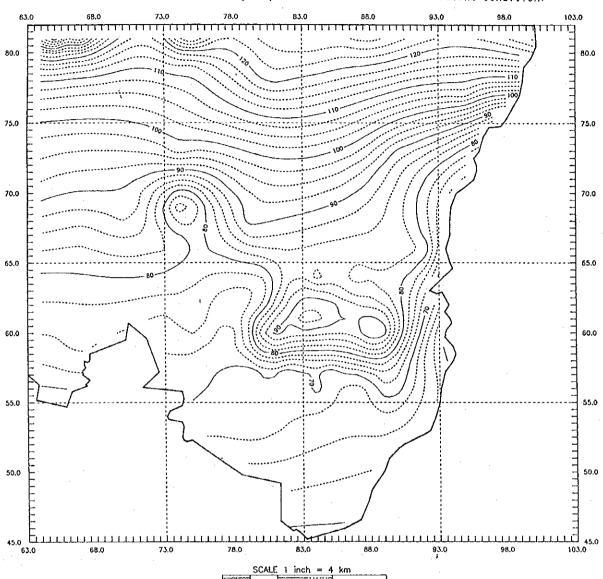
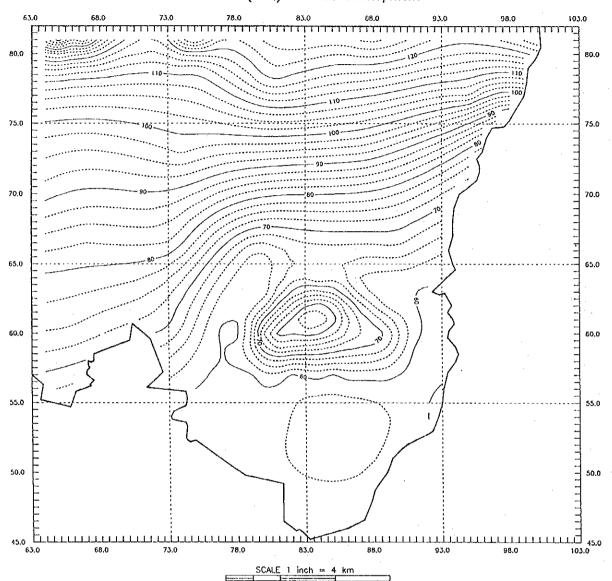
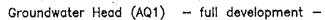
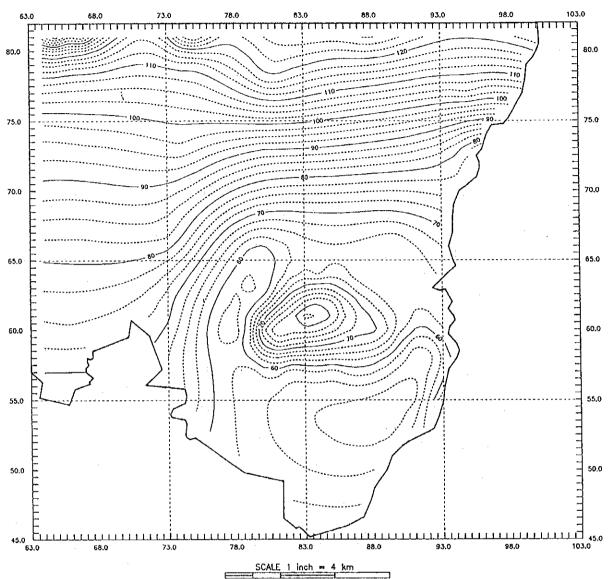
# 4.5.4. Groundwater Head Contour Map Groundwater Head (UAQ) (1) Groundwater Head <Present Condition>

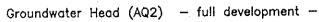


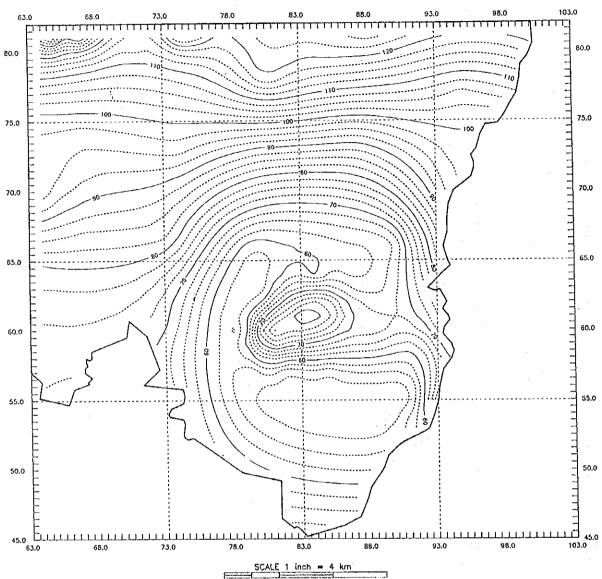




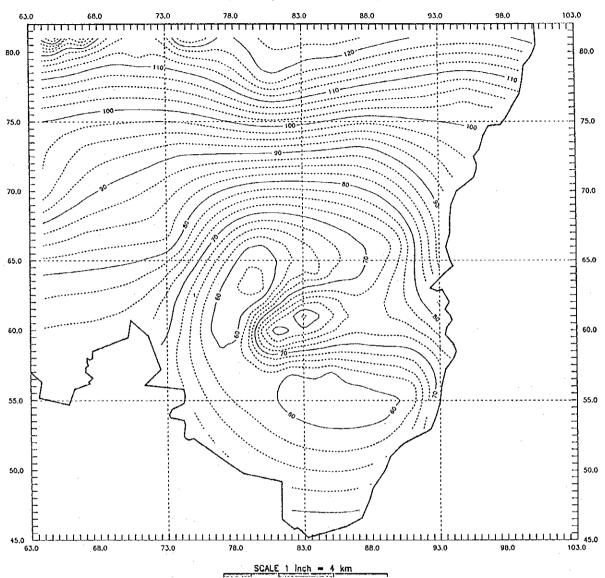






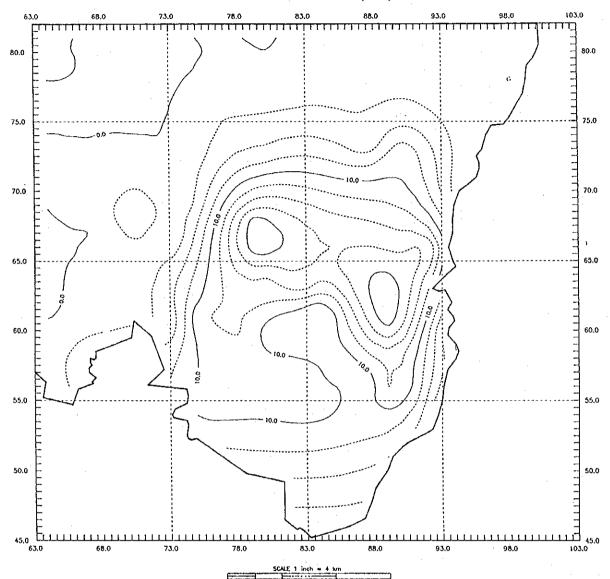


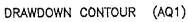
### Groundwater Head (Siwalik) - full development -

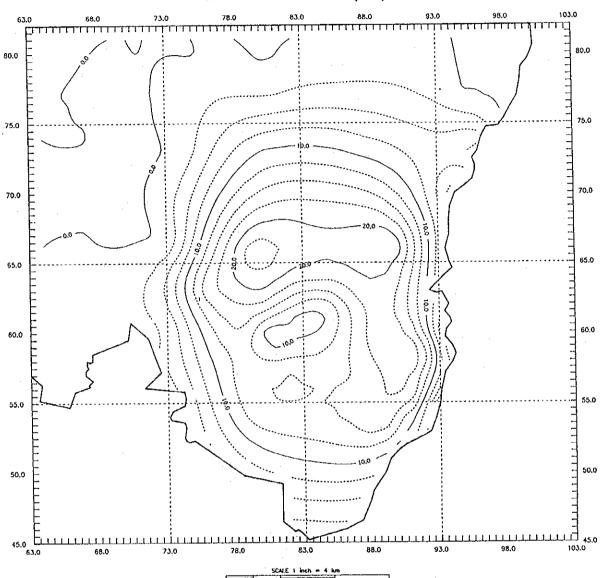


## (3) Drawdown from Normal Condition

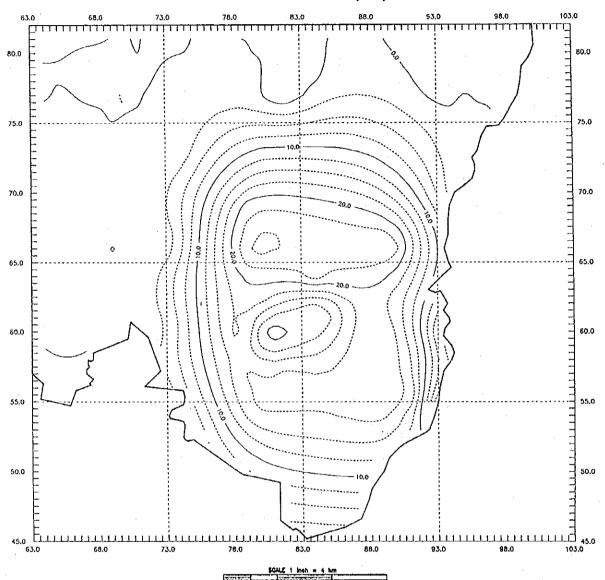
### DRAWDOWN CONTOUR (UAQ

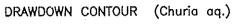


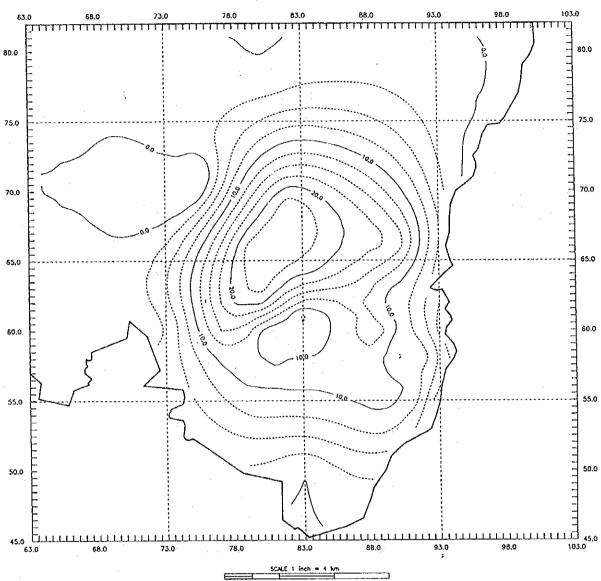




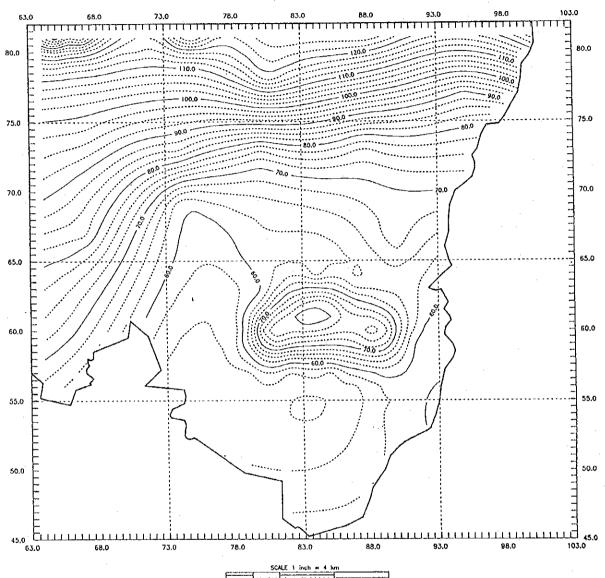
### DRAWDOWN CONTOUR (AQ2)



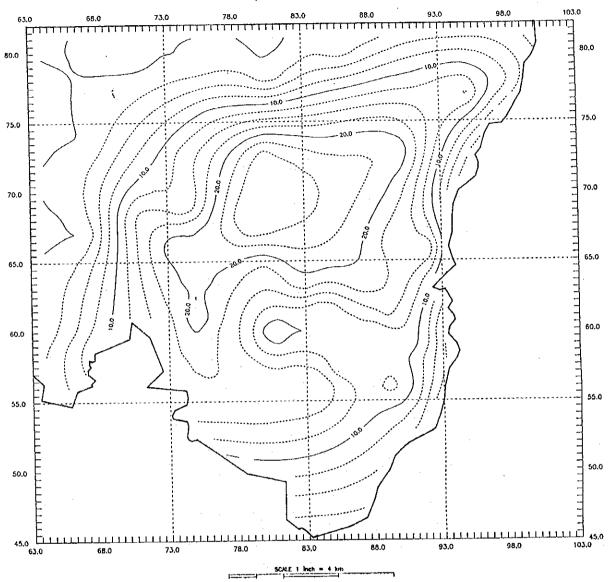




## (4) Groundwater Head <Under Shallow Aquifer Draft> Groundwater Head (draft on shallow aq.)



### DRAWDOWN (draft on shallow aq.)



4.5.5. Summary of Hydrologic Balance (for 14 years) (1) Present Situation HYDROLOGIC BALANCE OF JHAPA DISTRICT BASIN (CASE 1)

EVAPO- SURFACE GROUNDWATER TRANSPN OUTFLOW RECHARGE OUTFLOW Area (SQ.KM) DRAFT 1181.5 5.2 160.4 66.5 59.0 20.1 111.1 456.5 41.3 37.8 48.8 48.8 41.3 37.8 55.5 28.0 859.6 16.9 40.3 555.3 772.2 754.7 3689.2 13.6 459.1 190.4 153.5 52.4 289.1 125.8 147.0 107.5 98.4 107.5 98.4 107.5 103.7 116.2 77.2 104.9 104.9 104.9 104.9 2691.3 9.9 342.6 141.9 431.4 26.2 277.8 2744.1 529.2 65.3 72.7 72.7 585.3 127.4 182.0 439.4 2850.8 629.8 183.1 237.3 28.8 63.5 2917.6 TOTAL

2140.5

7211.2 15182.8

2512.4

BASIN (CASE 1)

19899.5

382,3

353.2

2.2

						UNIT	M.C.M.	
BASIN NO.	AREA (50.KM)	RAIN- FALL					NOWATER	
	(50.141)	CALL	INTLUM	TRANSPN	CUTFLOW	RECHARGE	OUTFLOW	DRAFT
1	1161.5	3615.5	.0	931.8	2743.4	.0	_	_
2	5.2	13.3	.0	3.0	10.3		.0	.0
3	160.4	449.9	.õ	97.3		.3	.0	.0
4	66.5	186.5		40.3			.0	.0
5 6 7 8 9	59.0	150.4	352.6	47.0		12.3	0	. o
	20.1	51.4		14.0	29.5	7.9	14.1	• <b>0</b> .
7	111.1	283.3	146.2	82.4			8.2	.0
8	40.4	123.3	2743.4	52.6		32.6	35.8	۰.
	56.5	144.1	454,0	41.4		12.2	12.1	
10	41.3	105.4	.0	27.6	69.9	9.9	10.7	
11	28.B	73.3	29.5	19.5	78.6	7.9	8.6	.0
12	48.8	124.5	314.5	37.7	399.6	4.7	4.9	-0
13	41.3	105.3		45.1		1.7	2.2	. 1
14	37.8	96.4	546.8	28.6	2855.0	8.2	8.4	.0
15	37,4	95.4	69.9	25.4	605.4	9.3	9.8	.0
16	66.7	170 2	78.6	25.4		4.4	1.9	. 1
17	51.8	132.0	399.6	52.4		7.8	8.6	.5
18	44.6	113.9	2655.0	36.6	466.0	29.1	29.6	.0
19	28.0	71.4	605.4		2907.5		13.1	.0
20	38.8		135.5			4.2	. 1	.1
21	59.6	152.1			194.9		11.6	- 3
22	16.9	43.2	189.5	49.7		43.7	43.6	.8
23	40.3		.0	10.2		2.4	2.9	.0
24	55.3	102.8	-0	23.7	67.8	11.3	11.8	. 1
25		141.0	2907.5	60.4		9.0	4.2	. a
26	39.3 72.2	100.2	651.0	30.5			9.2	. 0
27		184.0	225.5	50.8		48.2	46.6	, ž
21	54.7	139.4	67.8	39.1	161.3	6.8	7.6	.ī
TOTAL	2512.4	7067.1	15574.9	1945.9	20454.5	306.7	311.0	2.2

HYDROLOGIC BALANCE OF JHAPA DISTRICT

						YEAR OF		
						wit =	M.C.M.	
BASIN	AREA	RAIN-	SURFACE					
NO.	(SQ.KM)	FALL	INFLOW	EVAPO~	SURFACE			
	(DQ:AII)	LVTF	INTLOW	Transpn	OUTFLOW	RECHARGE O	UTFLOW	DRAFT
1	1181.5	4057.9	.0	883.5	3152.6	.0		_
2	5.2	15.0	ŏ	2.9	12.0	.č	. 0	٠.٥
3	160.4	504.9	.0	92.8	411.6	.3	٠.٥	.0
4	66.5	209.5	, à	38.5		. 1	0	.0
5	59.0	168.8	411.6	44.2	523.2	13.1	. 0	٠.
5 6. 7	20.1	57.6	. o	13.4	33.5	8.8	12.8	.0
7	111.1	318.0	170.9	77.6	376.7	34.7	8.7	.0
8	48.4	138.4	3152.8	52.0	3225.7	13.3	33.8	.0
9.	56.5	161.7	535.2	39.8	646.3		12.3	.0
10	41.3	118.3	.0	26.1	83.9	8.3	10.3	.0
11	28.6	82.3	35.5	18.9	93.6	5.0	8.3	.0
12	48.8	139.7	376.7	35.6	478.7	1.9	5.0	.0
13	41.3	118.2	3225.7	44.4	3290 6		1.7	. 1
14	37.8	108.2	646.3	27.1	717.1	8.8 10.2	8.3	.0
15	37.4	107.1	63.9	24.0	162.5		9.9	.0
16	66.7	191.0	93.8	40.7	227.4	4.4	4.2	.1
17	51.8	148.2	478.7	35.7	557.3		7.4	. 5
18	44.6	127.8	3290.6	48.0	3356.3		33.6	.0
19	20.0		717.1	20.6	772.0	13.9	13.5	.0
20	38.8		162.5	76 0	234.2	4.8	1.1	. 1
21	59.6	170.7	227.4	4E 1	297.2		12.1	. 3
22	16.9	48.5	0	9.8			53.9	.8
23	40.3	115.4	ŏ	22.2	36.2	2.5	2.7	.0
24	55.3	158.3	3356.3	58.3	80.9	12.3	12.4	1
25	39.3	112.5	772.1	30.3		9.4	4.0	.0
26	72.2	206.5	270.4	29.0	845.6	9.9	9.7	0
27	54.7	156.4	80.9	37.1	371.0		55.3	. 2
			40.5	36.9	193.3	7.0	6.8	. 1
TOTAL	2512.4	7931.8	18088.3	1851.4	23800.1	345.0	327.9.	2 2

