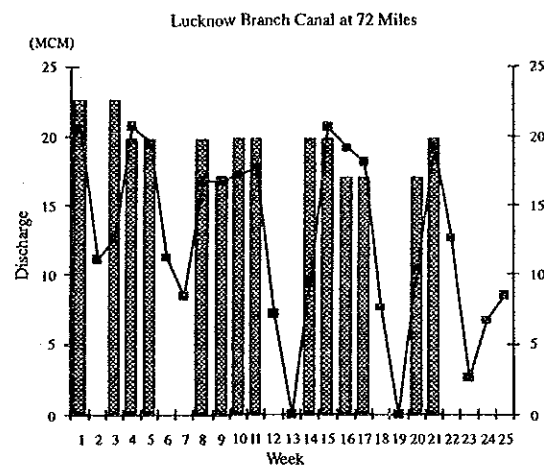
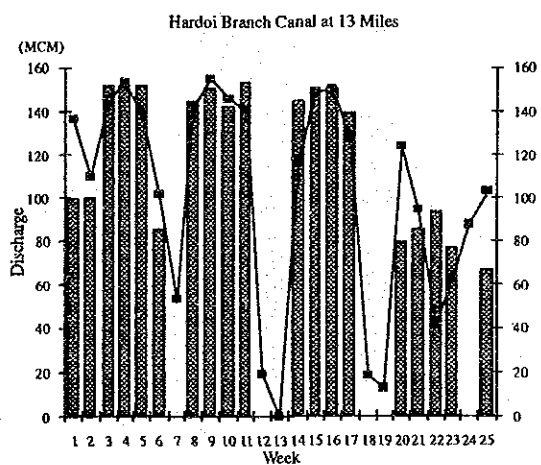
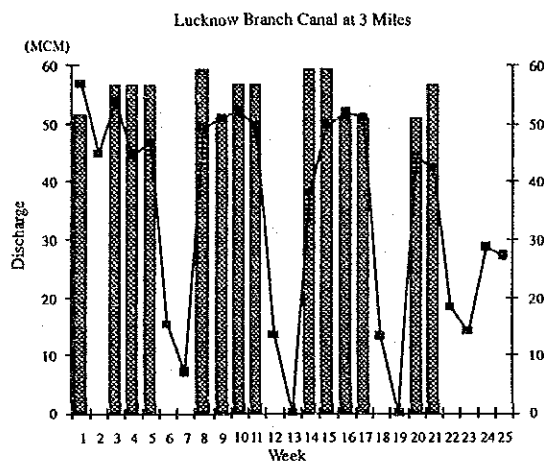
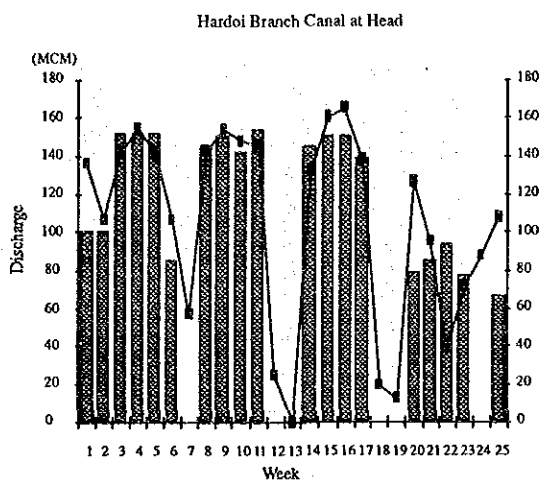
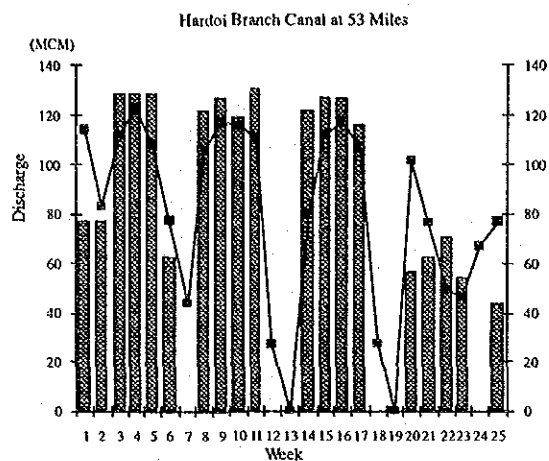
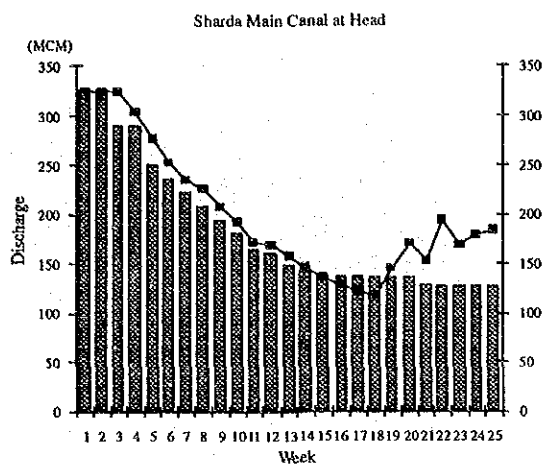
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Fig. F.4 Comparison of Weekly Discharge between Schedule and Actual Supply (2/4) (1989 Kharif Cropping)

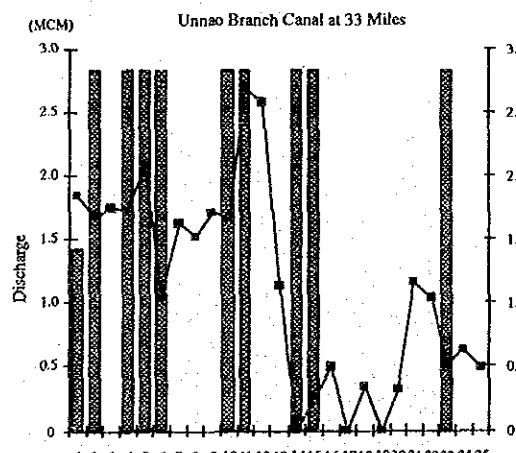
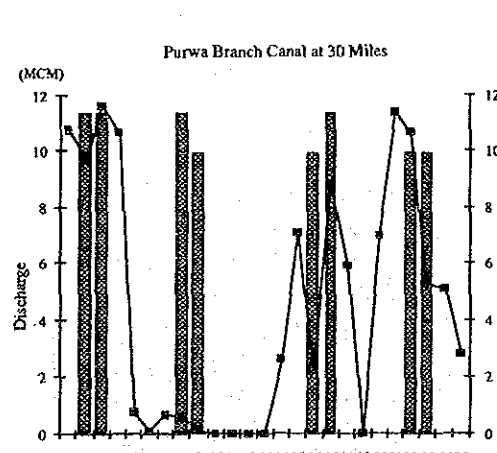
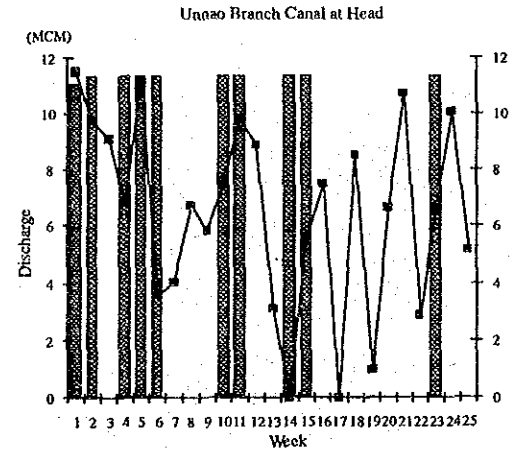
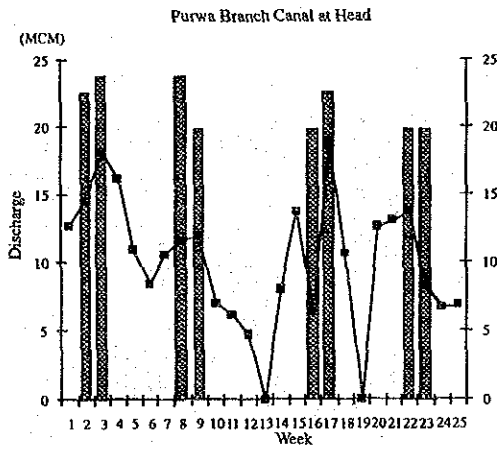
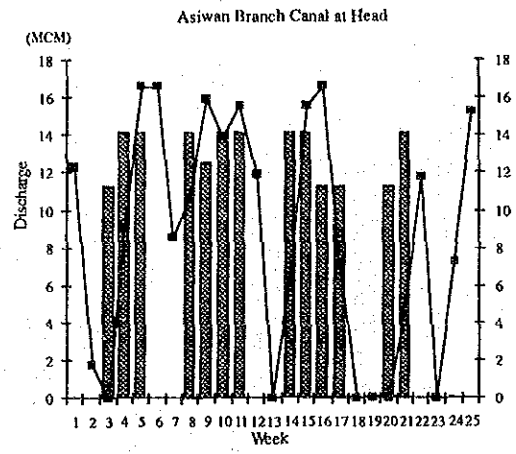
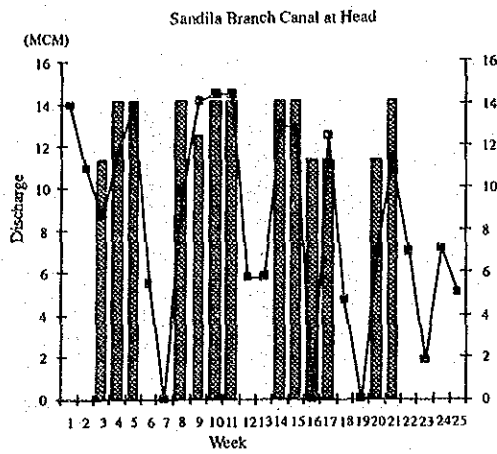
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Schedule  
■ Actual

Fig. F.4 Comparison of Weekly Discharge between Schedule and Actual Supply (3/4) (1989/90 Rabi Cropping)

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Schedule  
 Actual

Fig. F.4 Comparison of Weekly Discharge between Schedule and Actual Supply (4/4) (1989/90 Rabi Cropping)

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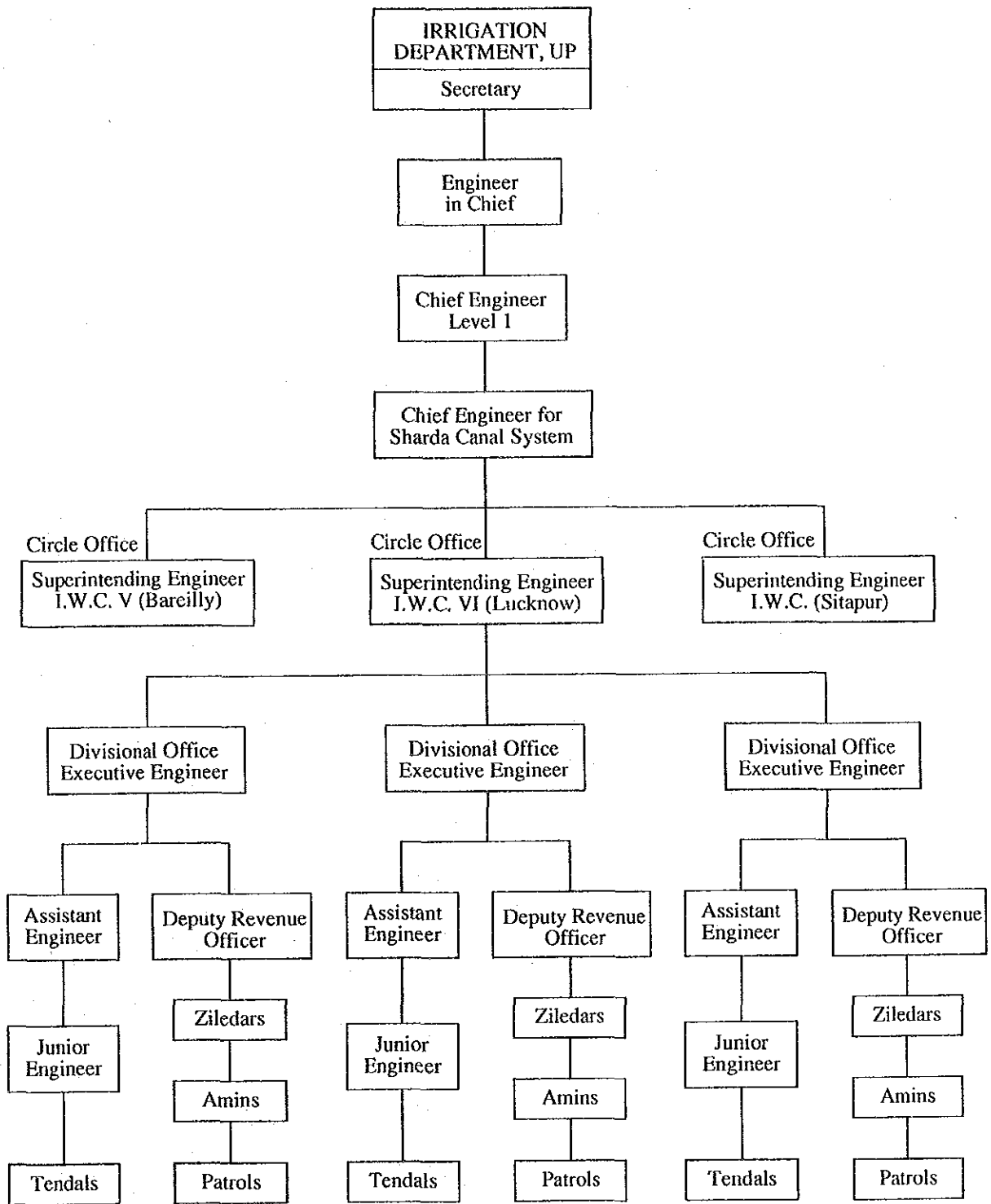


Fig. F.5 Organization Chart of O&M of Sharda Canal System

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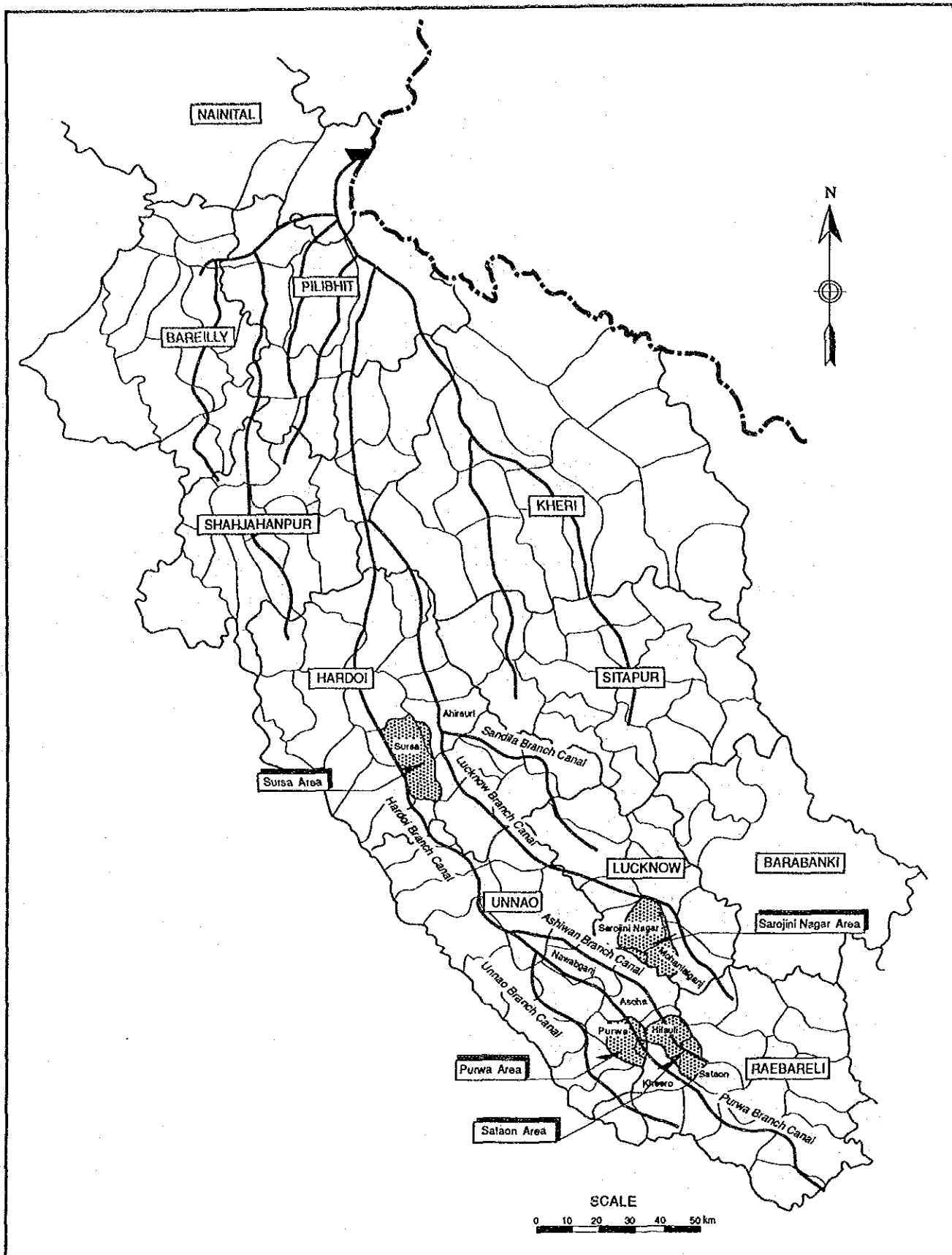