						YEAR O		
						UNIT =	M.C.M.	
Basi		RAIN-	SURFACE	KVAPO-	SURPACE	CPOTRA	DWATER	
NO.	(EQ.IM)	PALL	INFLOW	TRANSPH	OUTFLOW	RECHARGE (		DRAFT
							001110	DIGIT
1 2 3	1181.5	3551.7	.0	937.3	2593.1	.0	.0	.0
2	5.2	13,1	.0	3.4	9.6	.0	.ŏ	.ŏ
		441.9	۰,	106.3	334.2	.3	.0	žŏ
4		183.3	.0	44 1	138.7	.1	.0	,ŏ
5 6 7	59.0	147.8	334.2	46.2	422.2	13.1	13.3	
δ	20.1	50.5	.0	14.7	24.6	11.0	11.0	.ŏ
		278.3	138.7	83.3	291.6	41.5	41.1	.0
8		121,2	2593,1	53.2	2649.0	11.7	11.7	.0
9		141.6	431.9	42.6	519.4	11.2	îi.i	.0
10		103.5	.0	29.2	54.6	9.5	9.2	.0
11		72.0	24.6	20.8	70.0	5.7	5.6	.0
12		122.3	291.6	37.8	374.0	I.8	1.7	.1
13		103.4	2649.0	45.5	2698.9	7.9	7.á	. 6
14		94.7	519.4	29.0	574.9	10.0	9.9	.6
15		93.7	64.6	26.8	125.9	5.4	5.0	:1
16		167.2	70.0	53.0	174.7	9.2	8.4	.5
17		129.7	374.0	36.7	427.0	37.7	37.6	
18		111.8	2698.9	19.2	2748.7	12.6	12.6	.0
19			574.9	21.8	618.7	4.4	2.6	.1
20	36.8	97.1	125.9	29.0	179.3	14.5	11.1	.3
21	59.6	149.4	174.7	49.2	216.9	57.4	56.6	.å
22		42,4	.0	11.3	28.3	2.8	2.6	:0
23	40.3	101.0	.0	26.0	62.8	12.1	11.9	
24	55.3	138.5	2748.7	59.7	2818.7	8.4	8.0	.1 .0
25	39.3	98.4	618.7	30.7	676.9	9,4	9.3	
26	72.2	180.7	207.5	53.7	268.2	66.1	65.6	٥.
27	54.7	136.9	62.8	39.8	151.2	8.4	8.2	.2

2512.4 6942.4 14703.3 1982.1 19262.2 372.1

HYDROLOGIC BALANCE OF JEAPA DISTRICT BASIN (CASE 1)

YEAR OF 1984

						UNIT =	M.C.M.	
BASIN	AREA	RAIN-	SURFACE	EVAPO-	SURFACE	CROTTE	DWATER	
NO.	(SQ.JQK)	FALL	INFLOW	TRANSPR	OUTPLOW	RECHARGE		DRAFT
1	1181.5	5070.2	.0	981.6	4074.8	.0	.0	.0
2	5.2	18.7	.0	3.6	15.1	.ŏ	.ŏ	.ŏ
3	160.4	630.9	.0	113,6		.3	.ŏ	.0
4	66.5	261,7	. 0	47.1		:1		
5 6 7	59.0	210.9		49.9	662.6	16.7	15.1	.ŏ
6	20,1	72.0	.0	15.4	45.0	11.6	11.7	
7	111.1	397.3	215.0	86.2		45.0	44.3	.0
8	48.4	173.0	4074.8	53.2		15.8	13.6	
9	56.5	202.1	677.6	44.9		13.7	13.4	
10	41.3	147.8	.0	31.3	105.5	11.2	10.9	.0
11	28.6	102.8		21.9	119.3	6.7	6.7	٠.٥
12	48.8	174.5	479.7	39.8	612.5	2.2	2.0	.0
13	41.3	147.7	4178.6	45.4	4270.5	10.3	9.0	-1.
14	37.8	135.2	821.6	30.2	914.2	12.5		-0
15	37.4	133.6	105.5	28.6	204.7	6.2	10.6	.0
16	66.7	238.7	119.3	54.9	293.1	9.8	5.6	1
17	51.8	185.1	612.5	40.4	714.5		8.5	.5
18	44.6	159.7	4270.5		4365.1	43.0	40.2	-0
19	28.0	100.2	914.3	22.8		15.9	14.4	.o
20	38.8		204.7	22.8	986.2	5.7	.3	- 1
21	59.6	213.3	293.2	30.0	298.1		14.9	. З
22	16.9	60.6		50.8	386.4		65.6	.8
23	40.3	144.2		11.9	45.5	3.2	2.8	.0
24	55.3			27.6	100.9	15.8	14.9	
25		197.8	4365.2	59.6	4491.8		5.9	.0
26	39.3	140.5	986.3	32.0	1083.7	11.3	10.B	.0
27	72.2		343.6	55.1	476.8	70.0	69.1	. 2
27	54.7	195.4	100.9	42.5	244.7	9.4	9.2	.1
TOTAL.	2512.4	9910.6	23326.3	2071.4	30725.9	430.5	399.5	2.2

EYDROLOGIC BALANCE OF JEAPA DISTRICT

BASIN (CASE 1)

					YEAR OF 1985 Unit = M.C.M.						
						UNIT = 8	1.C.M.				
RASIN	AREA	RAIN-	SURPACE	EVAPO-	SURPACE	GROTHOV	ATER				
NO.	(SQ.101)	PALL	INFLOW					DRAFT			
1	1181.5	4151.5	.0			.0	.0	.0			
2	5.2	15.3	.0	3.9	11.3	.0	.0	, ö			
3	160.4	516.6	.0	121.6	391.4	.3	.0				
4.	66.5	214.3	.0	50.1	162.5	.1	.0				
	59.0	172,7	391.4	51.6	493.3		15.6				
6	20.1	59.0	.0	16.3	29.7	12.5	12.3				
7	111.1	325.3	162.5	92.2	344.4	47.6	46,2	. 0			
8	48.4	141.6	3069.8	53.8	3143.9	13.1	12.9				
9	56.5	165.5	504.7	47.2	608.2	13.1	12.7	.0			
10	41.3	121.0	504.7	32.8	76.0	11.1	10.6	- 0			
. 11	28.8	84.2	29.7	23.2	63.3	6.7	6.6	.0			
12	48.8	112.9	344.4	41.8	442.0	. ,	1.9	. 1			
13	41.3	120.9	3143.9		3209.7	8.7	8.7	.0			
14	37.0		608.2	31.7	674.5	11.6	11.3	0			
15	37.4	109.5	76.0	30.0	148.0	6.5	6.1	.1			
16	66.7	195.4	83.3	56.3	209.0	9.9	8.7				
17	51.6	151.6	442.0				40.8	.0			
10	44.6			49.7	3276.2	13.8	13.7	. 0			
19	28.0	82.0	674.5		726.8	5.1	. 5	.0 .1 .3 .8			
20	36.8	113.5	148.0	31.5	212.3	16.4	15.9	.3			
21	59.6	174.6	209.0	52.0	265.4	62.8	61.7	. 8			
22	16.9	49.6	.0	12.7	33.4	3.2	3.0	.0			
23	40,3	118.0		29.9	77 4	14 10	13.9	.1			
24	55.3	161.9	3276.2	60.8	3366.9	9.5	6.6	- 0			
25	39.3 72.2	115.1	726.9	33.4	796.4	10.9 75.9	10.6	.0			
26			473.0	70.0	320.2	75.9	75.2	. 7			
27	54.7			44.7	177.4	9.7	9.3	.1			
TOTAL	2512.4	6114.7	17419.3	2148.0	22053.0	422.0	405.0	2.2			

HYDROLOGIC BALANCE OF JHAPA DISTRICT

BASIN (CASR 1)

YEAR OF 1986 UNIT = M.C.M.

BAGIN	AREA	RAIN~	SURPACE	EVAPO-	SURPACE	GROUP	YDWATER	
NO.	(SO.KM)	FALL	INATOM	TRANSPH	OUTFLOW	RECHARGE	OUTPLOW	DRAFT
1	1181.5	2485.5	.0	909.3	1681,4	.0	.0	.0
2	5.2	9.2	.0	3.2	6.0	.0	.0	.0
3	160.4	309.3	.0	101.6	210.8	.3	.ŏ	.0
4	66.5	128.3	.0	42.1	87.5	. 1	.ŏ	.0
4 5 6	59.0	103.4	210.8	45.7	258.3	13.4	14.8	. ŏ
6	20.1	35,3	.0	14.1	13.4	8.4	8.6	.0
7	111.1	194.8	87.5	80.9	165.6	39.3	41.4	ő
8 9	48.4	84.8	1681.4	52.2	1705.9	9.2	9.4	.0
9	56.5	99.1	264.4	41.4	312.8	10.9	11.4	.0
10	41.3	72.4	.0	28.7	37.2	7.5	8.2	.0
11	28.8	50.4	13.4	20.0	39.3	5.3	5.5	.0
12	48.8	85.6	165.6	36.9		1.8	2.1	.ĭ
13	41.3	72.4	1705.9	44.5	1728.1	6.5	6.7	.0
14	37.8	66.3	312.8	28.0	343.1	9.0	9.5	.ŏ.
15	37.4	65.6	37.2	26.4	72.2	5.3	5.7	.1
16	66.7	117.0	39.3	51,4	99.4	9.4	10.1	.5
17	51.8	90.7	213.9	37.4	241.0	27.6	28.1	.0
18	44.5	78.3	1728.1	48.1	1748.5	10.7	10.9	. 6
19	28.0	49.1	343.1	21.1	368.0	3.9	2.8	.1
20	38.8	67.9	72.2	27.6	100.4	13.1	13.3	.3
21	59.8	104.6	99.4	47.3	117.6	43.7	43.6	. š
22	16.9	29.7	.0	10.6	17.5	2.0	2.7	.0
23	40.3	70.7	.0	24.9	37.6	8 7	9.8	.1
24	55,3	96.9	1748.5	59.3	1780.9	6.5	6.9	. 6
25	39,3	68.9	360.1	29.7	400.0	8.6	9.0	.0
26	72.2	126.5	117.8	50.7	144.2	51.4	51.9	. 2
27	54.7	95.8	37.8	39.0	87.9	8.3	8.7	.1
TOTAL	2512,4	4858.3	9247.1	1921.9	12018.6	310.9	321.2	2.2

HYDROLOGIC BALANCE OF JHAPA DISTRICT

BASIN (CASE 1)

YEAR OF 1987

						UNIT :	M.C.K.	
BASIN	ARKA	RAIN-	SURFACE	EVAPO-	SURPACE		DWATER	
NO.	( BO . KM)	FALL	INFLOW	TRANSPN	OUTPLOW	RECHARGE	OUTFLOW	DRAFT
1	1181.5	2736.5	.0	933.4	1605.0	.0	0	.0
2	5.2	10.1	.0	3.5	6.6	0	. ŏ	.ŏ
2	160.4	340.5	.0	111.3	228.9	. 3	ŏ	
4	66.5	141.3	.0	16.1		.1	.ŏ	. ŏ
5	59.0	113.8	228.9	46.7	284.0	12.0	12.0	.0
6	20.1	38.9	-0	14.5	15.9	8.5	8.4	.0
7	111.1	214.4	95.1	82.8	189.9	36.8	36.3	.ŏ
ė 9	48.4	93.3	1805.0	52.3	1836.5	9.6	9.6	.0
9	56.5	109.1	290.5	42.5	347.0	10.1	9.9	.ŏ
10	41.3	79.7	.0	29.8	41.9	8.0	7.9	.0
11	28.8	55.5	15.9	20.7	45.7	5.1	5.1	.0
12	48.8	94.2	189.9	37.4	245.1	1.7	1.5	i
13	41.3	19.7	1836.5	44.7	1865.0	6.6	6.6	.ô
14	37.8	73.0	347.0	28.8	382.6	8.6	8.5	.0
15	37.4	72.2	41.9	27.2	81.6	5.1	5.0	.ĭ
16	66.7	128.8	45.7	50.8		7.6	7.1	.5
1.7	51.8	99.9	245.1	38.3	279.0	27.7	27.6	.6
16	44.6	86.2	1865,0	48.3	1892.1	10.8	10.B	.ŏ
19	28.0	54.1	382.6	21.7	411.3	3.6	2.8	
20	38.8	74.8	61.8	28.2	116.3	12,1	11.6	.1 .3 .8
21	59.6	115.1	116.1	46.7	141.7	42.6	41.8	Ã
22	16.9	32.7	.0	11.5	18.9	2.3	2.5	.0
23	40,3	77.8	-0	27,1	41.1	9.7	9.5	, ĭ
24	55.3	106.7	1892.1	58.3	1934.1	6.5	5,9	.ô
2\$	39.3	75.8	411.3	30.5	448.4	8,2	8.1	.0
26	72.2	139.3	135.1	51.8	172.9	19.6	49.4	. 2
27	54.7	105.5	41,1	40.5	98.1	7.9	7.6	.1
TOTAL	2512.4	5348.8	10066.6	1975.2	13140.8	301.2	295.A	. 22

HYDROLOGIC BALANCE OF SHAPA DISTRICT

BASIN (CASE 1)

YBAR OF 1988

						UNIT =	M.C.M.	
BASIN NO.	AREA (SQ.KM)	RAIN- FALL	SURFACE INFLOW	EVAPO- TRANSPN		GROUND RECHARGE O	WATER OTPLOW	DRAFT
1	1181.5	3397.2		1092.8	2286.4	.0	.0	.0
2	5.2	12.5	-0	3.8	8.7		ō	
2 3	160.4	422.7	.0	118.5	303.9			
4	66.5	175.4	.0	49.1		ī		
5	59.0	141.3	303.9	56.5	372.0	16.6		
6	20.1	48.3	.0	17.1	20.2	11.0	11.0	.ŏ
7	111.1	266.2	.0 126.2	.99.5	244.0	48.8	49.6	
5 6 7 8 9	48.4	115.9	2286.4	52.3	2338.9	10.9	10.9	
9	56.5	135.4	380.7	51.6	451.0	13.5	13.5	ő
10	41.3	99.0	.0	34.6	54.2	10,2	10.1	
11	28.8	68.9	20.2	24.3	57.9		6.9	
12	48.8	117.0	244_0	45.2	313.5	2.3	2.3	
13	41.3	98.9.	2338.9	44.6	2385.6	7.5	7.4	
14	37.8	90.6	451.0	35.1	495.0	11.5	11.5	
15	37.4	89.6	54.2	31.9	105.1	6.7	6.6	.1
16	66.7	159.9	57.9	60.9	146.0	10.7	4.0	.5
17	51.8	124.0	313.5	45.0	356.7	35.8	35.0	. 0
18	44:6	107.0	2385.6	48.2	2432.0	12.2	9 9 35.9 12 1	
19	28.0	67.1	495.0	26.4	530.7	5.0	1 7	.1
20	38.8	92 B	105.1	33.5	147.8	16.6	16.4	
21	59.6	142.9	146.0	45 Q	179.3	53.6	52.2	. 8
22	16.9	40.6	.0	12.6	25.3	2.7	52.7 2.5	.0
23	40.3		.0	29.1	55.1	12.4	11.8	.1
24	55.3		2432.0	59.6	2496.7	8.1	7 0	. 0
25	39.3	94.2	530.8	26.0	577 1	11.0	11.1	
26	72.2	172.9	530.8 173.2	61.5	219.4	65.1	64.9	
27	54.7	130.9	55.1	46.1	127.7	10.3	10.5	. 2
TOTAL	2512.4				16856.4	389.9	1.0	

BASIN (CASE 1)

HYDROLOGIC BALANCE OF JEAFA DISTRICT

YEAR OF 1989 UNIT = M.C.M.

BASIN NO.	AREA (SQ.104)	RAIN- FALL	SURFACE	EVAPO- TRANSPN	SURFACE	GROUNT RECHARGE (		DRAFT
AU.	(04.14.1)							
1	1181.5	3673.7	.0	942.5	2735.0	.0	.0	.0
Ž.	5.2	13.5	.0	3.5	10.0	.0	۰.	.0
3	160.4	457.1	.0	109.4	347.5	.3	.0	.0
4 .	66.5	189.6	.0	45.4	144.2	.1	.0	.0
	59.0	152.8	347.5	47.9	438.3	14.2	15.2	.0
5 6 7	20.1	52.2	.0	14.8	25.7	11.7	11.7	.0
ž	111.1	287.9	144.2	65.1	304.7	42.3	42.5	.0
á	48,4	125.3		54.6	2793.7	12.1	12.1	.0
8	56.5	146.4	448.3	44.2	538.4	12.1	12.3	.0
10	41.3	107.1	٥	30.0	66.9	10.2	10.2	.0
îī	28.8	74.5	25.7	21.1	73.2	6.0	5.0	.0
12	48.8	126.5	304.7	38.9	390.3	2.0	1.9	, 1
13	41.3	107.0	2793.7	46.6	2846.0	8.1	8.1	.0
14	37.8	97.9	538.4	30.3	595.2	10.8	10.9	۰۵.
15	37.4	96.9	66.9		130.6	5.8	5.7	. 1
16	66.7	172.9	73.2		183.8	9.2	8.9	.5
17	51.8	134.1	390.3		446.3	39.4	39.4	.0
18	44.6	115.7	2846.0	50.3		12.6	12.6	.0
19	28.0	72.6		22.7		4.7	2.1	. 1
20	38.8	100.4	130.6	29.1		14.7	14.4	. 3
21	59.6	154.5	183.8	49.4		57.6	56.9	
22		43.9	.0	11.5	29.2	3.1	2.8	.0
23	40.3	104.4	.6		64.8	12.6	12.5	.1
24	55.3	143.3				8.6	8.2	0
25	39.3	101.8	640.5				9.6	.0
	72.2	186.9					68.2	
26 27	54.7	141.6	64.8			8.6	8.7	. 1
27	34.1	111.0		71.7		0.0		
TOTAL	2512.4	7180.7	15444.2	2009.4	20235.5	384.8	381.1	2.2

HYDROLOGIC BALANCE OF JHAPA DISTRICT

BASIN (CASE 1)

YEAR OF 1990 UNIT \* M.C.M.