Fig. F.6 Main Irrigation Canal Systems of Representative Areas

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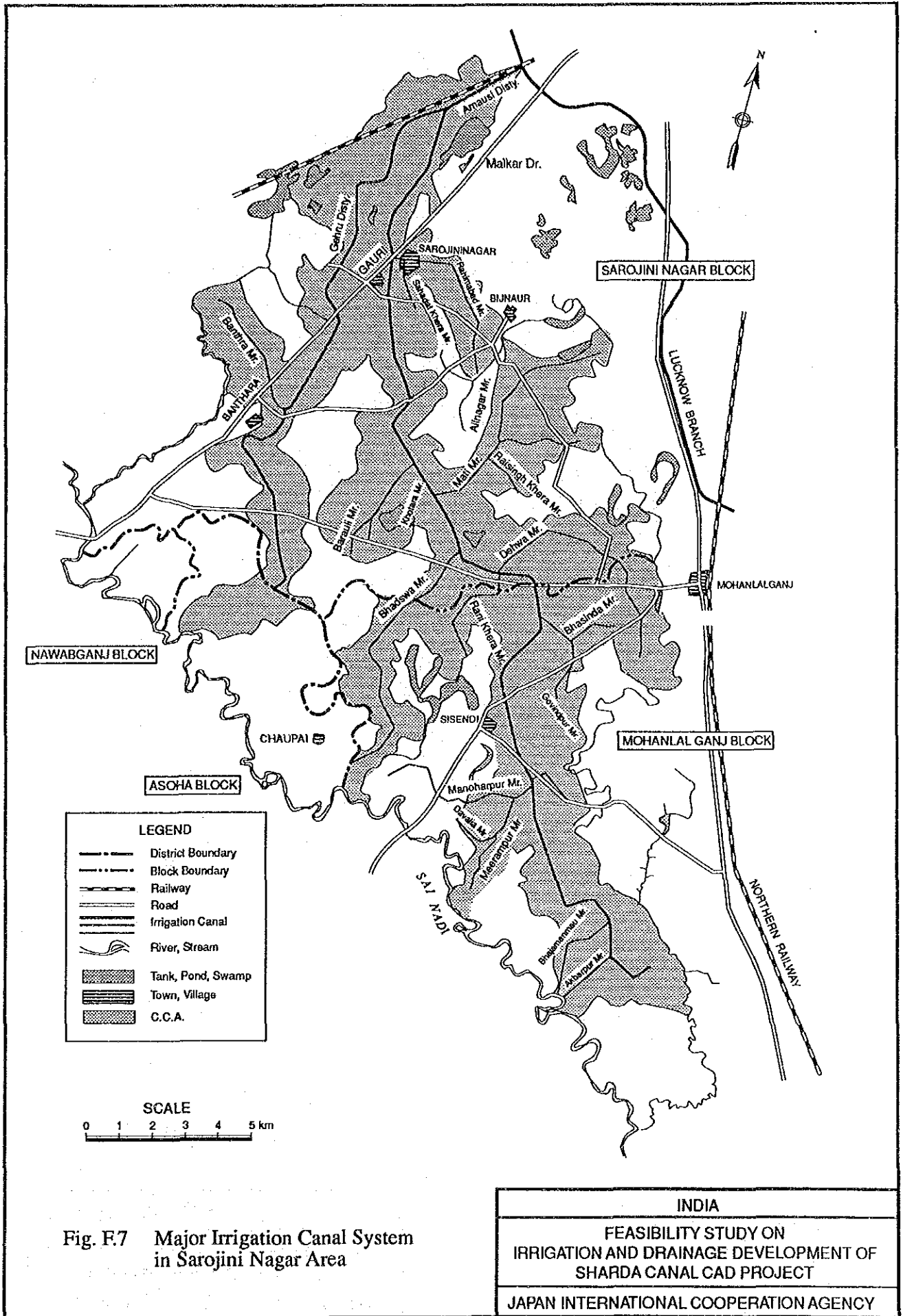


Fig. F.7 Major Irrigation Canal System in Sarojini Nagar Area

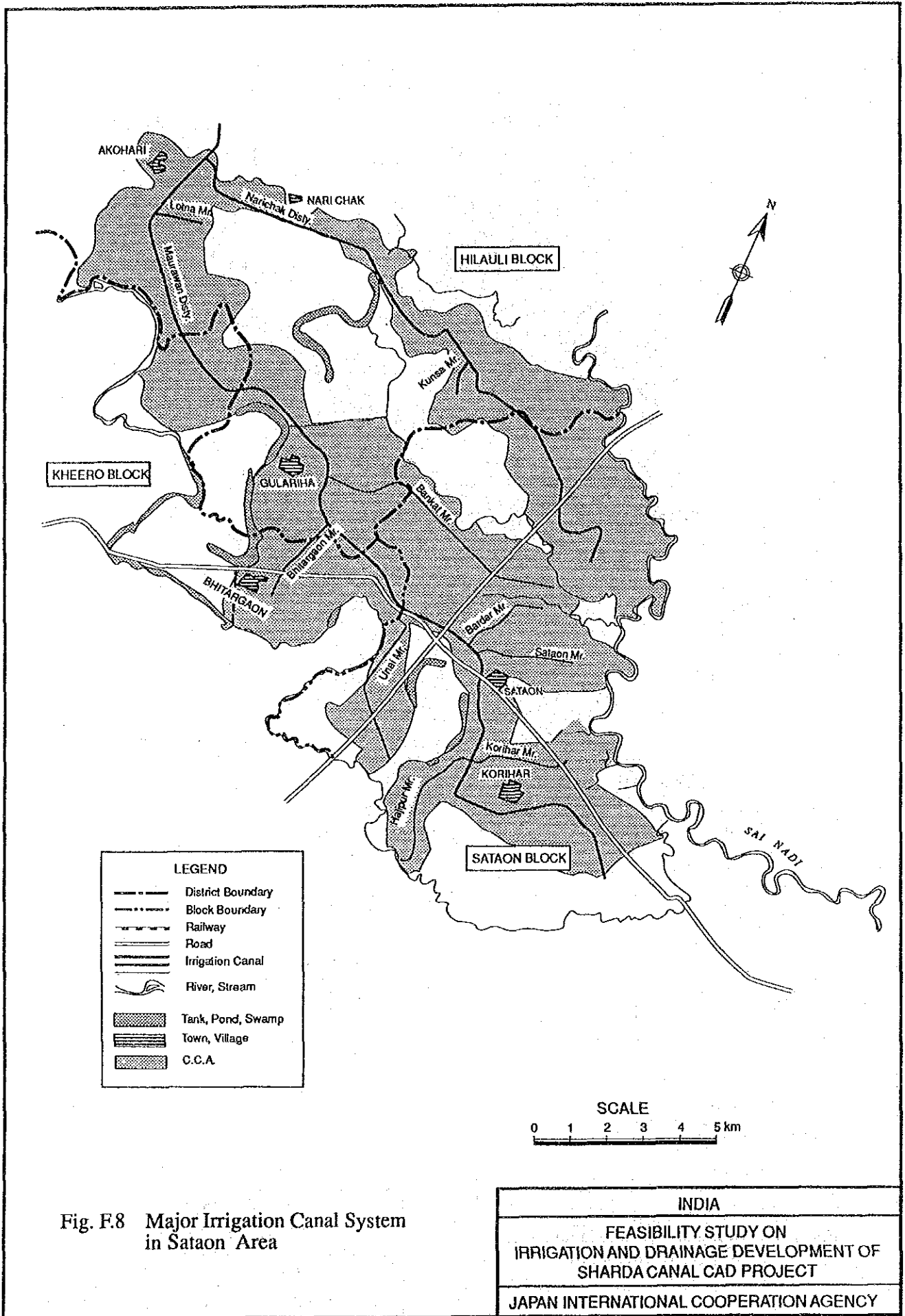


Fig. F.8 Major Irrigation Canal System in Sataon Area

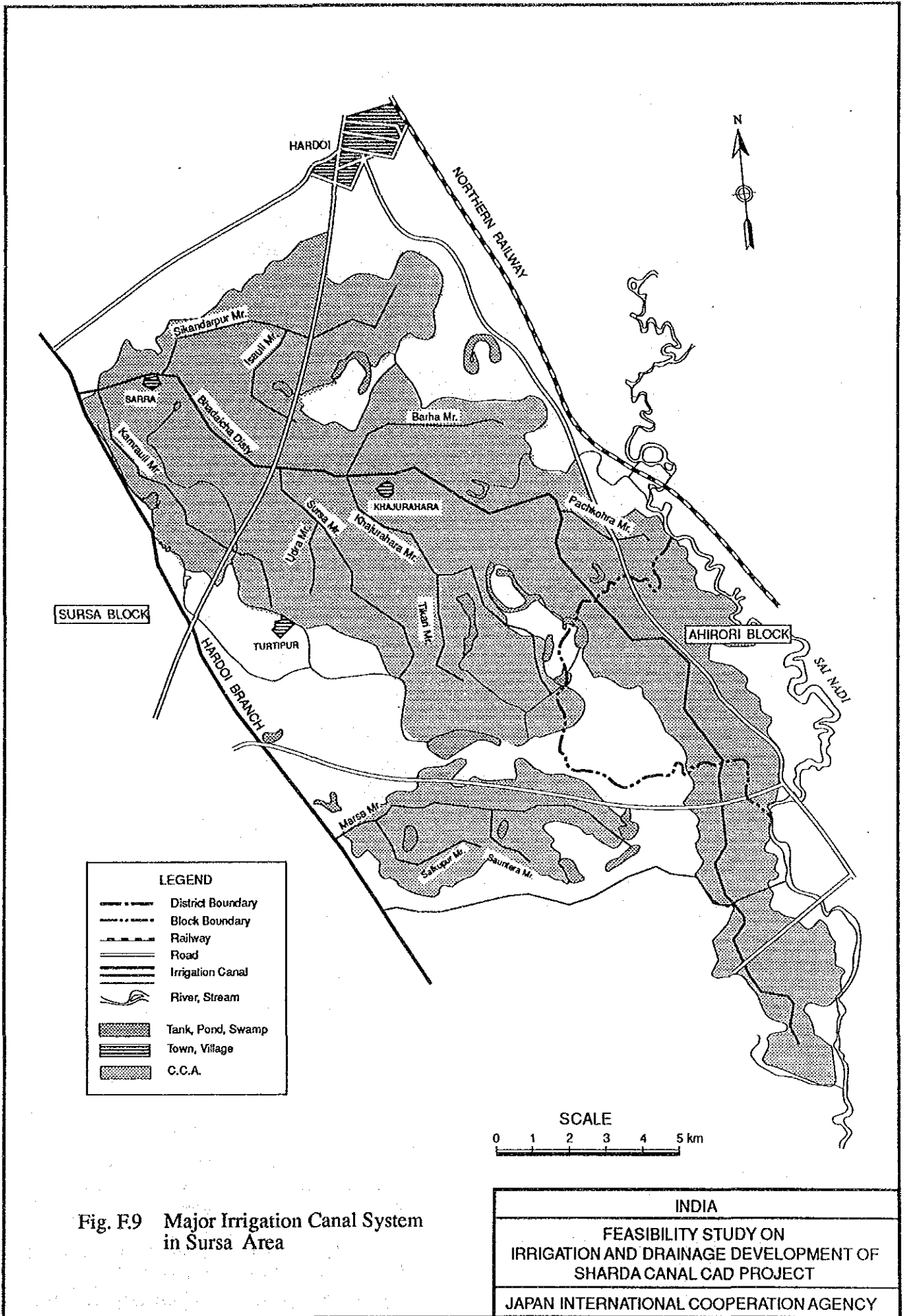


Fig. F.9 Major Irrigation Canal System in Sursa Area

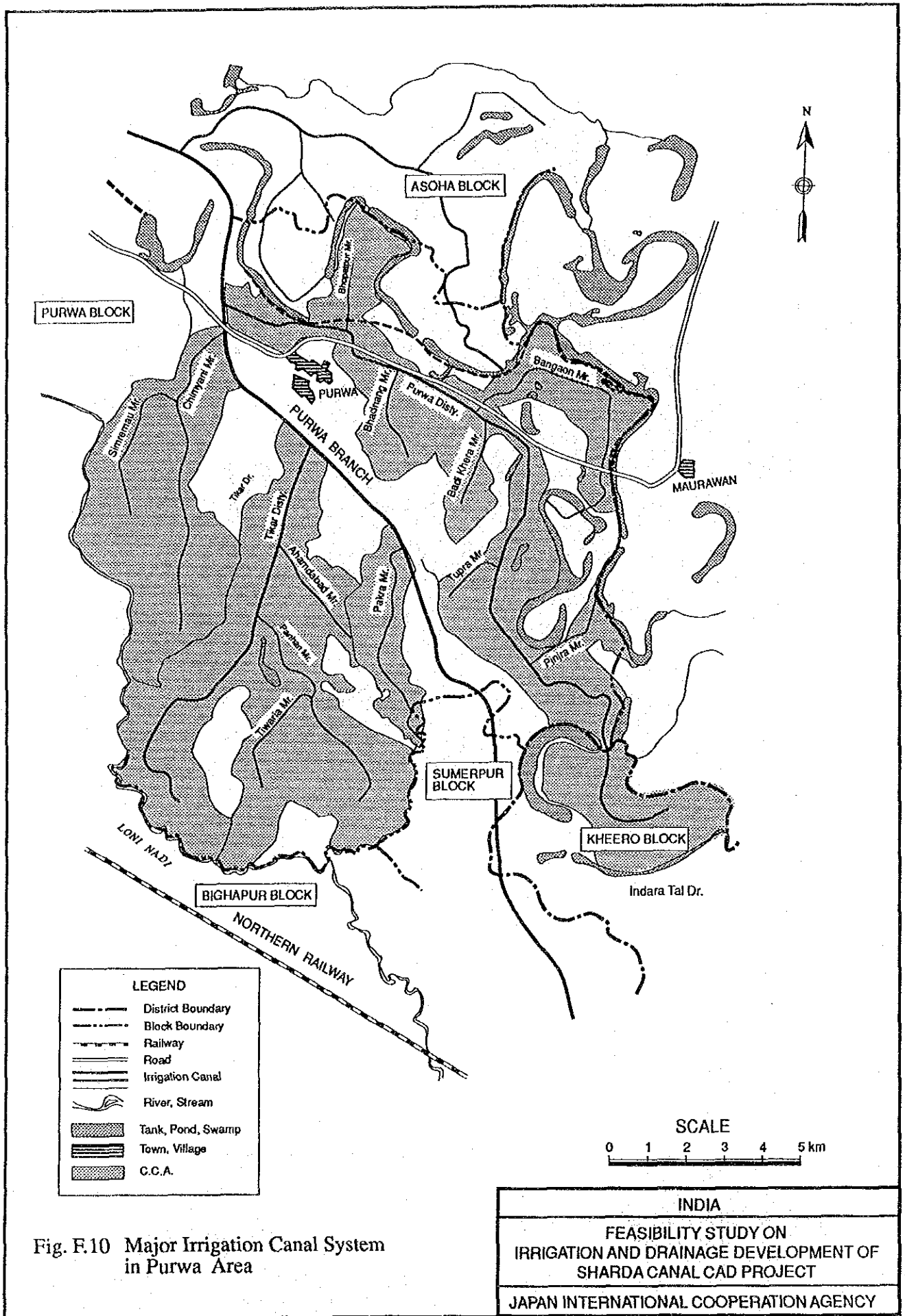