BASIN	AREA	RAIN-	BURFACE	EVAPO-	SURPACE		DWATER	
NO.	(BQ.KM)	FALL	INFLOW	TRANSPH	OUTFLOW	RECHARGE	OUTFLOW	DRAFT
	(-4,,,,,							
1	1181.5	6181.8	.0	1147.2	4963.0	.0	.0.	.0
2	5.2	22.8	.0	4.5	18.3	.0	.0	.0
ŝ	160.4	769.2	.0	138.1	630.6	.3	.0	.0
4	66.5	319.1	.0	57.3	261.7	.1	.0	٠.
ž	59.0	257.2	630.6	58.3	809.7	19.7	17.0	.0
5 6	20.1	67.6	.0	18.5	53.1	16.2	16.0	. 0
7	111.1		261.7	105.4	585.8	54.9	53.1	-0
Á	48.4	210.9	4963.0	55.9	5098.9	18.3	17.1	.0
9	56.5	246,4	828.1	54.2	1003.9	16.5	16.0	.0
10	41.3	160.2	.0	37.4	127.3	15.5	14.7	٠.
ii	28.8	125.4		26.3	144.1		7.9	۰.
12	48.6	212.8	585.8	47.3	748.7	2.6	2.2	-1
13	41.3	180.1	5098.9	47.7	5219.0	11.7	10.7	.0
îä	37.8		1003.9	36.1	1117.5	15.0	13.8	۰.0
15	37.4		127.3	34.1	248.6	7.6	5.1	1
16	66.7	291.0	144.1		357.8	11.6	9.4	- 5
17	51.8	225.7	748.7	48.2	869.4	56.8	55.3	.0
îŝ	44.6	194.7	5219.0	51.6	5343.4	18.0	17.5	.0
19	28.0	122.2	1117.5	27.0	1205.9	6.8	-3.8	- 1
20	38.8	168.9	248.7	36.1	362.2	19.3	18.6	. 3
21	59.6	260.1	357.8	58.0	474.5	81.8	80.3	. 8
22	16.9	73.8	.0	14.6	54.3	4.9	3.4	.0
23	40.3	175.8	.0	34.4	121.3	20.1	18.7	.1
24	55.3	241.1	5343.4	63.9	5506.1	13.9	3.1	0
25	39.3	171.3	1206.1	38.0	1325.6	13.8	13.5	.0
26	72.2	314.6	416.5	67.0	571.7	92.4	91.6	. 2
27	54.7	238.3	121.3			11.5	11.0	-1
21		200.2						
TOTAL	2512.4	12083.4	28475.5	2423.2	37519.2	537.5	492.3	2.2

EYDROLOGIC BALANCE OF JHAPA DISTRICT

BASIN (CASE 1)

YEAR OF 1991 UNIT = M.C.M.

						*		
BASIN	ARZA	RAIN-	SURFACE		SURFACE		WATER	
NO.	(60.101)	PALL	INFLOW	Transph	OUTFLOW	RECHARGE (	SOLLFOOM	DRAFT
1 .	1161.5	4138.7	.0	914.9	3268.9	.0	.0	.0
	5.2	15.3	.0	3.4	11.8		.0	.0
2	160.4	515.0	.ŏ	107.4		3	.0	.0
3	66.5	213.6	. 6		169.0		. 0	
4	59.0	172.2		45.5		14.5	15.2	.0
5	20.1	58.8		14.4	32.4		12.0	.0
7		20.0	169.0	81.7	368.7			
7	111.1 48.4	141.2	3268.9	64 T	3347 7	13.6	13.7	
8		151.2	531.4		642.5	12.3	12.5	
9	56.5	103.0	331.4		80.6	11.0		
10	41.3	120.0	32.4	20.6	80.7	6.2		
11	26.6	53.9	368.7	26.0	472.2	2.0	2.1	
12		120.5	3342.7		3408.3	9.0		
. 13		120.5	642.6	20.3	713.6	11.2	11.4	. 0
14	37.8	110.3	80.6			5.9	6.1	.1
15	37.4	109.2	89.7		223	10.6		
16	66.7	194.8	472.2	37.7	543 7	42.0		
. 17	51.8	151.1	3408.3		2474 7	14.2	14.3	.0
18	44.6	130.3	713.6		769.1	\$.0		. 1
19	28.0	91.0	157.5		227.3	15.0		. 3
20	38.8	113.1	223.4		288.0		62.2	. 8
21				11.4	34.8	3.3		.0
22		49.4	,		77.4	13.6	14.2	. 1
23	40.3	11/./	3474.7				8.2	.0
24	. 55.3	161.4	769.2		843.6	10.3		
25				50.0	350.8			
26	72.2	210.6	77.4		168.5		9.1	1
27	54.7	127.2	//.4	39.5	100.5	0.,		
TOTAL	2512.4	8089.8	18491.8	1953.5	24272.1	405.2	404.0	2.2

HYDROLOGIC BALANCE OF JHAPA DISTRICT BASIN (CASE 1)

YEAR OF 1992 UNIT x M.C.M.

RASIN	AREA	RAIN-	SURFACE	EVAPO~	SURFACE		TOWATER	
KO.	(EQ.KH)	PALL	INFLOW	Traxspn	OUTFLOW	RECRARGE	OUTPLOS	DRAFT
1	1181.5	2380,6	.0	791.8	1631.2	.0	.0	.0
2	5.2	8.8	.0	2.8	5.9	.0	.0	
3	160.4	296.2	.0	89.9	206.1	.3	.0	.0
4	66.5	122.9	.0	37.3	85.6	.1	0	.0
	59.0	99.0	206.1	40.0	253.6	11.6	12,4	.0
6	20,1	33.8	.0	12,4	13.0	8.4	6.5	٥.
5 6 7	111.1	186.5	85.6	71.1	166.2	34.9	35.8	.0
8	48.4	81.2	1631.2	51.6	1652.2	9.1	9.3	٠.
9	56.5	94.9	259.5	36.7	307.8	10.0	10.2	-0
10	41.3	69.4	.0	25.4	36.8	7.2	7.8	.0
11	28.8	18.3	13.0	17.7	38.8	4.8	4.9	.0
12	48.8	82.0	166.2	32.3	214.3	1.6	1.8	.1
13	41.3	69.3	1652.2	44.1	1671.4	6.4	6.7	.0
14	37.8	63.5	307.8	25.0	337.9	8.3	8.5	.0
15	37.4	62.8	36.8	23.1	71.8	4.7	5.0	.1
16	66.7	112.1	38.8	44.7	99.1	7.7	8.0	.5
17	51.8	86.9	214.3	33.0	241.5	26.7	26.9	.0
18	44.6	75.0	1671.4	47.6	1688.7	10.4	10.6	
19	28.0	47.0	337.9	16.8	362.6	3.6	3.5	.1
20	38.8	65.1	71.8	24.3	100.8	11.7	11.8	.3
21	59.6	100.1	99.1	41.7	116.5	42.3	41.9	.8
22	16.9	28.4	.0	9.4	17.1	1.9	3.1	.0
23	40.3	67.7	.0	22.0	37.1	8.6	9.5	. 1
24	55.3	92.9	1688.7	57.2	1718.8	6.0	6.4	.0
25	39.3	66.0	362.6	26.4	394.6	7.6	7.8	.0
26	72.2	121.1	117.9				51.4	. 2
27	54.7	91.8	37.1	34.7	86.7	7.5	7.6	.1
TOTAL	2512.4	4653.2	8997.8	1705.9	11698.7	292.5	299.1	2.2

EYDROLOGIC BALANCE OF JHAPA DISTRICT

BASIN (CASE 1)

GROUNDWATER RECHARGE OUTFLOW Basin Ko. AREA (SQ.KM) RAIN-FALL SCRPACE INFLOW EVAPO-TRANSPN GURPACE OUTFLOW DRAFT 3408.5 12.6 424.1 175.9 141.8 48.4 267.3 135.9 99.3 69.1 117.3 99.9 160.4 107.3 67.4 107.3 67.4 133.4 99.9 143.4 1 2379.0 8.8 305.8 127.0 384.1 21.5 262.7 2430.4 472.4 472.4 572.8 522.9 113.2 2477.2 158.6 385.7 2523.3 563.0 196.2 253.3 1234567891011231456718920122342567 .00.03 .31.34.22 111.34 111.44 11.44 11.5.99 10.08 10.08 10.08 11. 0000000000010015000138010021 2512.4 13451.2 2084.0 17609.6 371.0 357.4 2.2

### (2) Under Draft with Irrigation Water Demand

HYDROLOGIC BALANCE OF JRAPA DISTRICT BASIN (CASE 1)

							F 1980 M.C.K.		
BASIN	AREA	RAIN-	SURFACE	EVAPO-	SURFACE		DWATER		
KO.	(SQ.KM)	PALL	inflow	TRANSPN	OUTFLOW	RECHARGE	OUTFLOW	DRAFT	
1	1181.5	3689.2	.0	1025.4	2691.3	0	.0	.0	
2	5.2	13.6	.0	3.7	9.9	.0	.0	.0	
3	160.4	459.1	.0	116.7	342.6	. 3	.0	.0	
Ä	66.5	190.4	.0	48.4	141.9	. 1	.0	.0	
. 5	59.0	153.5	342.6	50.7	431.4	15.2	12.3	.0	
6	20.1	52.4	.0	15.8	26.2	10.7	11.2	.0	
7	111.1	289,1	141.9	91.7	297.8	44.9	40.5	.0	
8	48.4	125.6	2691.3	53.9	2744.1	11.7	11.6	. e	
9	56.5	147.0	441.2	46.5	529.2	12.6	12.0	.0	
10	41.3	107.5	.0	32.1		10.1	9.1	.0	
11	28.8	74.8	26.2	22.3	72.7	6.0	6.5	.0	
12	48.8	127.0	297.8	40.9	381.9	2.1	1.8	. 1	
13	41.3	107.5	2744.1	46.0	2797.7	7.6	7.4	.0	
14	37.8	98.4	529.2	31.6	585.3	11.1	10.3	.0	
15	37.4	97.3	65.3	29.3	127.4	5.9	. 3	6.0	
16	66.7	173.7	72.7	54.5	182.0	8.4	2.2	8.8	
17	51.8	134.7	381.9	41.1	439.4	36.2	35.7	.0	
16	44.6	116.2	2797.7	49.7	2850.8	11.4	11.3	.0	
19	28.0	72.9	585.3	23.6	629.8	€.8	1.1	. 1	
20	38.8	100.8	127.4	30.7	183.1	14.4	2.3	13.7	
21	59.6	155.2	182.0	50.5	237.3	62.4	53.0	28.4	
22	16.9	44.1	.0	12.2	28.8	3.0	3.2	.0	
23	40.3	104.9	.0	28.8	63.5	12.6	9.7	6.5	
24	55.3	143.9	2850.8	60.6	2917.1	7.5	4.7	.0	
25	39.3	102.3	629.9	33.5	689.5	10.3	10.2	-0	
26	72.2	187.7	211.9	56.9	280.6	63.6	43.8	25.1	
27	54.7	142.2	63.5	43.7	152.9	9.4	-18.1	32.3	
TOTAL	2512.4	7211.2	15182.7	2140.5	19899.5	382.3	282.3	120.9	

HYDROLOGIC BALANCE OF JEAFA DISTRICT

						••			
BASIN NO.	AREA (SQ.KM)	RAIN- FALL	SURFACE INFLOW	evapo- transpn	SURFACE OUTFLOW		idwater Outplow	DRAFT	
1	1181.5	3615.5	.0	931.8	2743.4	.0	.0	.0	
	5.2	13.3	.0.	3.0	10.3	0		.0	
ź	160.4	449.9	.0	97.3		. 3	.ŏ	.ŏ	
2 3 4	66.5	186.6			146.2	, ĭ		. 0	
	59.0	150.4	352.6		443.7		14.1	.ŏ	
2	20,1	51.4	332.0	14.0	29.5	7.9	8.2	.ŏ	
ž	111.1	283.3	146.2	82 4	314.5		35.8		
5 6 7 8 9	48.4			52.8			12.1		
ŏ	56.5		454.0	41 4	546.8		10.7		
10	41.3	105.4	*31,0	27.6	69.9				
11	28.8	73.3	29.5	19.5	78.6	4.7		.ŏ	
12	48.8	174.5	314.5	37.7					
13	41.3	105.3	2802.5	45.1					
14	37.8		545.8		605.4				
15	37.4		69.9	25.4	135.5	4.4	-1.7		
16	66.7		78.6	52.4	189.5	7.8	.6		
17	51.8	127.6	399.6	3 86	466.0				
18	44.6	112 0	2855.0						
19			605.4	71.7				. ĭ	
20	38.8		135.5	28.0	194.9	4.2 11.4 43.7	-1.7	20.1	
21			189.5		250.1	43 7	4.7	41.6	
22	16.9	43.2	.0	10.2		2,4	3.3	.0	
23	40.3	102.8					9.3		
24	55.3	141.0	2907.5		2979.7		4.3		
25	39.3		651.0	20.5	712.1	B.6		.ŏ	
25	72.2		225.5		310.5				
27	54.7	120 4	67.8		161,3	6.8			
21	34.7	137.1	07.0	37.1	242,7	9.0	5	.,	
TOTAL	2512.4	7067.1	15574.9	1945.9	20454.5	306.7	177.1	177.5	

						UNIT	K.C.M.	
BASIN	AREA	RAIN-	SURPACE	EVAPO-	SURFACE	GROUI	NOWATER	•
NO.		FALL		TRANSPN	CUTFLOW	RECHARGE	OUTFLOW	DRAFT
1	1181.5	4057.9	.0	883.5		.0	.0	.0
2	5.2	15.0	.0	2.9	12.0	.0	.0	
2 3	160.4	504.9	.0	92.8	411.6	. 3		
4	66.5	209.5	.0	38.5	170.9		.0	
5	59.0			44.2	523.2	13.1		
6	20.1		.0	13.4	35.5	8.8	8.7	
***	111.1	318.0	170.9	77.6	376.7			
. 8	48.4	138.4	3152.8	52.0	3225.7	13.3	12.3	.0
9	56.5	.: 161.7	535.2	39.8	646.3	10.8	10.5	0
10	41.3	118.3	.0	26.1	83.9	0.3	8.4	0
11	28.8	84.3	33.3	10.3	93.0	3.0	5.0	.0
12	48.8	139.7	376.7	35.8	478.7	1.9	1.7	. 1
. 13	41.3	118.2	3225.7	44.4	3290.6	8.8	8.3	.0
14	37.8	108.2	646.3	27.1	717.1	10.2	10.1	.0
15	37.4	107.1	83.9	24.0	162.5	4.4	-4.2	9.8
16	66.7	191.0	93.8	48.7	227.4	8.7	-5.6	14.1
17	51.8	148.2	478.7	35.7	557.3	33.B	33.6	.0
íŝ	44 6	127.8	3290.6	48.0	3356.3	13.9	13.5	-0
19	28.0	80.2	717.1	20.6	772.0	4.8 12.5 55.1	1.5	.1
20	38.8	110.9	162.5	26.8	234.2	12.5	-5.0	21.9
21	59.6	170.7	227.4			55.1		
. 22	16.9	48.5	. 0	9.8	36.2	2.5	3.7	
23	40.3	115.4	.0	22.2	80.9	12.3	6.6	
24		158.3	3356.3	58.3	3446.7	9.4	. 4.3	0
25	39.3	112.5	772.1	29.0	845.6	9.9	9.4	.0
26		206.5	270.4	49.4	371.8	55.7		40.4
27			80.9	36.9	193.3	7.0		
TOTAL	2512.4	7931.8	10088.3	1851.4	23800.1	345.0	146.0	193.2

HYDROLOGIC BALANCE OF JHAPA DISTRICT BASIN (CASE 1)

YEAR OF 1983

"我们还是我们的,我们就是我们的,我们就没有一个。""我们就是我们的。""我们就是我们的。""我们就是我们的,我们就是我们的,我们就是我们的,我们就是我们的,我

						VIII.	- 1.,0,	
BASIN	AREA		SURFACE	EVAPO-		GROUN		
NO.	(SO.KM)	FALL	INFLOW	TRANSPH	OUTFLOW	RECHARGE	OUTFLOW	DRAFT
1	1181.5	3551.7	.0	937.3	2593.1	.0	.0	.0
2	5.2	13.1	.0	3.4	9.6	.0	.0	.0
2 3	160.4	441.9	.0	106.3	334.2	. 3	.0	.0
4	66.5	183.3	.0	44.1	138.7	.3 .1 13.1	. 0	.0
5 6	59.0	147.8			422.2	13.1	13.3	
6	20.1	50.5	.0	14.7	24.6	11.0	11.0	
7	111.1	278.3	138.7	83.3	291.6	41.5	41.1	.0
8	48.4	121.2	2593.1	53.2	2649.0	11.7		
9	56.5	141.6	431.9	42.6	519.4	11.2	11.1	
10	41.3	103.5	۰.	29.2	64.6		9.1	
11	28.8	72.0	24.6	20.6	70.0	5.7	5.6	.0
12	48.8	122.3	291.6	37.8	374.0	1.8		
13	41.3	103.4	2649.0	45.5	2698.9	7.9		
. 14	37.8		519.4		574.9			
15	37.4		64.6		125.9	5.4		
16	66.7	167.2	70.0	53.0	174.7	9.2		
17	51.8	129.7	374.0	38.7	427.0	37.7		
18	44.6	111.8	2698.9		2748.7			
19	28.0	70.2	574.9		618.7		2.9	. 1
20	38.8	97.1	125.9	29.0	179.3			
21	59.6	149.4	174.7	49.2	216.9		18.9	
22	16.9	42.4	.0	11.3	28.3	2.8	3.3	.0
23	40.3	101.0			62.8	12.1	4.4	9.0
24	55.3	138.5	2748.7	59.7	2818.7	8.4		
25	39.3	98.4	618.7	30.7	676.9	9.4	9.3	.0
26	72.2	180.7	207.5	53.7	258.2	66.1	30.9	34.3
27	54.7	136.9	62.8	39.8	151.2	8.4	-37.3	43.5
TOTAL	2512.4	6942.4	14703.3	1982.1	19262.2	372.2	198.1	164.3

HYDROLOGIC BALANCE OF JEAPA DISTRICT

BASIN (CASE 1)

YEAR OF 1984 UNIT = M.C.M.