Fig. F.10 Major Irrigation Canal System in Purwa Area

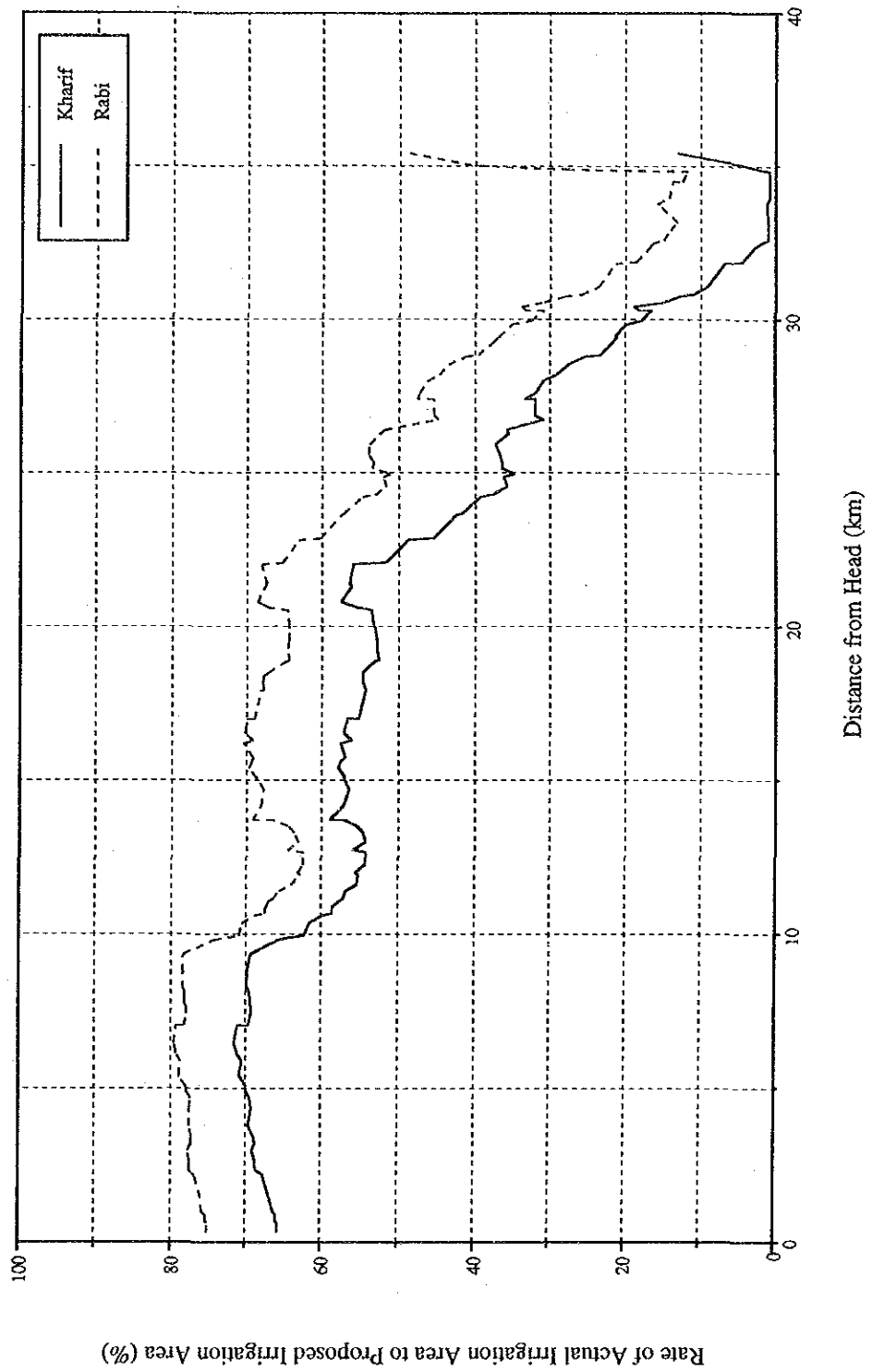


Fig. F.11 Kulaba wise Irrigation Rate (Amausi Distributary)

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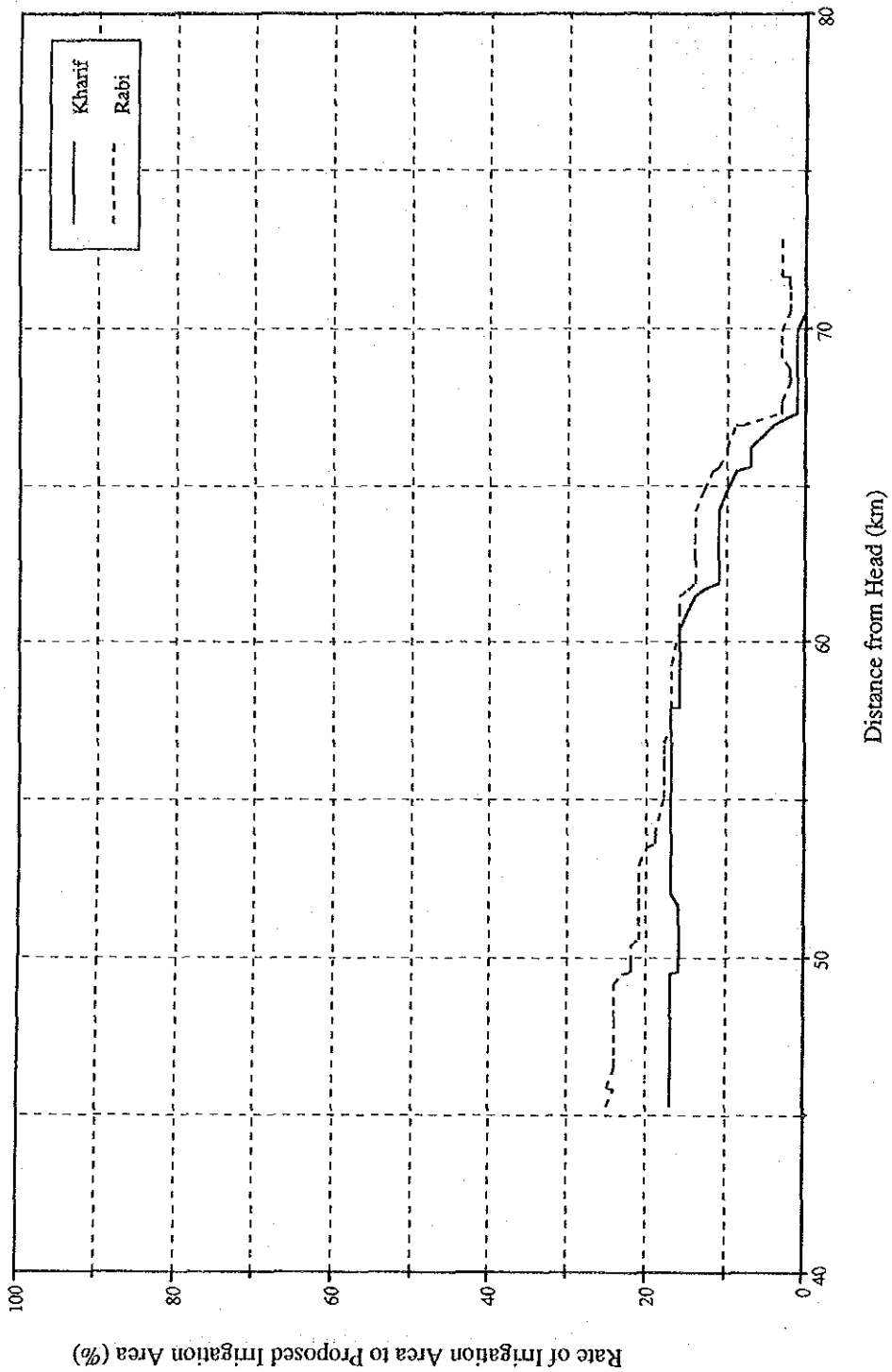


Fig. F.12 Kulaba wise Irrigation Rate (Maurawan Distributary)

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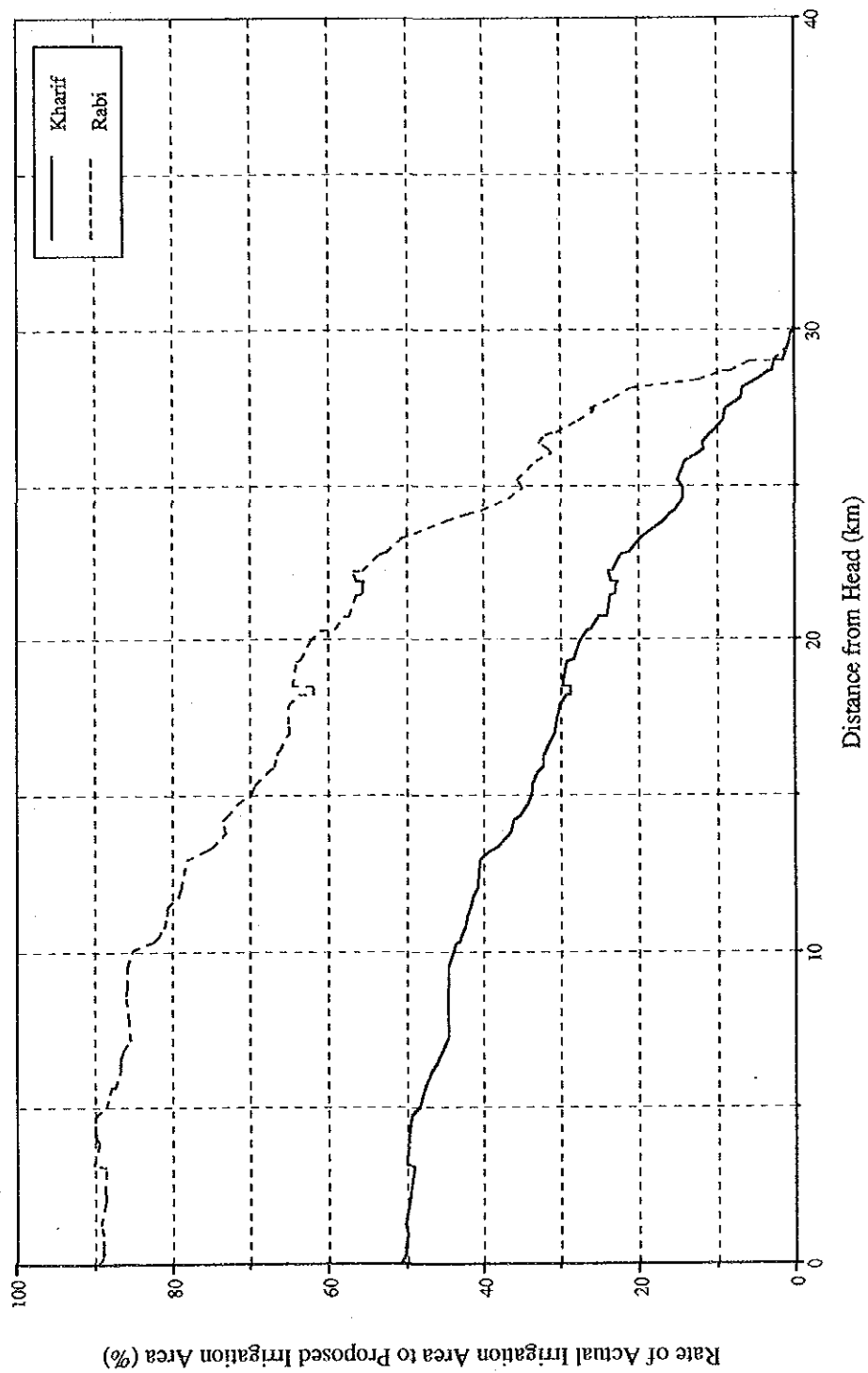


Fig. F.13 Kulaba wise Irrigation Rate (Badaicha Distributary)

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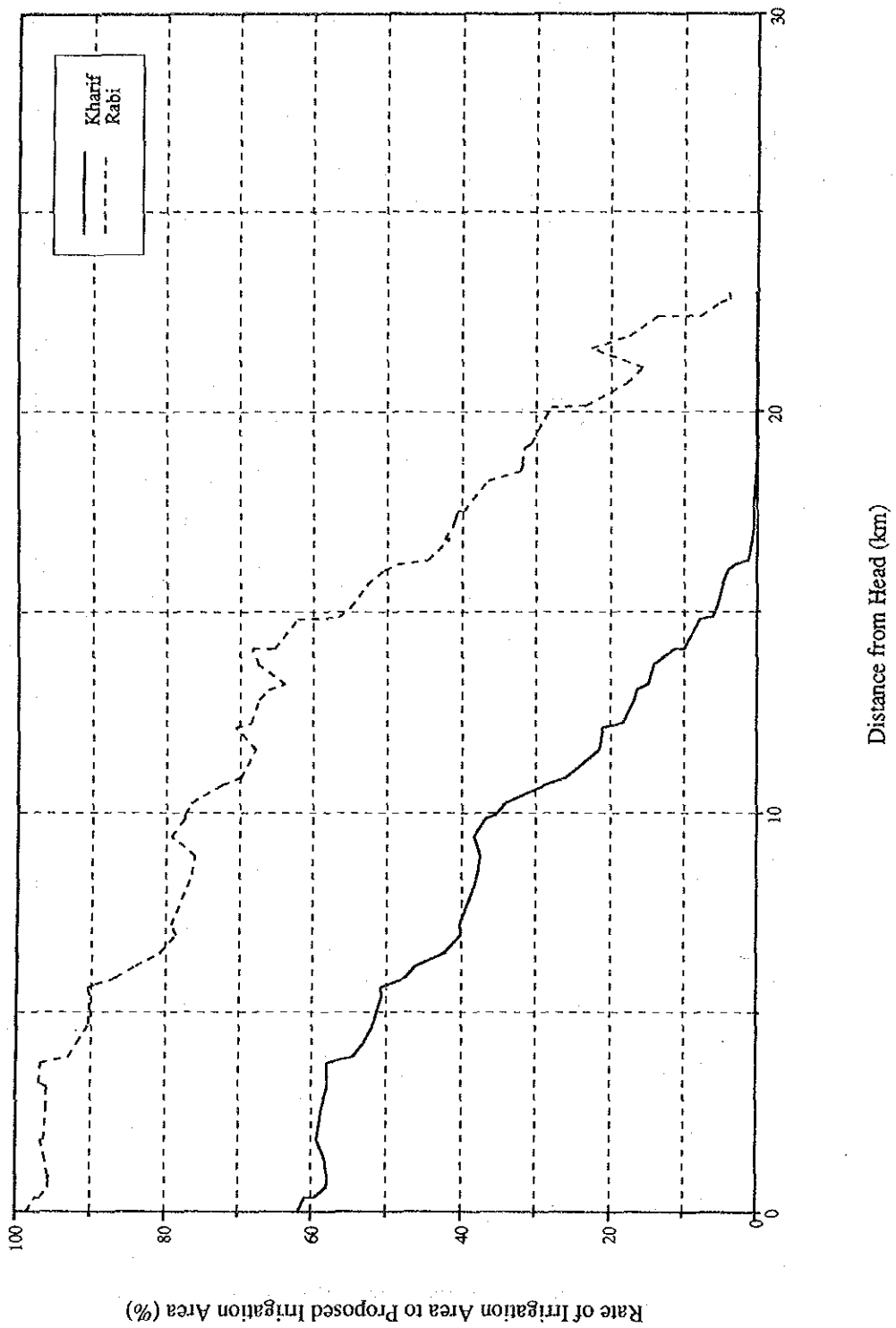


Fig. F.14 Kulaba wise Irrigation Rate (Purwa Distributary)

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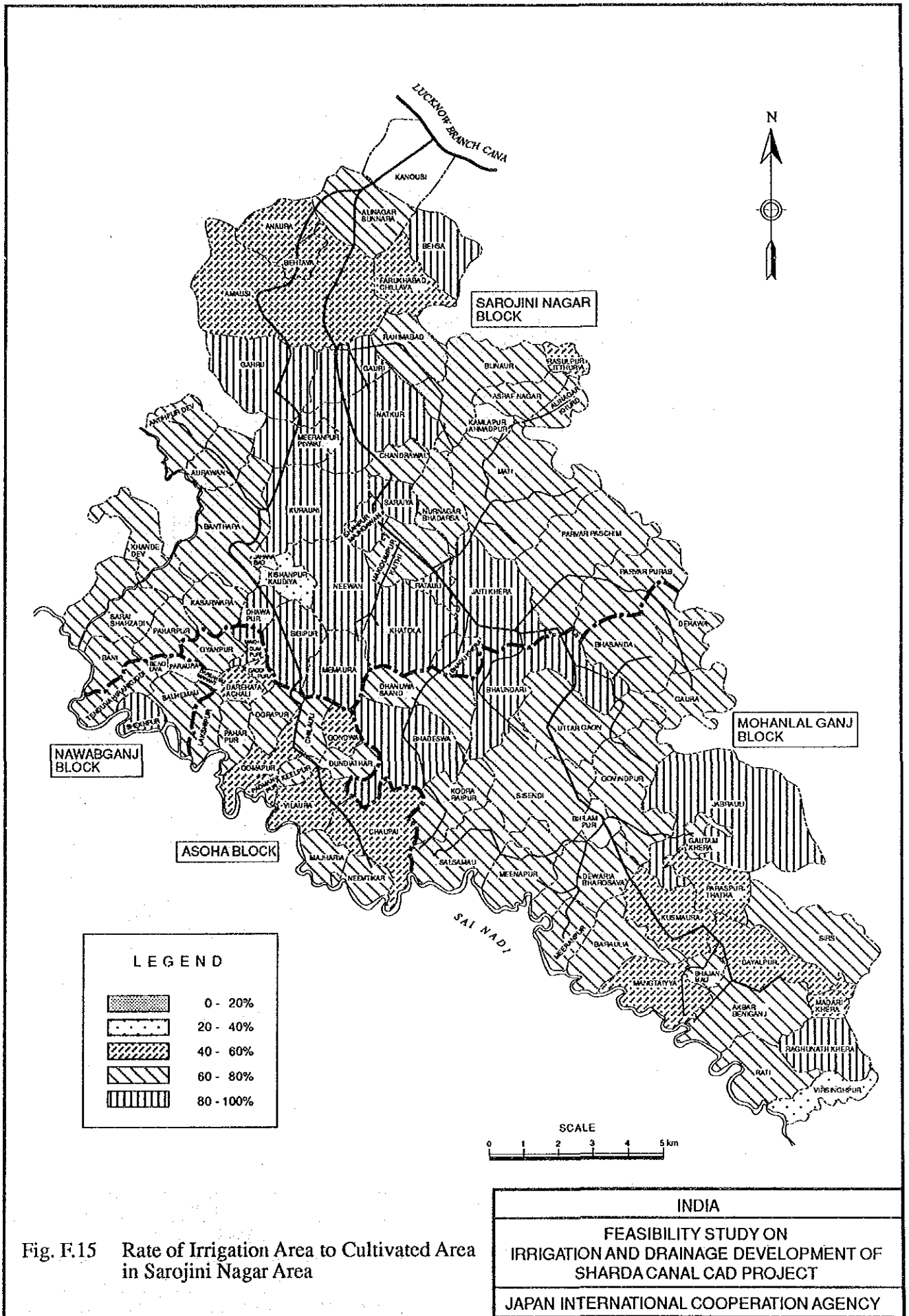