						*		
BASIN NO.	AREA (SQ.KM)	RAIN- FALL	SURFACE INFLOW	EVAPO- TRANSPN	SURFACE OUTFLOW		OUTFLOW	DRAFT
1	1181.5	5070.2	.0	981.6	4074.8	.0	.0	. 0
2	5.2	18.7	0	3.6	15.1		.0	.0
3	160.4	630.9	.0		517.9	.3	.0	.0
4 5	66.5	261.7	.0	47.1	215.0	. 1	.0	.0
5	59.0		517.9		662.6			
6	20.1	72.0	.0	15.4				.0
6	111.1	397.3	215.0		479.7		44.3	.0
8	48.4	173.0	4074.8		4178.6		13.6	.0
9	56.5	202.1	677.8		821.6	13.7		.0
10	41.3		.0	31.3		11.2	10.8	
11	28.8			21.9	119.3	6.7	6.7	.0
12	48.8		479,7	39.8	612.5	2.2	2.0	. 1
13	41.3	147.7	4178.6	45.4	4270.5	10.3	9.0	.0
14	37.8	135.2	821.6		914.2	12.5	10.6	.0
15	37.4	133.8	105.5	28.6	204.6	6.2		7.7
16	66.7	238.7	119.3	54.9	293.1	9.8	-2.7	11.0
17	51.8	185.1	612.5	40.4		43.0	40.2	.0
18	44.5	159.7	4270.5	49 1	4365.1	15.9		0
19	28.0	100.2	914.3	22.8	986.1	5.7	.6	. 1
20	38.8	138.6	204.6	30.0	298.1	15.4	-7.6	17.6
21	59.6	213.3	293,1	50.8	388.4	66.8	29.5	36.9
22	16.9	60.6	.0	11.9	45.5	3.2	2.9	.0
23	40.3	144.2	.0	27.6	100.9	15.8		B.3
24	55.3	197.8	4365.2	59.6	4491.8	11.6		
25	39.3	140.5	986.2	32,0	1083.7	11.3	10.8	
26	72.2	258.0	343.0	22.1	476.8	70.0		
27	54.7	195.4	100.9	42.5	244.7	9.4	-34.0	42.0
TOTAL	2512.4	9910,6	23326.2	2071.4	30725.8	430.5	234.1	156.2

HYDROLOGIC BALANCE OF JRAPA DISTRICT

BASIN (CASE 1)

					UNIT # M.C.M.			
BASIN NO.	AREA (SQ.KM)			EVAPO- TRANSPN		GROUN RECHARGE	DWATER OUTFLOW	DRAFT
1	1181.5	4151.5	.0	1009.0	3069.8	.0	.0	.0
2	5.2	15.3		3.9	11 3	Õ	, o	. 0
3	160.4	516.6	.0	121.6	391.4	. 3	· .ă	.0
4	66.5	214.3	.0	50.4	162.5		.0	.ò
5.	59.0	172.7	391.4	51.6	493.3	15.9	15.6	
6 7	20,1	59.0	.0	16.3	29.7	12.5	12.3	.0
7	111.1	325.3	162.5	92.2	344.4	47.6	46.2	
8	48.4				3143.9	13.1		
9	56.5	166 K	504 T	47 7	END 7	12 1	12.7	.0
10	41.3	121.0	.0	32.8 23.2	76.0			
11	28.8	84.2	29,7	23.2	83.3	6.7	6.6	.0
12	48.8	142.9	344.4	41.8	442.0	2.2	10.8 6.6 1.9	Ϊί
13	41.3	120.9	3143.9	45.9	442.0 3209.7	8.7	8.6	
14	37.8	110.7	608.2	31.7	674.5	11.6	11.2	.č
15	37.4	109.5	76.0	30.0	148.0		9	6.2
16	66.7	195.4	83.3	56.3	209.0	9.9	-1.1	
17	51.8	151.6	442.0	42.6	508.2	41.4	40.8	.0
18	44.6	130.7	3209.7	42.6 49.7	3276.2	13.8	13.7	Ō
19	28.0	82.0	674.5	23.8	726.8	5.2	9	1
20	3 A R	113 5	148.0	21.8	212.3	16.4	-2.9	14.9
21	59.6	174.6	209.0	52.0	265.4	62.6	30.0	31.7
22	16.9	49.6	209.0	12.7	33.4		2.5	.0
23	40.3	118.0	.0	29.9	73.4	14.0	4.6	6.7
24	55.3	161.9	3276.2	60.8	3366.9	9.5	6.9	. 0
25	39.3	115.1	726.9	22 4	706 4	10.0	10.4	, o
26	72.2	211.3	245.6	58.8	320.2	75.9	43.3	27.4
27	72.2 54.7	160.0	73.4	44.7	177.4	75.9 9.7	~30.0	36.8
TOTAL	2512.4	8114.7	17419.3	2148.0	22853.7	422.0	256.8	132.8

HYDROLOGIC BALANCE OF JHAPA DISTRICT

BASIN (CASE 1)

YEAR OF 1986 UNIT = M.C.M.

BASIN NO.	AREA (SQ.KM)	RAIN- FALL	SURFACE INFLOW	EVAPO- TRANSPN	SURFACE OUTFLOW	GROUN RECHARGE	DWATER OUTFLOW	DRAFT
1	1181.5	2485.5	.0	909.3	1681.4	.0	.0	.0
2	5.2	9.2	.0	3.2	6.0	.0		. 0
2 3	160.4	309.3	.0	101.6	210.8			iò.
4	66.5	128.3	.0	12.1	87.5		.0	
5	59.0	103.4	210.8			13.4		
6	20.1		.0	14.1	13.4	8.4		.0
4 5 6 7	111.1	194.8	87.5	80.9	165.6	39.3		
8	48.4	84.8	1681.4	52.2	1705.9	9.2	9.4	
9	56.5	99.1	264.4	41.4	312.8	10.9	11.4	.0
10	41.3	72.4	.0	28.7	37.2	7.5	8.2	
11	26.8	50.4	13.4	20.0	39.3		5.5	
12	48,8	85.6	165.6	36.9	213.9		2.1	. 1
13	41.3	72.4	1705.9	44.5	1728.1	6.5	6.7	_0
14	37.6	55.3	312.8	28.0	343.1	9.0	9.5	.0
15	37.4	65.6	37.2	26.4				7.7
16	66.7		39.3	51.4		9.4	-6	11.0
17	51.8	90.7	213.9	37,4	241.0	27.6	28.1	.0
18	44.6	78.3	1728.1	48.1	1748.5	10.7	10.9	.0
19	28.0	49.1	343.1	21.1	368.0	3.9	2.9	. 1
20	38.8		72.2	27.6	100.4	13,1	-1.8	17.9
21	59.6	104.6	99.4		117.6	43.7	7.2	37.6
22	16.9	29.7	.0	10.6	17.5	2.0	2.4	
23		70.7		24.9	37.8	8,7	5.2	8.3
24	55.3	96.9	1748.5	59.3			6.9	.0
25	39.3		368.1	29.7	400.0		9.2	.0
26	72.2	126.5	117.8	50.7	144.2	51.4		33.0
27	54.7	95.8	37.8	39.0	87.9	8.3	-31.6	
TOTAL	2512.4	4858.3	9247.1	1921.9	12018.6	310.9	179.8	158.8

HYDROLOGIC BALANCE OF JEAPA DISTRICT

BASIN (CASE 1

YEAR OF 1987

							ORIT	n.c.n.	
BAS	IN	AREA (SQ.KH)	RAIN- FALL	SURPACE INFLOW		SURFACE		DWATER	DRAFT
	1	1181.5	2736.5	.0	933.4		.0	.0	.0
	2 3	5.2	10.1	.0	3.5	6.5		.0	.0
	3	160.4	340.5		111.3			.0	.0
	4	66.5	141.3		46.1	95.1		.0	.0
	5 6 7 8 9	59.0		228.9	46.7	284.0	12.0	12.0	.0
	6	20,1	38.9			15.9			.0
	7	111,1	214.4	95.1		189.9			.0
	8	48.4	93.3	1805.0	52.3	1836.5	9.6	9.6	.0
		56.5	109.1	290.5	42.5	347.0	10.1	9.9	.0
1	0	41.3	79.7	.0	29.8	41.9	8.0	8.0	.0
1	1	28.8	55.5	15.9		45.7	5.1	5.1	.0
3	2	48.8	94.2	189.9	37.4	245.1	1.7	1.5	. 1
	13	41.3	79.7	1836.5	44.7			6.6	.0
3	4	37.8	73.0	347.0	28.8	382.6	8.6	8.5	0
)	15	37.4	72.2	41.9	27.2	81.8	5.1	~1.7	6.7
1	6	66.7	128.8	45.7	50.8	116.1	7.6	-2.0	9.6
1	17	51.8	99.9	245.1	38.3	279.0	27.7	27.6	.0
1	8	44.6	86.2	1865.0	48.3	1892.1	10.8	10.8	.0
	19	28.0	54.1	382.6		411.3	3.8	2.9	
2	10	38.8	74.8	81.6	28.2	116.3	12.1		
2	21	59.6	115,1	116.1	46.7	141.7	42.6	9.6	32.6
2	2	16.9	32,7	.0	11.5	18.9	2.3	2.5	0
- 2	23	40.3	77.8	.0		41.1	9.7	3.9	7.2
2	4	55.3	106.7			1934.1	6.5	6.1	. 0
	25	39.3	75.8	411.3	30.5	448.4		8.0	.0
	!6	72.2		135.1		172.9		20.1	28.6
	27	54.7		41.1			7.9		
TOTA	L.	2512.4	5348.8	10066.6	1975.2	13140.0	301.2	159.5	137.9

HYDROLOGIC BALANCE OF JRAPA DISTRICT

BASIN (CASE 1)

			•			UNIT :	м.с.м.	
BASIN	AREA	RAIN-	SURFACE	EVAPO-	SURFACE	GROUN	OWATER	
NO.	(SQ.KM)	FALL	INFLOW	TRANSFN	COTFLOW	RECHARGE	OUTFLOW	DRAFT
1	1181.5	3397.2	0	1092.8	2286.4	0		.0
1 2	5.2	12.5	.0		8.7	.0	.0	.0
3	160.4	422.7	.0	118.5	303.9	. 3	0	.0
4		175.4	.0	49.1	126.2	.1		.0
5 6 7	59.0	141.3	303.9	56.5 17.1	372.0	16.8		.0
- 6	20.1	48.3	.0	17.1	20.2	11.0	11.0	.0
7	111.1	266.2	126,2	99.5	244.0	46.8		
ā			2286,4	52.3	2338 9	10 9	10.9	
g 9	56.5	135.4	786.7	51.6	451.0	13.5	13.5	.0
10	41.3	99.0	20.2	34.6	54.2	13.5 10.2	10.1	
11	28.8	68.9	20.2	24.3	57.9	6.9	6.9	.0
12	48.8	117.0	244.0	45.2	313.5	2.3	2.3	.1
13	41.3	98.9	2338.9	44.6			7.4	
14	37.8	90.6	451.0	35.1	495.0	11.5	11.4	.0
15	37.4	89.6	54.2	31.9	105.1	6.7 10.7	. 3	6.3
16	66.7	159.9	57.9	60.9	146.0	10.7	1.1	9.1
17	51.8	124.0	313.5	45.0	356.7	35.8	35.9	.0
18	44.6	107.0	2385.6	48.2	2432.0		12.1	.0
19	. 28.0	67.1	495.0	26.4	530.7	5.0	1.8	. 1
20	38.8	92.8	105.1	33.5	147.8	16.6	2.4	14.3
21	59.6	142.9	146.0	55.9	179.3	53.6	23.7	30.1
22	16.9	40.6	146.0 .0 .0	12.6	25.3	2.7	2.2	
23	40.3	96.6	.0	29.1	55.1			6.8
24	55.3	132.5	2432.0	59 6	2495 7	R 1	7.0	.0
- 25	39.3	94.2	530.8	36.9	577.1	11.0	11.1	,õ
26		172.9	173.2	61.5	219.4	65.1		
27	54.7						-23.4	34.3
TOTAL	2512.4	6640.3	12899.6	2274.6	16856.4	389.9	257.2	127.5

BASIN (CASE 1)

HYDROLOGIC BALANCE OF JHAPA DISTRICT

YEAR OF 1989

BASIN NO.	AREA (SQ.KM)	rain- Fagl	SURFACE INFLOW	evapo- transpn	SURPACE OUTFLOW		DWATER OUT FLOW	DRAF	T
1	1181.5	3673.7	.0	942.5	2735.0	.0	.0	.0	
2	5,2	13.5	.0	3.5	10.0	.0	.0	.0	
3	160.4	457.1	.0	109.4	347.5		.0	.0	
4	66.5	189.6	.0	15.1	144.2	. 1	.0	.0	
5	59.0	152.8	347.5	47.9	438.3				
5 6 7	20.1	52.2	.0	14.8	25.7	11.7	11.7		
	111.1	287.9	144.2	85.1	304.7	42.3	42.5		
8 9	48.4	125.3	2735.0	54.6	2793.7	12,1	12.1	.0	
9	56.5	146.4	448.3			12,1			
10	41.3	107.1	.0	30.0	66.9	10.2			
11	28.8	74.5	25.7	21.1	73.2	6.0	6.0	.0	
12	48.8	126.5	304.7	36.9	390.3	2.0	1.9		
13	41.3	107.0	2793.7	46.6	2846.0		8.1		
14	37.8	97.9	538.4	30.3	595.2	10.8	10.9		
15	37.4	96.9	66.9	27.4	130.6	5.8			
16	66.7	172.9	73.2	53.4	183.8	9.2	-1.2	11.0	
17	51.8		390.3	38.8	446.3	39.4	39.4	. 0	
18	44.6	115.7	2846.0	50.3	2898.8	12.6	12.6		
19	28.0	72.6	595.2	22.7	640.4	4.7	2.3	. 1	
20	38.8	100.4	130.6	29.1	187.2	14.7	-1.8	16.5	
21	59.6	154.5	183.8	49.4	231.7	57.6	23.6	34.1	
22	16.9	43.9	.0	11.5	29.2	3.1	2.8	.0	
23	40.3	104.4	.0	27,1	64.8	12.6		8.2	
24	55.3	143.3	2898.8	59.7	2973.8	8.6	8.3	0	
25	39.3		640.5	31.1	701.6	9.6	9.6	.0	
26	72.2	186.9	216,5		281.7				
27	54.7	141.6	64.8	41.3	156.3	8.8	-29.7	38.5	
TOTAL	2512.4	7180.7	15444.2	2009.4	20235.5	384.8	237.9	146.3	

HYDROLOGIC BALANCE OF JHAPA DISTRICT

BASIN (CASE - 1)

YEAR OF 1990

BASIN NO.	AREA (SO,KM)	RAIN- FALL	SURFACE INFLOW	EVAPO- TRANSPN	SURFACE	GROUP RECEARGE	OUTFLOW	DRAFT
_			•	1145.3	4050.0			٠٠.
1	1181.5	6181.8	.0	1147.2		.0	.0	
2 3	5.2	22.B	-0	4.5	18.3	.0		.0 .0
	160.4	769.2	.0		630.6		.0	
4	66.5	319.1	.0	57.3	261.7			
5	59.0	257.2		58.3			17.0	.0
6	20.1	87.8	.0	18.5	53.1			
7	111.1	484.4	261.7	105.4			53.1	.0
6 9	48.4	210.9	4963.0	55.9	5098.9	18.3		.0
9	56.5		828.1	54.2	1003.9	16.5	16.0	. 0
10	41.3	180.2	.0	37.4			14.7	.0
11	28.8	125.4	53.1	26.3		8.1		.0
12	48.8	212.8	585.8	47.3				. 1
13	41.3	180.1	5098.9	47.7	5219.0	11.7	10.7	.0
14	37.8	164.8		36.1		15.0		
15	37.4	163.1	127.3		248.6		4	5.0
16	66.7	291.0	144.1		357.8		1.4	7.3
17	51.8	225.7	748.7	48.2	869.4	56.B	55.3	.0
18	44.6	194.7	5219.0	51.6	5343.4	18.0		
19	28.0	122.Z	1117.5	27.0		6.8	-3.6	1
20	38.8	168.9	248.6	36.1	362.1	19.3	4.6	11.6
21	59.6	260.1	357.8	58.8	474.5	81.8	55.8	24.6
22	16.9	73.8	.0	14.6	54.3	4.9	3.1	.0
23	40.3	1.75.8	.0				5.2	5.4
24	55.3	241.1	5343.4			13.9	3,2	.0
25	39.3	171.3	1206.1	38.0	1325.6	13.8	13.2	.0
26	72.2	314.6	416.5					21.3
27	54.7		121.3	51.2				
TOTAL	2512.4	12083.4	28475.3	2423.2	37519.0	537.5	370.0	103.3

HYDROLOGIC BALANCE OF JHAPA DISTRICT

BASIN (CASE 1)

BASIN NO.	AREA	RAIN-		EVAPO-	SURFACE		WATER	DRAFT	
NO.	(SQ.KM)	FALL	INFLOW	TRANSPN	OGTPLOW	RECHARGE (	DOLLICA	. DIGHT	
1	1181.5	4138.7	.o	914.9	3268.9	.0	.0	.0	
2	5.2	15.3	.0		11.8		.0	.0	
3	160.4	515.0	.0	107.4			. 0	.0	
4	66.5	213.6		44.5		. 1	.0	0	
5	59.0	172.2	407.4	45.5	519.6	14.5	15.2	.0	
4 5 6 7	20.1	58.8	-0	14.4	32.4 368.7	11.9	12.0	.0	
7	111,1	324.3	169.0	81.7	368.7	43.0	44.1	.0	
8	48.4	141.2	3268.9	54.2	3342.7	13.6	13.7		
8	56.5	165.0		41.5	642.6	12.3	12.5		
10	41.3	120.6	0	29.0	80.6	11.0	11,5		
11	28.8	83.9	32.4	20.5	89.7	6.2		.0	
12	48.8	142.5	368.7 3342.7	36.9	472.2	2.0	2.1	. 1	
13	41.3	120.5	3342.7	46.3	3408.3	9.0		.0	
14	37.8	110.3	642.6	28.2	713.6	11.2	11.4		
15	37.4	109.2	80.6	26.4	157.5	5.9	-1.0		
16	66.7	194.8	89.7 472.2	52.1	223.4	10.0 42.0	. 5	11.6	
17	51.B	151.1	472.2	37.7	543.7	42.0	42.2	.0	
18	44.6	130.3	3408.3	50.1	3474.7	14.2	14.3	.0 .1	
19	28.0	81.8	713.6	21.3	769.1	5.0	1.2		
20	38.8	113.1	157.5	28.3	227.3	15.0 62.7	7	17.3	
21	59.6	174.1	223.4	48.3	288.0	62.7	28.0	35.5	٠.
22	16.9		.0	11.4		3.3			
23		117.7	.0	26.7	77.4	13.6	7.3		
24	55.3	161.4	3474.7	50.8	3565.8	9.9	8.3	.0	100
25	39.3		769.1	30.0	843.6	10.3	10.6	.0	
26	72,2		262.1			. 69.5	40.9	31.8	
27	54.7.	159.5	77.4	39.5	188.5	8.9	-28.1	39.9	
TOTAL	2512.4	8089.8	18491.8	1953.5	24272.0	405.2	265.2	152.8	

HYDROLOGIC BALANCE OF JEAPA DISTRICT BASIN (CASE 1)

YEAR OF 1992

BASTN	AREA	RAIN-	SURFACE	EVAPO-	SURFACE		OWATER	DRAFT	
NO.	(SO.KM)	PALL	INFLOW	TRANSPN	OUTFLOW	RECHARGE	UUTFLOW	DRAFT	
1 -	1181.5	2380.6	.0	791.8	1631.2	0	.0	.0	
2	5.2	8.8	.0	2.8	5.9	.0	. 0	.0	
3	160.4	296.2	.0	89.9		. 3	.0	.0	
4	66.5	122.9	.0	37.3	85.6	. 1	.0	.0	
5	59.0	99.0	206.1	40.0	253.6	11.6	12.4	.0	
6	20.1	33.8	.0	12.4	13.0	8.4	8.5	.0	
7	111.1	186.5	85.6	71.1	166,2	34.9	35.8	.0	
8	48.4	81,2	1631.2	51.6	1652.2		9.3	.0	
8	56.5	94.9	259.5	36.7	307.8		10.2	.0	٠
10	41.3	69.4	.0		36.8		7.9	. 0	
11	28.8	48.3	13.0	17.7			4.9	.0	
12	48.8	82.0	166.2	32.3	214.3	1.6	1.8	. 1	
13	41.3	69.3	1652.2	44.1	1671.4	6.4	6.7	.0	
14	37.8	63.5	307.6		337.9	8.3	8.6		
15	37.4	62.8	36.8	23.1		4.7	-2.2	8.3	
16	66.7	112.1	38.8	44.7	99.1	7.7	-2.4	11.9	
17	51.8	86.9	214.3	33.0	241.5	26.7			
18	44.6	75.0	1671.4	47.6	1688.7	10.4		.0	
19	28.0	47.0	337.9	18.8	362.6	3.6	3.6	1	
20	38,8	65.1	71.8	24.3	100.8			18.7	
21	59.6	100.1	99.1	41.7	116.5		4.1	38.9	
22	16.9	28,4	.0	9.4	17.1	1.9	3.3	.0	
23	40.3	67.7	.0	22.0	37.1	8.6	6.3	8.9	
24	55.3	92.9	1688.7	57.2	1718.8	6.0	5,4	.0	
25	39.3	66.0	362.6	26.4	394.6	7.6	7.9	.0	
26	72.2			44.9	142.9	51.2	20.5	34.5	
27	54.7		37.1	34.7	86.7	7.5	-34.6	44.4	
TOTAL	2512.4	4653.2	8997.6	1705.9	11698.7	292.5	152.6	165.7	

HYDROLOGIC BALANCE OF JEAPA DISTRICT

BASIN (CASE 1)

YEAR OF 1993 UNIT - M.C.M. GROUNDWATER RECHARGE OUTFLOW BASIN NO. AREA (SQ.KM) DRAFT 1181.5 5.2 160.4 66.5 59.0.1 111.1 48.4 56.5 41.3 37.8 41.3 37.8 44.6 28.8 59.6 14.6 38.8 59.6 40.3 37.2 40.3 3408.5 12.6 424.1 175.9 141.8 48.4 267.1 116.3 135.9 99.3 99.9 89.9 117.3 67.4 124.4 407.3 67.4 133.4 99.5 133.4 135.9 2379.0 8.8 305.8 127.0 384.1 21.5 262.7 2430.9 472.4 57.8 388.2 2477.2 158.6 388.2 2158.6 385.2 113.2 156.6 365.0 9196.2 25.8 25.8 8615.7 236.5 135.5 2512.4 6662.5 13451.2 2084.0 17609.6 120.4 TOTAL

### (3) Under Draft with Irrigation Water Demand < Water Demand x 1.25>

HYDROLOGIC BALANCE OF JHAPA DISTRICT

BASIN (CASE 1)

							M.C.M.	
BASIN	AREA (SQ.KM)	RAIN- FALL	SURFACE	EVAPO- TRANSPN	SURFACE	GROUN	DWATER	DRAFT.
NO.	(SQ.KA)	FALL	IRILOW	INAMSEM	COTFLOW	RECHARGE	ODIFLOW	DICKEL
1	1181.5	3689.2	۰,	1025.4	2691.3	.0	.0	.0
2	5.2	13.6	.0	3.7	9.9		.0	.0
3	160.4	459.1	.0	116.7	342.6	. 3	0	.0
4 5	66.5	190.4					.0	.0
5	59.0		342.6					
6	20.1	52.4	.0	15.8	26.2			
7	111,1	289.1	141.9	91.7	297.8	44.9	40.5	.0
8	48.4	125.8	2691.3	53.9	2744.1	11.7		.0
9	56.5		441.2	46.5	529.2	12.6		
10	41.3		.0		65.3		9.1	
11	28.8	74.8	26.2	22.3	72.7	6.0	6.5	
12	48.8		297.8			2.1		
13	41.3	107.5	2744.1		2797.7			.0
14	37.8	98.4	529.2	31.6	585.3	11.1	10.3	.0
15	37.4	97.3	65.3	29.3	127.4 182.0	5.9	~ 9	7.7
16	66.7	173.7	72.7	54.5	182.0	8.4	.9	11.1
17	51.8	134.7	381.9	41.1	439.4	36.2		
18	44.6	116.2	2797.7	49.7	2850.8		11.3	
19		72.9	585.3	23.6	629.B	4.8	1.2	
20	38.8	100.8	127.4	30.7	183,1	14.4		
21	59.6		182.0	50.5	237.3	62.4	45.8	36.6
22	16.9	44.1	.0	12,2	28.₽	3.0	3.3	
23	40.3	104.9			63.5		9.6	8.3
24	55.3	143.9	2850.8	60.6	2917.1		4.7	.0
25.	39.3	102.3	629.9	33.5	689.5	10.3		.0
26	72.2	187.7	211.9		280.6	63.6		
27	54.7	142.2	63.5	43.7	152.9	9.4	-25.3	41.9
TOTAL	2512.4	7211.2	15182.7	2140.5	19899.5	382.3	258.0	155.3

HYDROLOGIC BALANCE OF JHAPA DISTRICT BASIN (CASE 1)

			•				F 1981 M.C.M.	÷
BASIN NO.	ARBA (SQ.KM)	RAIN- PAUL	SURFACE INFLOW	EVAPO- TRANSPN	SURFACE OUTPLOW	GROUN RECHARGE	DWATER OUTPLOW	DRAFT
1	1181.5	3615.5	.0	931.8	2743.4	.0	.0	.0
2 '	5.2	13.3	.0	3.0	10.3	-0	.0	.0
3	160.4	449.9	.0	97.3	352.6	.3	.0	. 0
4	66.5		,õ	. 40.3	146.2		.0	.0
5	59.0	150.4	352.6	47.0	443.7	12.3	14.1	
5 6 7	20.1	51.4	.0	14.0	29.5	7.9	8.2	.0
7	111.1	283.3	146.2	82.4		32.6	35.8	.0
8	48.4	123.3	2743.4	52.8	2802.5	12.2	12.1	.0
8 9	56.5	144.1	454.0	41.4	546.8	9.9	10.7	.0.
10	41.3	105.4	.0	27.6	69.9	7.9	8.7	.0
11	28.8	73.3	29.5	19.5	78.6	4.7	5.0	.0
12	48.8	124.5		37.7		1.7	2.2	. 1
13	41.3	105.3	2802.5	45.1	2855.0		8.4	.0
14	37.6	96.4	546.8	28.6	605.4	9.3	10.0	.0
15	37.4		69.9	25.4	. 135.5	4.4	-3.1	11.5
16	66.7	170.2	78.6	52.4	189.5	7.8	-1.5	16.3
17	51.8	132.0	399.6	36.6	466.0	29.1	29.7	.0
18	44.6	113.9	2B55.0	. 48.8	2907.5	13.1	13.1	.0
19	28.0	71.4	605.4	21.7	650.9	4.2	. 4	, 1
20	38.8	98.8	135.5	28.0		11.4	-4.3	25.7
21	59.6		189.5	49.7	250.1	43.7	-6.3	53.0
22	16.9	43.2	.0	10.2	30.6	2.4	3.5	.0
23	40.3	102.8	.0	23.7	67,8		9.0	12.4
24	55.3	141.0	2907.5	60.4		9.0	4.4	.0
25	39.3	100.2	651.0	30.5	712.1	8.6	10.1	-0
26	72,2	184.0	225.5		310.5	48.2	15.3	
27	54.7	139.4	67.8	39.1	161.3	6.8	-43.7	60.3
TOTAL	2512.4	7067.1	15574.9	1945.9	20454.5	306.7	142.0	226.7

HYDROLOGIC BALANCE OF JHAPA DISTRICT

BASIN (CASE 1)

YEAR OF 1983 UNIT = M.C.M.

1	BASIN	AREA	RAIN-	SURFACE	EVAPO-	SURFACE	GROUN	DWATER	
	ĸО.	(SQ.KM)	FALL	INFLOW	TRANSPN	OUTFLOW	RECHARGE	OUTFLOW	DRAFT
	1	1161.5	3551.7	.0	937.3	2593.1	.0	.0	
	2	5.2	13.1	.ŏ	3.4				.0
	3	160.4	441.9	.ŏ	106.3		.0		.0
		66.5	183.3				.3		.0
	4 5 6 7	59.0		334.2			. 1	0	
	2	20.1	50.5				13.1	13.3	
	2			.0			11.0		
	΄.	111.1	278.3				41.5		
	8	48.4	121.2	2593.1	53.2	2649.0			
	. 9	56.5		431.9		519.4	11.2		
	10	41.3		.0			9.5		
	11			24.6			5.7	5.6	
	12	48.8	122,3	291.6			1.8	1.7	. 1
	13	41.3	103.4				7.9		.0
	14	37.8	94.7	519.4	29.0	574.9			.0
	15	37.4	93.7	64.6	26.8	125.9			10.6
	16		167.2	70.0	53.0	174.7		-9.0	15.3
	17	51.8		374.0	38.7	427.0	37.7	37.6	.0
	16	44.6	111.8	2698.9	49.2	2748.7	12.6	12.6	
	19	28.0	70.2	574.9			4.4	3.1	. 1
	20	38.8	97.1	125.9	29.0	179.3	14.5	-8.5	
	21	59.6	149.4	174.7	49.2	216.9	57.4	8.2	
	22	16.9	42.4	.io	11.3	28.3	2.8	3.5	
	23	40.3	101.0	0	26.0		12.1	2.9	
	24	55.3	138.5	2748.7	59.7	2818.7	8.4	8.0	.0
	25	39.3	98.4	618.7			9.4	9.3	
	26	72.2	180.7	207.5			66.1		43.7
	27	54.7	136.9	62.8				-50.6	
T	TAL	2512.4	6942.4	14703.3	1982.1	19262.2	372.2	154.1	209.7

HYDROLOGIC BALANCE OF JHAPA DISTRICT

BASIN (CASE 1)

YEAR OF 1984 UNIT = M.C.M.

						VIII.	- 11.0,11,	
BASIN NO.	ÁREA (SQ.KM)	RAIN- FALL	SURFACE INFLOW	EVAPO- TRANSPN	SURFACE OUTFLOW		DWATER OUTFLOW	DRAFT
1	1181.5	5070.2	.0	981.6	4074.8		.0	.0
2	5.2	16,7	.0	3.6	15.1	.0	.0	-0
3	150.4	630.9	.0	113.6	517.9	. 3	.0	.0
4 5	66.5	261.7		47.1	215.0	- 1	. 0	.0
5	59.0	210.9	517.9	49.9	662.6	16.7	15.1	.0
6	20.1	72.0	.0	15.4	45.0	11.8	11.7	.0
. 7	111.1	397.3	215.0	88.2	479.7	45.0	44.3	.0
8	48.4	173.0	4074.8	53.2	4178.6	15.8	13.6	.0
9		202.1	677.8	44.9	821.6	13.7		-0
10	41.3	147.8	.0	31.3	105.5		10.8	.0
11	28.8	102.6	45.0	21.9	119.3		6.7	0
12	48.8	174.6	479.7	39.8	612.5	2.2	2.0	.1
13	41.3	147,7		45.4	4270.5	10.3	9.0	.0
14	37.8	135.2	821.6	30.2	914.2	12.5	10.6	.0
15	37.4	133.8	105.5	28.5	204.6	6.2	-7.0	9.9
16	66.7	239.7	119.3	54.9	293.1	9.8		14,1
17	51.8	105.1	612.5	40.4	714.5	43.0	40.2	.0
. 18	44.6	159.7	4270.5	49.1	4365.1	15.9	14.4	.0
19	28.0	100.2	914.3	22.8	986.1	5.7	1.0	. i
20	38.8	138.6	204.6	30.0	298.1	15.4	-8.7	
21	59.6	213.3	293.1	50.8	388.4	66.8	19.0	47.4
22	16.9	60.6	.0	11.9	45.5	3.2	3.3	
23	40.3	144.2	.0	27.6	100.9	15.8	2.4	10.7
24	55.3	197.8	4365.2	59.6	4491.8	11.6	5.9	-0.
25	39.3	140.5	986.2	32.0		11.3	10.8	.ŏ
26	72.2	258.0	343.6			70.0	26.1	41.9
27	54.7	195,4	100.9			9.4	-46.3	54.1
TOTAL	2512.4	9910.6	23326.2	2071.4	30725.7	430.5	192.0	200.8

HYDROLOGIC BALANCE OF JEAPA DISTRICT

BASIN (CASE 1)

						UNIT	M.C.M.	
BASIN NO.	AREA (SQ.KM)	RAIN- FALL	SURFACE INFLOW	EVAPO- TRANSPN			OUTFLOW	DRAFT
1	1181.5	4151.5	0	1009.0	3059.8	.0		
2	5.2	16.3	.0	3.9				.0
ž		516.6	. 0	121.6				.0
4	66.5	214.3			162.5		.0	
	59.0		391.4	51.6	493.3			
- 5		59.0		34.3	29.7			
7					344.4			
é.	40.4	322.3	3069.8			13.1		
ğ.	10,1	111.0	504.7	42.2	608.2	13.1	12.7	
10	35.3	103.3	504.7	27.4	76.0	11.1	10.7	
11	71.3	121.0	29.7	34.6	83.3	6.7		
12			344.4			2,2	1.9	
. 13			2142.0	91.0	2220	2.2		
	34.3	120.9	3143.9	45.9	3209.7 674.5	8.7		
14	37.6		608.2	31./	019.3	11.6	11.2	
15			76.0		148.0		-4.7	8,1
16	60.7	195.4	83.3	55.3	209.0	9.9	-4.3	11.5
17	51.8	151.6	442.0	42.6	508.2	41.4	40.8	
18	44.6	130.7	3209.7	49.7	3276.2	13.8	13.7	
19	28.0		674.5	23.6	726.8	5.2	1.3	
20			148.0		212.3	16.4	-9.7	19.4
21	59.6	174.6	209.0	52.0	265.4	62.8	20.0	41.6
22	16.9	49.6	.0	12.7	33.4	3,2		.0
23	40.3	118.0	.0	29.9	73.4	14.0	2.6	8.7
24	55.3	161.9	3276.2	60.8			7.0	
25	39.3	115.1	726.8	33.4	796.4	10.9	10.3	
26	72.2	211.3	245.6	58.8	320.2	75.9	34.1	35.8
27	54.7	160.0	73.4	44.7	177.4	9.7	-41.9	48.4
TOTAL	2512.4	8114.7	17419.3	2148.0	22853.7	422.0	211.0	173.6

YEAR OF 1986

BASIN	AREA	RAIN~	SURFACE	EVAPO-	SURFACE		WATER	
NO.		FALL		TRANSPN		RECHARGE (	<b>UTFLOW</b>	DRAFT
AO.	(SQ:MI)		2011 - 2011					
1	1181.5	2485.5	.0	909.3	1681.4	.0	.0	.0
2	5.2	9.2	.0	3.2	6.0			.0
3		309.3	.0	101.6	210.8	.3	.0	.0
4	66.5	128.3		42.1	87.5	.1	.0	.0
5	59.0	103.4	210.8	45.7	258.3	13.9	14.8	
á	20.1	35.3	.0	14.1	13.4	8.4	8.6	.0
6 7		194.8		80.9	165.6	39.3	41.4	
8		84.8		62 2	1705.9	9.2	9.4	.0
ğ	56.5	99.1	264.4	41.4	312.8	10.9	11.4	
10	41.3	12.4	.0	26.7	37.2	7.5	8.Z	
11	28 8	50.4	13.4	20.0	39.3	5.3	5.5	
12	48.8	85.6	165.6	36.9	213.9		2.1	.1
13	41.3	72.4	1705.9	44.5	1728.1	6.5		
14	37 B	66.3	312.8	28.0	343.1	9.0	9.4	
15	37.4	65.6	37.2	26.4	72.2	5.3	-2.9	
16	66.7	117.0	39.3	51.4	99.4	9.4	-2.2	14.1
17	51.8	90.7	213.9	37.4	241.0	27.6	28.1	
18	44.6	78.3	1728,1	48.1	1748.5	10.7	10.9	
19	28.0	49 1	343.1	21.1	368.0	3.9	3.0	
20	38.8	67.9		27.6	100.4	13.1	-7.0	23.1
21	59.6	104.6	99.4		117.6	43.7	-3.7	
22	16.9	79.7	.0	10.6	17.5	2.0	2.8	.0
23	40.3	70.7	.0	24.9	37.8	8.7		10.7
24	55.3		1748.5	59.3	1780.9	6.5	6.9	
25	39.3		368.1	29.7	400.0	8.6	9.3	
25	72.2			50.7	144.2	51.4	15.1	42.8
27	54.7		37.8		87.9	8.3	-44.0	56.1
TOTAL	2512.4	4858.3	9247.1	1921.9	12018.6	310.9	137.0	205.6