Fig. F.15 Rate of Irrigation Area to Cultivated Area in Sarojini Nagar Area

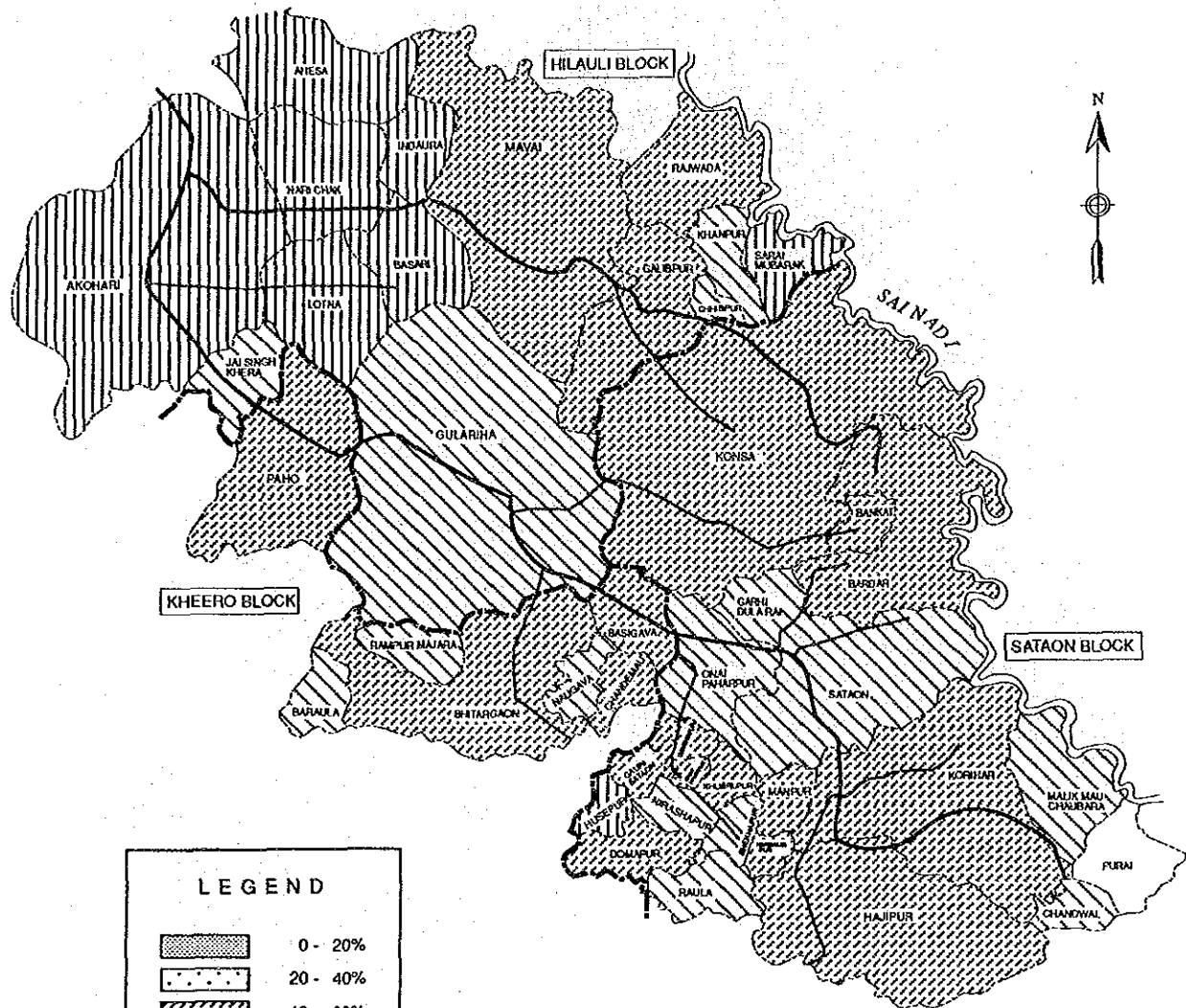


Fig. F.16 Rate of Irrigation Area to Cultivated Area in Sataon Area



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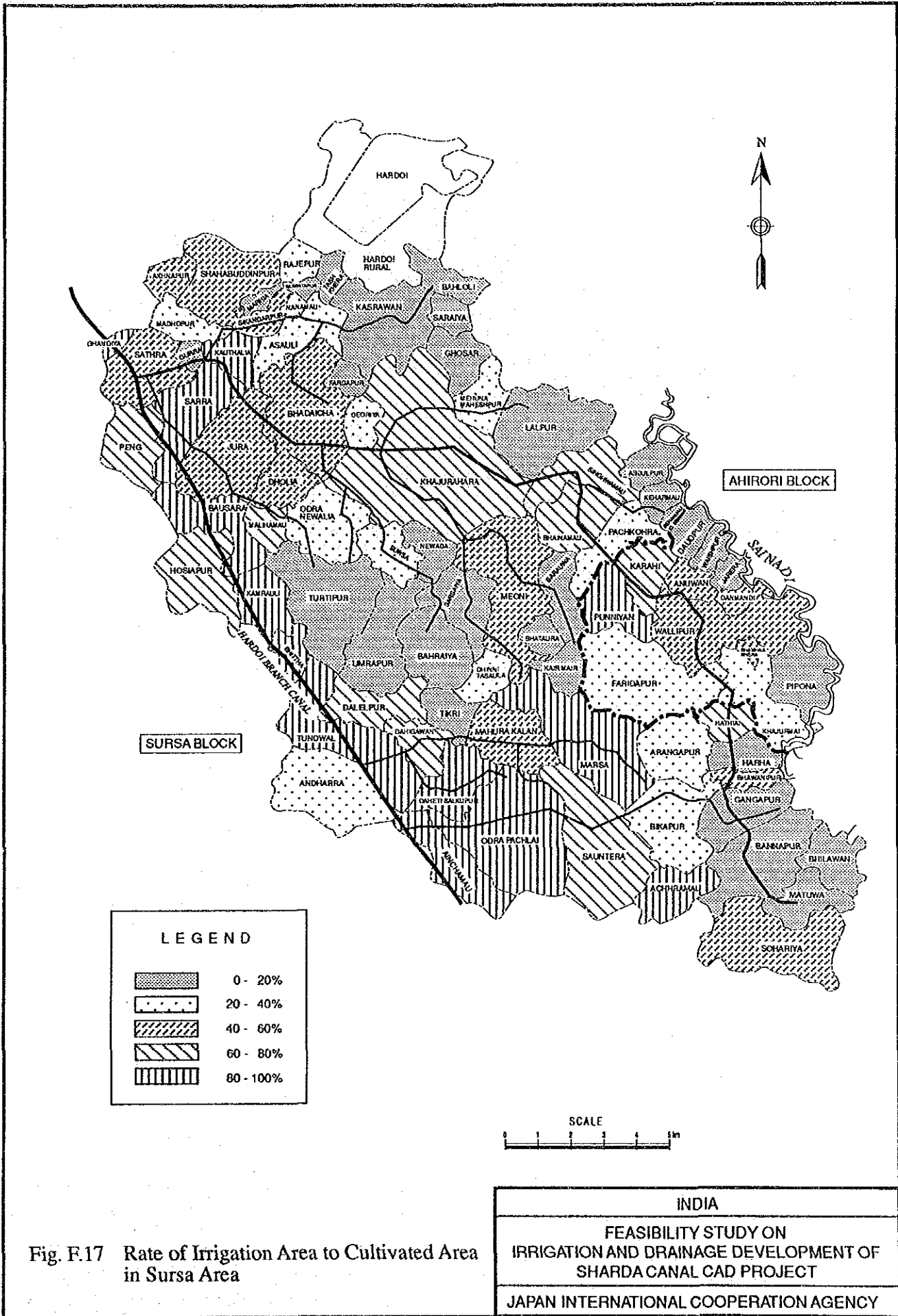