HYDROLOGIC BALANCE OF JRAPA DISTRICT

BASIN (CASE 1)

YEAR OF 1987

BASIN	AREA	RAIN-	SURFACE	EVAPO-			IDWATER	DRAFT
NO.	(SQ.KM).	PALL	INPLOW	TRANSPN	OUTPLOW	RECHARGE	OUTFLOW	DRAFT
		2776 6	.0	933.4	1805.0	.0	.0	.0
1	1181.5	2736.5		3,5	6.6	.ŏ	.0	.0
2	5,2	10.1	.0	111.3		.3	.0	.0
3	160.4	340.5		111.3	95.1	.1	, ŭ	.0
4 5	66.5	141.3	.0	46.7	284.0	12.0		
5	59.0	113.8	228.9		15.9	8.5	8.4	
6	20.1		0	14.5	15.9			
7	111.1	214.4		82.8	189.9	30.0	9.6	
8	48.4	93.3				9.6	9.9	
9	56.5		290.5	42.5	347.0	10.1	8.0	. 0
10	41.3	79.7	.0	29.8	41.9	8.0		ŏ
11		55.5	15.9	20.7	45.7	5.1	5.1 1.5	. ĭ
12	48.8	94.2	189.9	37.4	245.1	1.7	1.5	.0
13	41.3	79.7	1836.5	44.7	1865.0	6.6		
14	37.8	73.0	347.0	28.8	382.6	8.6		
15	37.4	72.2	41.9	27.2	81.8	- 5.1		
16	66.7	128.8		50.8		7.6		
17	51.8	99.9					27.6	
18	44.6		1865.0	48.3	1892.1	10.8		.0
19	28.0	54.1	382.6		411.3	3.8	3.0	.1
20	38.8	74.8	81.8		116.3	12.1		20.1
21	59.6	115.1				42.6	1	14.3
22	16.9	32.7	.0			2.3	2.6	.0
23	40.3	77.8		27.1	41.1	9.7	1.8	
24	55.3	105 7	1892 1		1934.0	6.5	5.2	.0
25		75.8	411.3	30.5	448.4	8.2	8.0	
26	72.2	130 3	135.1	51.8	172.9	49.6	-11.4	37.1
27	54.7	105.5	41.1		98.1	7.9		49.2
21	24.7	. 103.3	44.4		, , , ,			
	0510 /	E240 0	10066 6	1075 7	12140 8	301.3	119.8	179.2

HYDROLOGIC BALANCE OF JEAPA DISTRICT

BASIN (CASE 1)

YEAR OF 1988 UNIT = M.C.M.

BASIN	AREA	RAIN-			SURFACE	GROUN	DWATER	DRAFT
ĸo.	(50.KM)	FALL	INFLOW	TRANSPH	OUTPLOW	RECHARGE	COLFICOR	Dick i
1	1181.5	3397.2	.0	1092.8	2286.4		.0	. 0
÷	5.2	12.5	ň	3.8	8.7	.ò	.0	.0
ź	160.4	422.7	ő	118.5	303.9	. 3	. 0	.0
		175.4		49.1	126.2	. 1	.0	.0
2 3 4 5 6	59.0	141 2	703 q	56.5	372.0	16.8	16.6	.0
2		48.3		17 1	20.2	11.0	11.0	.0
7	111.1	266 7	126 2	. 00 5	244.0	48.8	49.6	-0
,		115.9	2286.4	52.3	2338.9		10.9	٥.
8			380.7	51.6	451.0	13.5	13.5	.0
10	41 3	. og v	Λ.	34.6	54.2	10.2	10.0	.0
11	20 0	CD 0	20.2	74 3	57 9	6.9	6.9	.0
12	40.0	117.0	244 0	45.2	212.5	2.3	2,3	
13	41.3	98.9	2330.9	44.6	2385.6	7.5		
14		90.6	451.0	35.1	495.0	11.5.	11.4	.0
15	37.4	89 6	54.7	31.9	105.1	6.7	2.5	8.1
16	66.7			60.9	146.0	10.7	-1.6	11.0
17	51.8	124.0	313.5	45.0	356.7	35.8	35.9	.0
. 18	44.6	107.0	2385.6	48 7	2432.0	12.2	12.1	
19	28.0	67.1		26.4	530.7	5.0	2.1	
20	38.8	92.R	105.1	33.5		16.6	-8.1	18.5
21	59.6	142.9	146.0	55.9	179.3	53.6	14.9	38.8
22	16.9	10.6	.0	12.6	25.3	2.7	2.2	.0
23	40.0	oc é		20 1	55.1	12.4	1.6	8.7
24	55.3	132.5	2432.0	59.6	2496.7	8.1	7.0	0
25	39.3	94.2	530.7	36.9	577.1	11.0	11.1	.0
26	72.2	172 9	173.2			65.1	31.9	34.1
27	54.7	130.9	55.1		127.7		-33.9	44.4
TOTAL	2512.4	6640.3	12899.6	2274.6	16856.4	389.9	212.4	164.2

YEAR OF 1989 UNIT = M.C.M.

BASIN	AREA	RAIN~	SURFACE	EVAPO-	SURFACE	GROUN	DWATER	
NO.	(SQ.KM)	FALL	INFLOW	TRANSPN	OUTFLOW			DRAFT
110.	(101.00)				•••			
1	1181.5	3673.7	.0	942.5	2735.0	.0	.0	.0
2	5.2	13.5	.0	3.5	10.0	.0	.0	.0
3	160.4	457.1	.0	109.4	347.5	.3	.0	.0
4	66.5	189.6	.0	45.4	144.2	. 1	.0	.0
5	59.0	152.8	347.5	47.9	438.3	14,2	15.2	.0
6	20.1	52.2	.0	14.8	25.7	11.7	11.7	.0
Ž	111.1	287.9	144.2	85.1	304.7	42.3	42.5	.0
8	48.4	125.3	2735.0	54.6	2793.7	12.1	12.1	.0
9	56.5	146.4	448.3	44,2	538.4	12.1	12.3	.0
10	41.3	107.1	.0	30.0	66.9	10.2	10.3	.0
11	28.8	74.5	25.7	21.1	73.2	6.0	6.0	.0
12	48.8	126.5	304.7	38.9		2.0	1.9	. 1
13	41.3	107.0	2793.7	46.6	2846.0	8.1	8.1	.0
14	37.8	97.9	538.4	30.3	595.2	10.8	10.9	.0
15	37.4	96.9	66.9		130.6	5.8	-3.6	9.6
16	66.7	172.9	73.2	53.4		9.2	-3.9	13.8
17	51.8	134.1	390.3	38.8	446.3	39.4	39.4	.0
18	44.6	115.7	2846.0	50.3	2898.8	12.6	12.6	.0
19	28.0	72.6	595.2	22.7	640.4	4.7	2.5	.1
20	38.8	100.4	130.6	29.1	187.2	14.7		21.0
21	59.6	154.5	183.8	49.4		57.6	14.2	43.4
22	16.9	43.9	.0	11.5	29.2	3.1	2.5	.0
23	40.3	104.4		27.1	64.8	12.6	2,2	10.3
24	55.3	143.3		59.7	2973.8	8.6	8.3	.0
25	39.3	101.8	640.5	31.1	701.6	9.6	9.6	۰.0
26	72.2	186.9		53.4	281.7	68.3	29.6	38.7
27	54.7	141.6	64.8		156.3	8.8	-40.6	49.4
TOTAL	2512.4	7160.7	15444.1	2009.4	20235.5	384.8	197.3	186.4

HYDROLOGIC BALANCE OF JEAPA DISTRICT

BASIN (CASE 1)

YEAR OF 1990 UNIT = M.C.M.

						4		
BASIN NO.	AREA (SQ.KM)	RAIN- FALL	SURPACE INFLOW	EVAPO- TRANSPN	SURFACE		IDWATER OUTFLOW	DRAFT
	• - •.		_				•	.0
1	1181.5	6161.8		1147.2	4963.0	.0	, o	
2	5.2	22.8	.0	4.5	18.3	.0	.0	.0
	160.4	769.2		138.1			.0	.0
4	66.5	319.1	.0	57.3	261.7	.1	0	
5 6 7 8 9	59.0		630.6	58.3	809.7	19.7	17.0	
6	20.1	87.8	.0		53.1	16.2	16.0	
7	111.1	484.4	261.7	105.4	585.6		53.1	
8	48.4	210.9	4963.0	55.9				
ġ	56.5	245.4	826.1	54.2	1003.9	16.5	16.0	
10	41.3	180.2	.0	37.4			14.6	
11	28.8	125.4		26.3	144.1	8.1	7.9	
12	48.8	212.8	585.8	47.3	748.7		2,2	
13	41.3	180.1	5098.9	47.7	5219.0	11.7	10.7	
14	37.8	164.8	1003.9	36.1	1117.5	15.0	13.7	.0
îś	37.4	163.1	127.3	34.1	248.6	7.6	-1.2	6.4
16	66.7		144.1		357.8	11,6		
17	51.8	225.7	748.7		869.4		55.3	
18		194.7	5219.0	51.6			17.5	
19		122.2	1117.5	27.0	1205.9		-3.4	. 1
20	38.8		248.6			19.3	-4.6	15.0
21	50.6	260.1	357. A	58.8	474 5	R1 A	48.4	31.8
22	16.0	73 R	357.8 .0	14.5	54.3	4.9	2.6	. 0
23	40.3	175 A	.ŏ	34.4	121.3	20.1	2.3	7.0
24	55.3			.: 63.9				.0
25	39.3	171.3		38.0	1325.6			
26	37.3	314.6						
			121.3					
27	54.7	230.3	121.3	31.2	2,0.7	12.5	2711	
TOTAL	2512.4	12083.4	28475.2	2423.2	37518.9	537.6	328.0	133.6

HYDROLOGIC BALANCE OF JHAPA DISTRICT

BASIN (CASE 1)

YEAR OF 1991 UNIT \* M.C.M.

						UNIT *	n.c.n.	
BASIN NO.	AREA (SQ.KM)	RAIN- FALL	SURPACE INFLOW	EVAPO TRANSPN		GROUN RECHARGE	DWATER OUTPLOW	DRAFT
1	1181.5	4138.7	0	914.9		.0	.0	.0
2		15.3	.a		11.8	.0	.0	٠.
- 3	160.4	515.0	.0	107.4	407.4		.0	.0
4	66.5	213.6	.0	44.5	169.0		.0	.0
5	59.0	172.2			519.6		15.2	.0
ő	20.1	58.8	0	14.4	32.4	11.9		
	111.1	324.3	169.0	81.7	368.7	43.0	44.1	
ė	18.4	141.2	3268.9	54.2	3342.7	.13.6	13.7	
š	56.5	165.0	531.4	41.5	642.6	12.3	12.5	
10		120.6	.0	29.0	80.6	11.0		.0
ii	28.8	83.9	32.4	20.5	89.7			.0
12	48.8		368.7	36.9	472.2	2.0		.1
13	41.3		3342.7	46.3	3408.3	9.0	9.2	.0
14			642.6			11.2	11.4	.0
15	37.4	109.2	80.6	26.4	157.5	5.9	-2.8	10.1
16	66.7	194.8	89.7	52.1	223.4	10.0		14.5
17	51.6	151.1	472.2	37.7	543.7		42.2	
18	44.6	130.3	3408.3		3474.7	14.2	14.3	.0
1.9	28.0		713.6			5.0		
20	38.6	113.1	157.5	28.3	227.3	15.0	-4.4	
21	59.6	174.1	223.4	48.3	288.0	62.7	18.7	
22	16.9	49.4	.0		34.8	3.3	3.1	.0
23	40.3	117.7	.0			13.6	5.3	10.8
24	55.3	161.4				9.9	8.4	.0
25	39.3		769.1		843.6		10.6	.0
26	72.2	210.6				69.5	32.9	40.5
27		159.5		39.5			-38.3	51.0
TOTAL	2512.4	8089.8	16491.8	1953.5	24272.0	405.2	227.1	193.9

							M.C.M.	
BASIN NO.	AREA (SQ.KM)	RAIN- FALL	SURFACE INFLOW	evapo- transph	SURFACE OUTFLOW		DWATER DUTFLOW	DRAFT
1	1181.5	2380.6	.0	791.8	1631.2	.0	.0	.0
ž	5.2	8.8	.0	2.8	5.9	.0	-0	.0
3	160.4	296.2	.0	89.9	206.1	.3	.0	.0
4	66.5	122.9	.0	37.3	85.6	. 1	.0	.0
5	59.0	99.0	206.1	40.0	253.6	11.6	12.4	.0
6	20.1	33.8	.0	12.4			8.5	.0
7	111.1	186.5	85.6	71.1	166.2	34.9	35.8	.0
8	48.4	81.2	1631.2	51.6	1652.2		9.3	٥.
ġ	56.5	94.9	259.5	36.7	307.8			0
10	41.3	69.4	.0	25.4	36.8	7.2	7.9	.0
11	28.8	48.3	13.0	17.7		4.8	4.9	.0
12	48.8	82.0	166.2	32.3	214.3	1.6	1.8	.1
13	41.3	69.3	1652.2	44.1	1671.4	6.4	6.7	.0
14	37.8	63.5	307.8	25.0	337.9	8.3	8.6	.0
15	37.4	62,8	36.8	23.1	71.8	4.7	-3.4	10.6
16	66.7	112.1	38.8	44.7	99.1		-4.9	15.1
17	51.8	86.9	214.3	33.0	241.5		26.9	.0
18	44.6	75.0	1671.4	47.6	1688.7	10.4	10.6	.0
19	28.0	47.0	337.9		362.6		3.6	-1
20	38.8	65.1	71.8	24.3			-4.2	24.0
21	59.6	100.1	99.1	41.7		42.3	-6 9	50.1
22	16.9	28.4	.0	9.4	17.1	1.9	3.3	.0
23	40.3	67.7	.0	22.0	37.1	8.6	4.6	11.4
24	55.3	92.9	1688.7	57.2	1718.8	6.0	6.5	.0
25	39.3	66.0	362.6		394.6		8.0	.0
26	72.2	121.1	117.9				11.9	44.3
27	54.7	91.8	37.1	34.7	86.7	7.5	-46.9	57.5
TOTAL.	2512.4	4653.2	8997.8	1705.9	11698.7	292.5	115.0	213.0

HYDROLOGIC BALANCE OF JHAPA DISTRICT

BASIN (CASE 1)

						YEAR O	F 1993 M.C.M.	
BASIN	AREA	RAIN-	SURFACE	EVAPO-	SURFACE	GROUN	DWATER	
NO.	(SQ.KM)	FALL	INFLOW	TRANSPH	OUTFLOW	RECHARGE		DRAFT
	(04.14.)		21111-11					
1	1181.5	3408.5	.0	985.3	2379.0	. 0	. 0	.0
Ž	5.2	12.6	.0	3.8	8.8	.0	.0	.0
3	160.4	424.1	.0	117.9	305.8	. 3	٠.0	.0
	66.5	175.9	.0	48.9	127.0	.1	.0	.0
5	59.0	141.8	305.8	49.3	384.1	14.2	13.9	.0
- 4 5 6	20.1	48.4	.0	15.6	21.5	11.3	11.1	.0
7	111.1	267.1	127.0	88.6	262.7	42.7	41.3	.0
В	48.4	116.3	2379.0	52.7	2430.9	11.2	11.0	.0
9	56.5	135.9	392.9	45.0	472.4	11.4	11.0	.0
10	41.3	99.3	.0	31.5	57.8		9.4	.0
11	28.6	69.1	21.5	22,1	62.6	5.9	5.8	.0
12	48.8	117.3	262.7	39.9	338.2		1.6	.1
. 13	41.3	99.3	2430.9	45.0	2477.2		7.4	.0
14	37.8	90.9	472.4	30.3	522.9	10.0	9.7	.0
15	37.4	89.9	57.8	28.7	113.2	5.6	-4.0	7.5
16	66.7	150.4	62.6	54.2	158.6	9.0	~5.1	10.7
17	51.8	124.4	338.2	40.8	385.7	36.1	35.8	.0
18	44.5	107.3	2477.2	48.7	2523.3	12,2	12.2	٠,0
19	28.0	67.4	522.9			4.4	2.9	.1
20	38.0	93.2	113.2	30.5	160.9	14.9	-6.5	17.5
21	59.6	143.4	158.6	49.7	196.2	54.1	15.5	37.2
22	16.9	40.7	.0	12.4	25.3	3.0	3.1	.0
23	40.3	96.9	.0	29.0	55.8	12.1	2.1	8.1
24	55.3	132.9	2523.3	59.3	2588.8	7.8	7.3	.0
25	39.3	94.5	563.0	32.3	615.7		9,0	.0
26	72.2	173.5	186.2	55.4	236.5	66.7	28.0	32.3
27	54,7	131.4	55.8	42.9	135.5	8.8	-39.2	42.9
TOTAL	2512.4	6662.5	13451.2	2084.0	17609.6	371.1	183.4	156.4

(4) Under Draft with Irrigation Water Demand < Water Demand x 1.50>

HYDROLOGIC BALANCE OF JHAPA DISTRICT BASIN (CASE 1)