Fig. F.17 Rate of Irrigation Area to Cultivated Area in Sursa Area

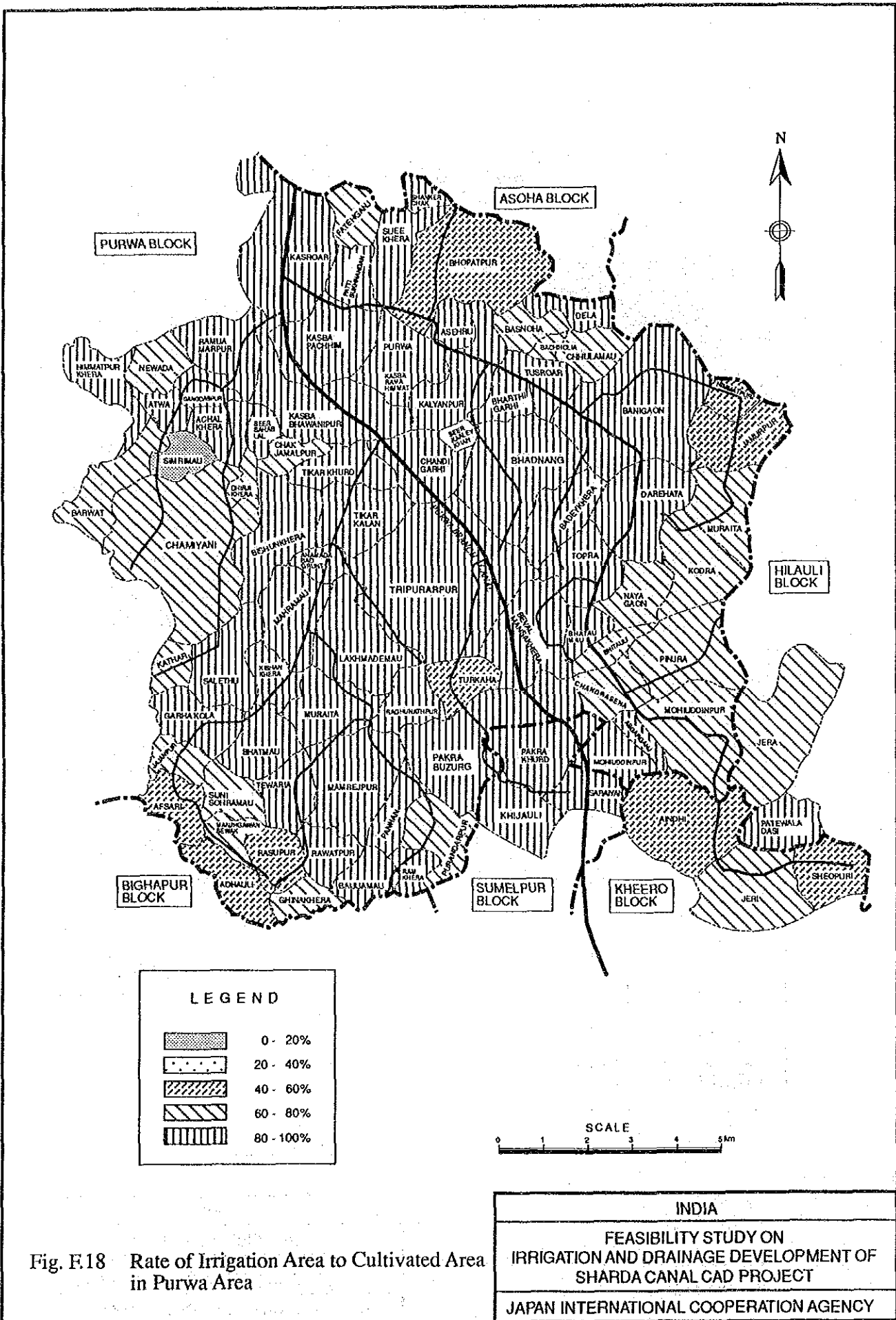


Fig. F.18 Rate of Irrigation Area to Cultivated Area in Purwa Area

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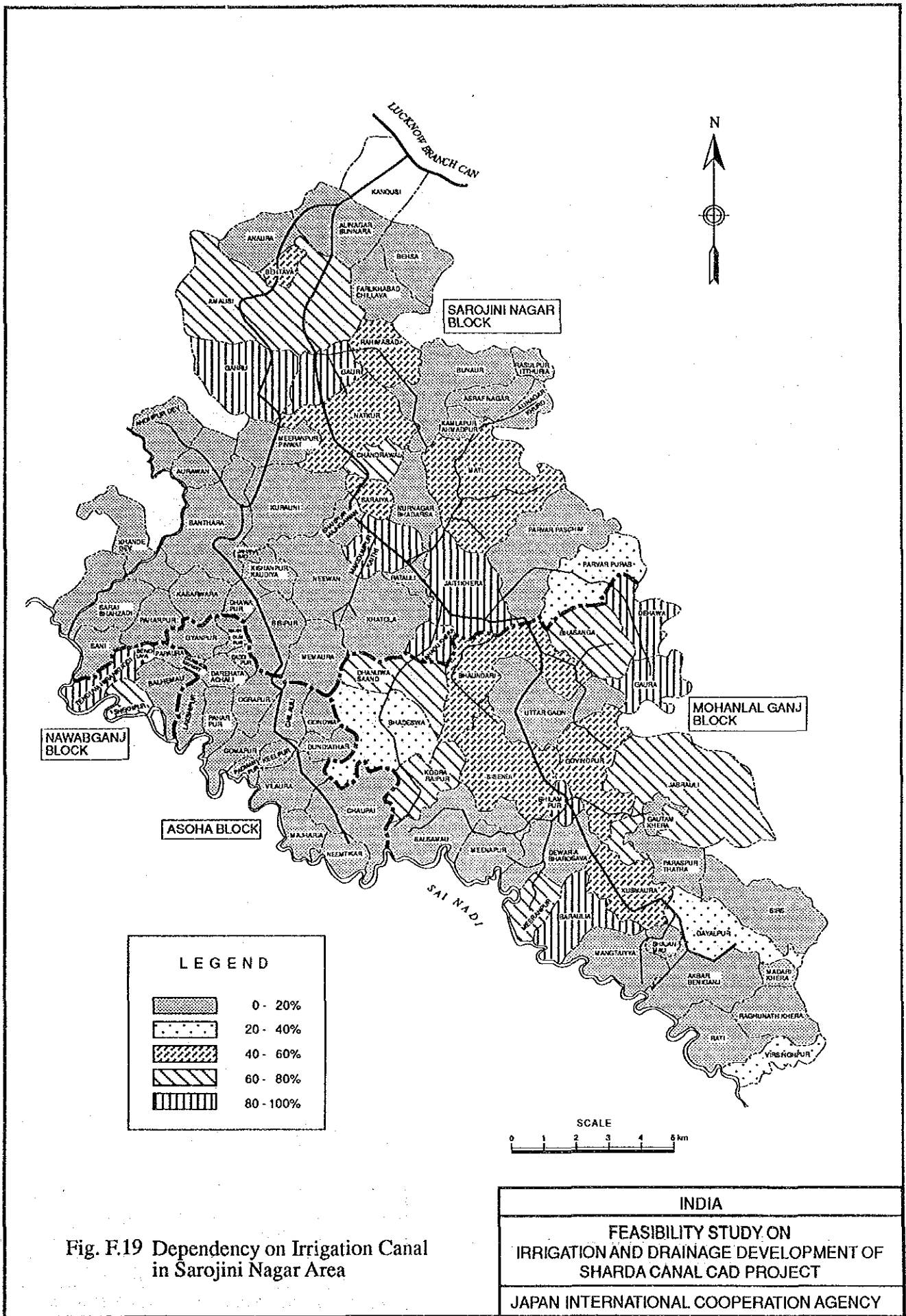


Fig. F.19 Dependency on Irrigation Canal in Sarojini Nagar Area