						YEAR O	F 1980 M.C.M.	
BASIN NO.	AREA	RAIN- FALL	SURFACE INFLOW	EVAPO- TRANSPN	SURPACE	GROUN	DWATER	
×0.	(50.10)	FALL	THEFOR	TRANSPR	OUTSPOM	RECHARGE	DUTFLOW	DRAFT
1	1181.5	3689.2	.0	993.6	2700.1	,0	.0	.0
2	5.2	13.6	.0	3.7	9.9	.0	.ŏ	.ŏ
3	160.4	459.1	.0	116.7	342.0	. 3	. ŏ	.ŏ
3 4 5 6 7	66.5	190.4	.0	48.4	142.0	. 1	.ŏ	,ŏ
5	59.0	153.5	342.0	50.0	430.8	14.8	14.9	. 6
6	20.1	52.4	.0	15.6	26.2	10.6	10,7	,ŏ
	111.1	289.1	142.0	89.9	297.7	43.4	43.2	,ŏ
8	48.4	125.8	2700.1	53.9	2760.0	12.1	12.1	.õ
9	56.5	147.0	440.7	46.2	528.9	12.6	12.5	,0
10	41.3	107.5	.0	32.1	65.3	10.1	10.0	.ŏ
11	28.8	74.0	26.2	22.3	72.7	6.0	6.0	.0
12	48.8	127.0	297.7	40.7	381.9	2.1	2.0	. 1
13	41.3	107.5	2760.0	46.0	2813.4	8.1	8.1	.õ
14	37.8	98.4		31.3	585.0	11.0	10.9	.0
15	37.4	97.3		29.3	127.4	5.9	-5.6	9.5
16	66.7	173.7	72.7	55.4	182.2	9.2	-5.1	13.5
17	·51.8	134.7	381.9	41.1	439.4	36.2	36.1	.0
18	44.6	116.2	2813.4	49.7	2866.9	13.0	13.0	-0
19	28.0	72.9	585.0	23.5	629.5	4.8	1.5	. 1
20	38.8	100.8	127.4	30.7	183.1	14.4	-9.3	21.4
21	59.6	155.2	182.2	51.0	232.6	54.5	9.2	45.1
22	16.9	44.1	٠.0	12.2	28.8	3.0	3.0	.0
23	40.3	104.9	.0	28.8	63.5	12.6	1.0	9.7
24	55.3	143.9	2866.9	60.8	2941.3	8.7	6.7	.0
25	39.3	102.3	629.6	32.9	689.2	9.8	9.7	0
26	72.2	187.7	211.9	56.0	280.5	63.0	23.2	39.6
27	54.7	142.2	63.5	43.7	152.9	9.1	~44.0	52.0
TOTAL	2512.4	7211.2	15237.3	2105.5	19973.1	375.5	169.6	190.9

HYDROLOGIC BALANCE OF JHAPA DISTRICT

BASIN (CASE 1)

				P 1981 M.C.M.				
BASIN NO.	AREA (SQ.KM)	RAIN- FALL	SURFACE INFLOW	EVAPO- TRANSPN	SURFACE OUTFLOW		DWATER OUTPLOW	DRAFT
1	1181.5	3615.5	0	931.8	2743.9	.0	.0	.0
2	5.2	13.3	.0	3.0	10.3	.0	.0	.0
3	160.4	449.9	.0	97.3	352.6	.3	.0	.0
4	66.5	186.6	.0.	40.3	146.2		.0	.0
4 5 6 7	59.0	150.4	352.6	47.0	443.7	12.3	14.2	.0
5	20.1	51.4	.0	14.0	29.5	7.9	8.2	.o
7	111.1	283.3	146.2	82.4	314.5	32.6	35.9	.0
8	48.4	123.3			2803.0	12.2		0
9	56.5	144.1	454.0	41.4	546.8	9.9	10.7	.0
10	41.3	105.4	.0	27.6	69.9	7.9	8.7	.0
11	28.8	73.3	29.5	19.5	78.6	4.7	4.9	. 0
12	48.8	124.5	314.5	37.7	399.6	1.7	2.2	. 1
13	41.3	105.3			2855.5	8.2	8.4	.0
14	37.6	96.4	546.8	28.6	605.4	9.3		.o
15	37.4	95.4	69.9	25.4	135.5	4,4		14.0
16	66.7	170.2	78.6	52.4	189.5	7.8		
17	51.8	132.0		36.6	466.0	29.1		.0
18	44.6	113.9		48.6	2908.0	13.1	13.2	
19	28.0	71.4	605.4	21.7	650.9	4.2	.7	.1
20	38.8	98.8	135.5	28.0	194.9	11.4		31.4
21	59.6	152.1	189.5	49.7	250.1	43.7	-16.5	64.7
22	16.9	43.2	.0	10.2	30.6	2.4	2.9	
23	40.3	102.8	.0	23.7	67.8	11.3	2.8	15.1
24	55.3	141.0		60.4	2980.2	9.0	4.6	٥. "
25	39.3	100.2	651.0	30.5	712.1	8.6	10.5	, ŏ
26	72.2	184.0	225.5	50.8	310.5	48.2	6.3	58.0
27	54.7	139.4	67.8	39.1	161.3	6.8	-56.2	
TOTAL.	2512 4	7067 1	15577 0	1045 0	20457 1	205.7	OE O	177 1

HYDROLOGIC BALANCE OF JEAPA DISTRICT

							F 1982 M.C.M.	
BASIN	AREA	RAIN-	SURFACE			GROUN	DWATER	
NO.	(SQ.KM)	FALL	INPLOW	TRANSPH	Cutplow	RECHARGE	OUTFLOW	DRAFT
1	1181.5	4057.9	.0	883.5	3152.8	.0	.0	.0
2	5.2	15.0		4.9	12.0	.0	.0	.0
3	160.4	504.9	.0		411.6		.0	.0
4	66.5	209.5	.0	38.5	170.9	. 1	.0	.0
5	59.0		411.6	44.2	523.2	13.1	12.8	.0
6 7	20.1	57.6	۰.	13.4		6.8	8.7	.0
7	111.1	316.0		77.6		34.7	33.8	.0
8	48.4	138.4	3152.8			13.3	12.3	.0
9	56.5		535.2	39.8	646.3	10.8	10.5	. 0
10	41.3	118.3	. 0	26.1	83.9	8.3	8.5	.0
11	28.8	82.3	35.5	18.9		5.0	5.0	.0
12	48.8	139.7	376.7	35.8	478.7	1.9	1.7	. 1
13	41.3	118.2	3225.7	44 4	3290.6	8.8	8.3	.0
14	37.8	108.2	646.3	27.1	717.1		10.2	.0
15	37.4	107.1	83.9	24.0	162.5	4.4	-5.5	15.3
16	66.7	191.0		40.7	221.4	8.7	-7.9	21.7
17	51.8	148.2	478.7	35.7	557.3	33.8	33.6	.0
18	44.6	127.8	3290.6	48.0	3356.3	13.9	13.6	.0
19	28.0	80.2	717.1	20.6	772.0	4.8	2.2	.1
20	38.8	110.9	162,5	26.8	234.2	12.5	-9.5	25.6
21	59.6	170.7	227.4	45.1	297.2	55.1	-16.8	69.8
22	16.9	. 48.5	.0	9.8	36.2	2.5	2.6	.0
23	40.3	115.4	.0	22.2	80.9	12.3	2.1	12.8
24	55.3	156.3	3356.3	58.3	3446.7	9.4	5.0	.0
25	. 39.3	. 112.5	772.0	29.0	845.6	9.9	9.2	. 0
26	72.2	206.5		49.4	371.8	55.7	-9.9	63.1
27	54.7	156.4	80.9				-72.7	79.9
TOTAL	2512.4	7931.8	18088.4	1851.4	23800.2	345.1	57.7	288.3

BASIN (CASE 1)

HYDROLOGIC BALANCE OF JEAPA DISTRICT

YEAR OF 1983

								2.0
BASIN NO.	AREA (SQ.KM)	RAIN- FALL	SURFACE INFLOW	evapo– transpn	SURFACE OUTFLOW		DWATER OUTFLOW	DRAFT
	1181.5	3551.7	.0	937.3	2593.1	.0	.0	.0
1 2	5.2	13.1	.0	3.4	9.6	.0	.0	.0
3	160.4	441.9	.ŏ	106.3		.3	.0	.0
4	66.5	183.3	.ŏ		138.7	. 1	.0	.0
4	59.0	147.8	334.2	46.2		13,1	13.3	.0
5 6 7	20.1	50.5	.0	14.7		11.0	11.0	.0
2	111.1	278.3	138.7			41.5	41.1	.0
8	48.4	121.2						.0
9	56.5	141.2	431.9		519.4			.0
10	41.3	103.5		29.2	64.6		9.2	.0
11	28.8		24.6		70.0		5.6	.0
12	48.8	122.3	291.6			1.8	1.7	. 1
13	41.3	103.4	2649-0				7.8	.0
14	37.8	94.7	519.4	29.0	574.9	10.0	10.0	0
15			64.6	26.8	125.9	5.4	-7.2	13.0
16	66.7		70.0				-11,2	18.5
17	51.8		374.0				37.6	.0
18	44.6	111.8	2698.9		2748.7		12.6	
19			574.9		618.7	4.5	3.3	, 1
20	38.8		125.9				-9.5	21.9
21	59.6		174.7	49.2			-3.0	59.9
22	16.9	42.4	0.	11 3	28.3	2.8	2.6	.0
23	40.3	101.0	.ŏ	26.0		12.1	. 5	9.9
24	55.3	138.5		59.7			8.0	.0
25			618.7				9.1	.0
25 26	72.2	180.7	207.5				7.5	53.5
27	54.7	136.9			151.2		-64.2	68.3
TOTAL			14703.3				108.6	245.2

HYDROLOGIC BALANCE OF JHAPA DISTRICT

BASIN (CASE 1)

YEAR OF 1984 UNIT = M.C.M.

								4 1
BASIN NO.	AREA (SO.KM)	RAIN~ FALL	SURPACE	EVAPO- TRANSPN		GROUN RECHARGE	DWATER OUTFLOW	DRAFT
				404.6	1071 0	.0	.0	.0
1	1181.5	5070.2	.0	981.6	4074.8			.ŏ
2	5.2	18.7	.0	3.6	15.1	.0	.0	.0
3	160.4	630.9	.0		517.9	.3	.0	.č
4	66.5	261.7	.0					.ŏ
5 6 7	59.0	210.9		49.9	662.6 45.0	16.7		
6	20.1		. 0	15.4	45.0	11.8		
7	111,1	397.3	215.0	88.2	479.7	45.0		
8	48.4	173.0				15.8	13.6	
9	56.5		677.8	44.9			13.4	.0
10	41.3	147.8	.0		105.5	11.2		
11	28.8	102.8	45.0		119.3	6.7	6.7	
12	46.6		479.7	39.8		2.2	2.0	.1
13	41.3	147.7		45.4	4270.5	10.3		
14	37.8	135.2	821.6		914.2	12.5		
15	37.4	133.8	105.5		204.6	6.2		12.2
16	66.7	238.7	119.3			9.8	-12.5	
17	51.6	185.1	612.5	40.4	714.5	43.0	40.3	
18	44.6	159.7	4270.5	49.1		15.9	14.4	٥.
19	28.0	100.2	914.3	22.8	986.1		1.3	. 1
20	38.6	138.6	204.6	30.0	298.1	15.4	-9.8	23.2
21	59.6	213.3	293.1	50.8	388.4		8.2	58.1
22		60.6	.0	11.9	45.5		2.8	
23	40.3	144.2	.0	27.6	100.9			10.5
24	55.3	197.8		59.6				.0
25	39.3	140.5	986.2		1083.5	11.3	10.8	
26	72.2				476.8	70.0	15.8	51.6
27	54.7		100.9		244.7	9.4	-59.1	66.5
TOTAL	2512.4	9910.6	23326.2	2071.4	30725.7		147.6	239.7

HYDROLOGIC BALANCE OF JHAPA DISTRICT

BASIN (CASE 1)

						***		100
BASIN NO.	AREA (SO.KM)	RAIN-	SURFACE	EVAPO- TRANSPN	SURFACE		OWATER OUTPLOW	DRAFT
,	(-4		7.1					
1	1181.5	4151.5	.0	1009.0	3069.8	۰,	.o	.0
2	5.2	15.3	.0	3.9	11.3	.0	.0	.o
3	160.4	516.6	0	121.6	391.4	3	.0	.0
2 3 4	66.5	214.3	.0	50.4	162.5		.0	.0
5	59.0	172.7	391.4	51.6			15.6	.0
6	20.1	59.0	.0	16.3	29.7	12.5	12.3	-0
7	111.1	325.3	162.5		344.4	47.5	46.2	.0
· 8 9	48.4	141.6	3069.8	53.B	3143.9	13.1		.0
9	56.5	165.5	504.7	47.2	608.2	13.1	12.7	.0
10	41.3	121.0	.0	32.8	76.0	11.1		.0
11	28.6	84.2	29.7	23.2	83.3	6.7	6.5	.0
12	48.8	142.9	344.4	41.8	442.0	2.2	1.9	.i
13	41.3	120.9	3143.9		3209.7	8.7	8.6	.0
14	37.8	110.7	608.2		674.5	11.6	11.2	.0
15	37.4	109.5	76.0		148.0	6.5	-7.9	10.1
16	66.7	195.4			209.0	9.9	-9.4	14.1
17	51.8	151.6	442.0	42.6	508.2	41.4	40.8	.0 .0
18	44.6	130.7	3209.7		3276.2	13.8	13.7	.0
19	28.0	82.0	674.5		726.8	5.2	1.6	
20	38.6	113.5	148.0	31.8	212.3	. 16.4	-10.3	
21	59.6	174.5	209.0	52.0	265.4		9.6	51.9
22	16.9	49.6	.0	12.7	33.4		3.0	.0
23	40.3	118.0		29.9	73.4		1.2	
24	55.3	151.9			3366.9	9.5	7.1	-0
25	39.3	115.1	726.8	33.4	796.4	10.9	10.2	.0
26	72.2	211.3	245.6			75.9	23.8	44.9
27 .			73.4			9.7	-54.3	60.4
TOTAL	2512.4	8114.7	17419.3	2148.0	22853.7	422.0	167.9	213.2

HYDROLOGIC BALANCE OF JEAPA DISTRICT BASIN (CASE 1)

YEAR OF 1986 UNIT = M.C.M.

BASIN	AREA		SURFACE				IDWATER	
NO.	(SO.KM)	FALL	INFLOW	TRANSPN	OUTFLOW	RECHARGE	OUTFLOW	DRAFT
1	1181.5	2485.5	.0	909.3	1681.4	.0	.0	.0
1 2	5.2	9.2		3 2	6.0	0		.0
3		309.3			210.8	. 3	.0	
4		128.3			87.5		. 0	
5	59.0		210.8	45.7		13.4		.0
6	20.1	35.3			13.4	8.4		
7			87.5		165.6		41.4	
8	48.4	84.8	1681.4	52.2	1705.9	9.2	9.4	.0
g	56.5	99.1	264.4 -0	41.4	312.8			
10	41.3	72.4	-0	28.7	37.2	7.5	8.1	
11	28.6	50.4	13.4	20.0	39.3	5.3	5.5	.0
12			165.6				2.1	. 1
13			1705.9	14.5	1728.1	6.5	6.7	.0
14	37.8	66.3	312.8	28.0	343.1	9.0	9.4	.0
15			37.2		72,2			
16			39.3			9.4		
17			213.9					.0
18	44.6	78.3	1728.1	48.1		10.7		
19	28.0	49.1	343.1	21.1		3.9		
20	38.8	67.9	72.2	27.6		13.1		
21	59.6	104.6	99.4	47.3		43.7		
22	16.9	29.7	.0	10.6	17.5	2.0		
23			.0.		37.8		1.8	
24			1748.5			6.5	6.9	.0
25	39.3	68.9	368.0	29.7	399.9	8.6	9.4	
26	72.2	126.5	117.8	50.7	144.2	51.4		
27	54.7	95.6	37.8	39.0	87.9	8.3	-56.7	69.5
TOTAL	2512.4	4858.3	9247.1	1921.9	12018.6	310.9	95.6	253.8

ANDROLOGIC BALANCE OF JHAPA DISTRICT BASIN (CASE 1

		YEAR OF UNIT = M							
BASIN NO.	AREA (SQ.KM)	RAIN- FALL	SURFACE INFLOW	EVAPO- TRANSPN	SURFACE		DWATER OUTFLOW	DRAFT	
	1101.5	2736.5		933.4	1805.0	.0	.0	.0	
1	5.2	10.1	.0		6.6	.0	.0		
3	160.4	340.5	.0 0.	3.5 111.3	228.9	.3	.0	.0	
4	66.5		.0.	46.1	95.1	.1	.0	.0	
	59.0	141.3 113.8	228.9	46.7	284.0	12.0	12.0	.0	
5 6 7 8 9	20.1	38.9	.0	14.5	15.9	8.5	8.4	.0	
	111.1	214.4	95.1	82.8	189.9	36.8	36.3	.0	
	48.4.	93.3	1805.0	52.3	1836.5		9.6	.0	
				42.5	347.0	10.1	9.9	.0	
.,	56.5	109.1 79.7	290.5	29.8	41.9	8.0		.0	
10	41.3		0	20.7			5.1	0	
11	28.8	55.5	15.9		245.1	1.7	1.5		
12	48.6	94.2	189.9	37.4	245.1			.0	
13	41.3	79.7	1836.5		1865.0		6.5		
14	37.6	73.0	347.0	28.8	382.6	B.6	8.5	0.0	
15	37.4	72.2	41.9	27,2	81.8	5.1	-4.9	10.6	
15	66.7	128.8	45.7	50.8		7.6	-6.6	15.0	
17	51.8	99.9	245.1	38.3		27.7	27.6	.0	
18	44.6	86.2	1865.0	48.3	1892.1	10,8	10.8	.0	
19	28.0	54.1	382.6	21.7	411.3	3.8		.1	
20	38.8	74.8	81.8	28.2	116.3	12.1	-9.7	21.6	
21	59.6	115.1	116.1	. 46.7	141.7	42.6	-10.6	52.8	
22		32.7	.0	11.5	16.9	2.3	2.5	.υ	
23	40.3	77.8	.0	27.1	41.1	9.7	,5	9.2	
24	55.3	106.7	1892.1	58.3		6.5	6.4	.0	
25	39.3	75.8	411.3	30.5	448.4	8.2	8.0	.0	
26	72.2	.139,3	135.1	51.8	172.9	49.6		46.0	
27	54.7	105.5	41.1	40.5	98.1	7.9	-55.3	61.7	
ጥርምልና.	2512 4	5348 B	10066.5	1975.2	13140.7	301.3	80.5	217.1	

HYDROLOGIC BALANCE OF JHAPA DISTRICT BASIN (CASE 1)

YEAR OF 1988 UNIT \* M.C.M. EVAPO- SURFACE GROUNDWATER TRANSPH OUTFLOW RECHARGE OUTFLOW AREA (SQ.KM) RAIN-FALL BASIN NO. DRAFT 1092.8 3.8 118.5 49.1 55.5 17.1 99.5 51.6 34.6 34.6 34.6 35.1 31.9 60.9 45.0 48.2 26.4 33.5 51.6 29.1 55.6 36.9 45.0 46.2 26.3 1181.5 5.2 160.4 66.5 590.1 111.1 48.4 56.5 41.3 28.8 48.8 41.3 37.4 66.7 51.6 28.8 59.6 40.3 55.3 37.3 40.3 3397.2 12.5 422.7. 175.4 141.3 266.2 115.9 135.4 99.0 68.9 17.0 99.0 67.1 92.0 142.9 96.6 96.6 159.9 124.0 142.9 201.4 TOTAL 2512.4 6640.3 12899.6 2274.6 16856.3 389.9 174.6

HYDROLOGIC BALANCE OF JRAPA DISTRICT BASIN (CASE 1)

YEAR OF 1989

BASIN	AREA	RAIN-	SURFACE	EVAPO-			OWATER	DRAFT
NO.	(SQ,KM)	FALL	INFLOW	TRANSPR	OUTFLOW	ROCHANGE	JULIFICA	DEAT
1	1181.5	3673.7	.0	942.5	2735.0	-0	.0	.0
,	5.2	13.5	.0	3.5	10.0	-0	.0	.0
2 3	160.4	457.1	.0	109.4	347.5	, 3	.0	.0
4	66.5	189.6	.0	45.4	144.2	. 1	.0	٠.
5	59.0		347.5	47.9				
6	20.1	52.2	.0	14.8	25.7		11.7	
6	111.1	287.9	144.2	85.1	304.7	42.3	42.5	.0
Ŕ	48.4	125.3		54.6	2793.7	12.1	12.1	
8	56.5		448.3	44.2	538.4	12.1	12.3	
10	41.3	107.1		30.0	66.9	10.2	10.2	
īī	28.8	74.5	25.7	21.1	73.2	6.0		
12	48.8	126.5	304.7	38.9	390.3		1.9	. 1
13	41.3		2793.7	46.6	2846.0		8.1	۰.
14	37.8	97.9	538.4	30.3	595.2			
îs	37.4		66.9		130.6		-6,3	
16	66.7		73.2			9.2	-6.8	
17	51.8	134.1	390.3	38 8	446.3			
18		115.7						
19	28.0		595.2	22.7	640.4		2.9	
20	38.8	100 4	130 6	29 1	187.2	14.7	~9.7	24.2
21	59.6	154.5	183.8	49.4	231.7	57.6	4.5	53.1
22	16.9	43.9		17.3	29,2	3.1	2.8	.0
23	40.3	104.4	.0	27.1			1.3	10.4
24	55.3	143.3		59.7		8.6	8.4	, o
25	39.3	101.8	640.5	31.1	701.6	9.6	9.6	.0
26	72.2	186.9	216.5	53.4	281.7		20.8	47.4
27	54.7		64.8		156.3	8.8	-52.0	61.0
TOTAL	2512.4	7180.7	15444.1	2009.4	20235.4	384.9	158.5	224.5

HYDROLOGIC BALANCE OF JHAPA DISTRICT BASIN (CASE 1)

YEAR OF 1990

						V		
BASIN NO.	AREA (SQ.KM)	RAIN- FALL	SURFACE INFLOW	EVAPO- TRANSPN	SURFACE	GROUN RECHARGE	OUTFLOW	DRAFT
	1181.5	6181.8	.0	1147.2	4963.0	0	.0	.0
1	5.2	22.8	.0	4.5	18.3	. 0	.0	.0
2		769.2	.0	138.1	630.6	. 3	.ŏ	.o
3	160.4	319.1	.0	57.3		.1	.0	.0
4	66.5	257.2	630.6	58.3		19.7		
5	59.0	87.8	0.00	18.5	53.1	16.2	16.0	.0
5 6 7	20.1	484.4	261.7			54.9		.0
7	111.1		4963.0	55.9		16.3		.0
6	48.4	210.9	828.1	54.2		16.5		0
9	56.5	246.4		37.4	127.3	15.5		.0
10	41.3	180.2	.0	26.3		8.1	7.9	.0
11	28.6	125.4	53.1	47,3				, 1
12	48.8	212.8	585.6			11.7		.ā
13	41.3	180.1	5098.9	47.7		15.0		.0
14	37.8	164.8	1003.9			7.7		8.0
15	37.4	163.1	127.3	34.1		11.6		11.3
16	66.7	291.0	144.1	64.0	357.8	56.8	55.3	.0
17	51.8	225.7	748.7	48.2	869.4	18.0	17.5	.ŏ
18	44.6	194.7	5219.0	51.6	5343.4	6.8	-3.0	.ĭ
19	28.0	122.2	1117.5	27.0		19.3		18.6
20	38.8	168.9	248.6			81.8	40.7	39.3
21	59.6	260.1	357.8	58.8			3.1	.0
22	16.9	73.8		14.6	54.3	4.9	1.1	8.2
23	40.3	175.8		34.4				°.ô
24	55.3	241.1	5343.4	63.9		13.9	3.4 13.0	ŏ
25	39.3	171.3		38.0		13.8		34.3
26	72,2							45.4
27	54.7	238.3	121.3	51.2	296.9	11.5	-39.6	40.5
TOTAL	2512.4	12083.4	28475.2	2423.2	37518.9	537.6	286.0	165.2

HYDROLOGIC BALANCE OF JEAPA DISTRICT BASIN (CASE 1)

						UNIT = M.C.M.				
BASIN NO.	AREA (SQ.KH)	RAIN- FALL		EVAPO- TRANSPN			OWATER DUTFLOW	DRAFT		
1	1181.5	4138.7	.0	914.9	3268.9	.0	. 0	.0		
	5.2	15.3	.0	3.4	11.8		0	٠.		
ã		515.0	.0.	107.4	407.4	.3	.0	. 0		
2 3 4 5 6 7	66.5	213.6		44.5	169.0	.1	.0	.0		
5	59.0		407.4	45.5	519.6	14.5	15.2	.0		
ĸ	20.1	58.8	.0	14.4	32.4	11.9	12.0	.0		
ž	111.1		169.0	81.7	368.7	43.0	44.1	.0		
. 8	48.4	141.2	3268.9	54.2	3342.7 642.6 80.6	13.6		.0		
. 9	56.5	165.0	3268.9 531.4	41.5	642.6	12.3	12.5	0		
10	41.3	120.6	.0	29.0	80.6	11.0	11.5			
îĭ		63.9	32.4	20.5	89.7	6.2	6.3	.0		
12	48.8	142.5	368.7	36.9	472.2	2.0		.1		
13	41.3	120.5	3342.7		3408.3	9.0	9.2	.0		
14	37.8	110.3	642.6	28.2	713.6	11.2	11.3	.0		
15	37.4	109.2	80.6	26.4	157.5	5.9	-4.9			
16	66.7	194.8	89.7	52.1	223.4	10.0	-4.7			
îř	51.8	151.1	472.2	37.7	543.7	42.0	42.2			
18	44.6	130.3	3408.3	50.1	3474.7	14.2	14.3	0		
19	28.0	81.8	713.6	21.3	769.1	5.0	1.7	.1		
20	38.8	113.1	157.5 223.4	28.3	227.3	15.0	-9.0	26.6		
21	59.6	174.1	223.4	48 3	288 0	62.7	9.1	54.8		
22	15.9	49.4	.0	11.4	34.8	3.3	3.4	.0		
23	40.3	117.7		26.7	77.4	13.0	4.1	13.1		
24			3474.7	60.5	256K D		8.4	0		
25	39.3	114.7	769.1		843.5	10.3	10.6			
26	72.2	210.6	262.1	52.4	350.8	69.5	24.6			
27	54,7		77,4	39.5	188.5	8.9	-49.0	62.4		
TOTAL	2512.4	8089.8	18491.8	1953.5	24272.0	405.2	188.7	236.0		

BASIN (CASE 1)

HYDROLOGIC BALANCE OF SHAPA DISTRICT

YEAR OF 1992 UNIT = M.C.M.

BASIN	AREA	RAIN-	SURFACE	EVAPO~	SURFACE		DWATER	
NO.	(50.KM)	FALL	INFLOW	TRANSPN	OUTFLOW	RECHARGE C	OUT FLOW	DRAFT
1	1181.5	2380.6	.0	791.B	1631.2	.0	.0	.0
2 3	5.2	8.8	.0	2.8	5.9	.0	, 0	.0
3	160.4	296.2	. 6	89.9	206.1	.3	. 0	.0
4	66.5	122.9			85.6	.1	.0	.0
5	59.0	99.0	206.1	40.0	253.6			.0
5 6 7	20.1	33.8	.0	12.4	13.0	8.4	8.5	
7	111.1	186.5	85.6	71.1			35.8	
8	48.4	81,2	1631.2		1652.2	9.1	9.3	.0
g	56.5	94.9	259.5	36.7	307.8	10.0		
10	41.3	69.4	.0	25.4	36.8	7,2	в.о	
11	28.8	48.3	13.0	17.7	38.8	4.8		
12	48.8	82.0	166.2	32.3				
13		69.3	1652.2	44.1			6.7	.0
14		63.5	307.8		337.9		8.6	-0
15	37.4	62.8	36.8	23.1	71.8	4.7		
16	66.7	112.1	38.8	44.7	99.1	7.7		
17	51.8	86.9	214.3	33.0	241.5		26.9	.0
18	44.6	75.0	1671.4	47.6	1688.7	10.4		
19	28.0	47.0	337.9	18.8	362.6		3.7	
žó	38.8	65.1	71.8	24.3	100.8	11.7		
21	59.6	100.1	99.1	41.7	116.5	42.3		
22	16.9	28.4	.0	9.4.	17.1	1.9	3.2	.0
23		67.7		22.0	37.1	8.6	3.3	
24 .	55.3	92.9		57.2	1718.8	6.0	6.5	
25	39.3			26.4	394.6	7.6	8.1	.0
26	72.2	121.1	117.9	44.9	142.9	51.2		
27	54.7	91.8	37.1	34.7	86.7	7.5	-59.5	70.9
TOTAL	2512.4	4653.2	8997.8	1705.9	11698.7	292.5	75.2	262.0

HYDROLOGIC BALANCE OF JHAPA DISTRICT

BASIN (CASE 1)

YEAR OF 1993 UNIT \* M.C.M.

BASIN	AREA	RAIN-	SURFACE	EVAPO-	SUBFACE	GROUNDWATER		
NO.	(50.104)	PALT.	INFLOW			RECHARGE	OUTFLOW	DRAFT
no.	(wy.idi)		.,					
1	1181.5	3408.5	.0	985.3		.0	.0	.0
2	5.2	12.6	.0	3.8	8.8		.0	
ã	160.4		. 0	117.9	305.8	. 3	.0	٥۔
	66.5	175.9	.0	48.9	127.0	. 1		
4 5 6 7	59.0	141 R	305.A	49.3	384.1	14.2	13.9	
6	20 1	48.4	.0	15.6	21.5	11.3 42.7	11.1	
ž	111.1	267.1	127.0	88.6	262.7	42.7	41.3	
Á	48.4	116.3	2379.0	52.7	2430.9	11.2	11.0	0
8	56.5	135.0	392 Q	45.0	472.4	11.4		
10	41.3	99.3	.0	31.5 22.1	57.8	10.0		.0
11	28.8	69.1	21.5	22.1	62.6	2.9	5.8	.0
12	48.8	117.3	252.7	39.9	336.2	1.9	1.6	. 1
13	41 7	99 3	2430.9	45.0	2477.2	7.6	7.4	
	37.8	90.9	472.4	30.3	522.9	10.0	9.7	
15	17 4	89.9	57.8	28.7	113.2	5.8	-5.5	
16	66 7	160 4	67.6	54.2	158.6	9.0	-8.7	13.1
17	51.8	124.4	219 2	40.8	385.7	36 1	35.8	.0
18	44.6	107.3	2477.2	48.7	2523.3	12.2	12.2	-0
19	28.0	67.4	522.9	22.9	563.0	4.4	3.2	.1
20	38.8	93.2	113.2	30.5	160.9 196.2	14.9	-9.3	
21	59.6	143.4	158.6	49.7	196.2	54.1	6.4	46.1
22	16.9	40.7	.0	12.4	25.3	3.0		.0
23	40.3	96.9	٥	79 D	55.8	12.1	.6	8.5
24	55 3	137 9	2523.3	59.3	2588.8	7.8	7.4	
25	39.3	94.5	563.0	32.3	615.7	9.5	8.9	.0
26	72.2	173.5	186.2	56.4	236.5	66.7	18.3	
27		131.4	55.8	42.9	135.5	8.8	~51.0	53.7
TOTAL	2512.4	6662.5	13451.2	2084.0	17609.6	371.1	143.5	192.7

#### (5) Under Draft with Irrigation Water Demand < Water Demand x 1.75> HYDROLOGIC BALANCE OF JHAPA DISTRICT BASIN (CASE 1)

					YEAR OF 1980				
							M.C.M.		
BASIN	AREA	RAIN-	SURFACE	EVAPO-	SURFACE		DWATER		
NO.	(SQ.KM)	FALL	INFLOW	TRANSPH	OUTFLOW	RECHARGE	OUTFLOW	DRAFT	
1	1181.5	3689.2	.0	993.6	2700.1	.0	.0	.0	
2	5.2	13.6	.0	3.7	9.9	.0	.0	. 0	
3	160.4	459.1	.0	116.7	342.0	.3	.0	.0	
	66.5	190.4	.0	48.4	142.0	.1	.0	.0	
4 5 6 7	59.0	153.5	342.0	50.0	430.8	14.8	14.9	.0	
6	20.1	52.4	.0	15.6	26.2	10.6	10.7	.0	
7	111.1	289.1	142.0	89.9	297.7	43.4	43.2	.0	
6	48.4	125.8	2700.1	53.9	2760.0	12.1	12.1	.0	
9	56.5	147.0	440.7	46.2	528.9	12.6	12.5	.0	
10	41.3	107.5	.0	32.1	65.3	10.1	10.0	.0	
11	28.8	74.8	26.2	22.3	72.7	6.0	6.0	.0	
12	48.8	127.0	297.7	40.7	381.9	2.1	2.0	.1	
13	41.3	107.5	2760.0	46.0	2613.4	8.1	8.1	.0	
14	37.8	98.4	528.9	31.3	585.0	11.0	10.9	.0	
15	37.4	97.3	65.3	29.3	127,4	5.9	-7.1	11.2	
16	66.7	173.7	72.7	55.4	162.2	9.2	-9.6	15.9	
17	51.8	134.7	381.9	41.1	439.4	36.2	36.1	.0	
18	44.6	116.2	2813.4	49.7	2866.9	13.0	13.0	.0	
19	28.0	72.9	585.0	23.5	629.5	4.8	1.7	. 1	
50	38.8	100.8	127.4	30.7	183.1	14.4	-9.9	22.7	
21	59.6	155.2	182.2	\$1.0	232.6	54.5	. 2	54.0	
22	16.9	44.1	.0	12.2	28.8	3.0	3.0	.0	
23	40.3	104.9	.0	28.8	63.5	12.6	.9	10.0	
24	55.3		2866.9		2941.3	8.7	6.8	.0	
25	39.3		629.6	32.9	689.1	9.8	9.7	.0	
26	72.2	187.7	211.9	56.0	280.6	63.0	15.3	47.4	
27	54.7		63.5	43.7		9.1	-55.0	62.B	
TOTAL	2512.4	7211.2	15237.3	2105.5	19973.1	375.5	135.3	224.2	

HYDROLOGIC	BALANCE	OF JHAPA	DISTRICT	BAS	IN (CASE	1)		
			•			YEAR O	F 1981 M.C.M.	
BASIN	AREA	RAIN-	SURFACE	EVAPO-	SURPACE		DWATER	
NO.	(SQ.KM)	FALL	INFLOW	TRANSPN	OUTFLOW	RECHARGE	OUTFLOW	DRAFT
1	1181.5	3615.5	.0	931.8	2743.9	.0	.0	.0
2	5.2	13.3	.0	3.0	10.3	.0	.0	.0
3	160.4	449.9	.0	97.3	352.6	. 3	.0	.0
4	66.5	186.6	.0	40.3	146.2	.1	.0	.o
5	59.0	150,4		47.0	443.7	12.3		
6	20.1	51.4	.0	14.0	29.5	7.9	8.2	.0
7	111.1	283.3	146.2	52.4	314.5	32.6	35.9	.0
8	48.4	123.3	2743.9	52.8		12.2	12.1	0
9	56.5		454.0	41.4	546.8	9.9	10.7	.0
10	41.3		.0		69.9		8.7	o,
11	28.8	73.3	29.5	19.5	78.6		4.9	0
12	48.8		314.5	37.7	399.6	1.7	2.2	1
13	41.3	105.3	2803.0	45.1	2855.5	8.2	8.4	.0
14	37.8	96.4	546.B	28.6	605.4	9.3	10.1	.0
15	37.4	95.4	69.9	25.4	135.5	4.4	-5.8	16.6
16	66.7	170.2	78.6	52.4	189.5	7.8		23.5
17	51.8		399.6	36.6	466.0	29.1	29.7	.0
18	44.6	113.9	2855.5	48.8	2908.0	13.1	13.2	0
19	28.0	71.4	605 4	21.7	650.9	4,2	1,0	. 1
20	38.8	98.8	135.5	28.0	194.9	11.4	-9.7	30.0
21	59.6	152.1	189.5	49.7	250.1	43.7	-25.2	74.7
22	16.9		. 0	10.2	30.6	2.4	2.9	.0
23	40.3		.0	23.7	67.8	11.3	2.6	15.1
24	55.3	141.0	2908.0	60.4	2980.2	9.0	4.8	.0
25	39.3	100.2	651.0	30.5	712.1	8.6	11.0	.0
26	72.2		225.5	50.8	310.5	48.2	-1.9	68.8
27	54.7	139.4	67.8	39.1	161.3	6.8	-67.9	96 8

		1)	IN (CASE	BAS	DISTRICT	OF JHAPA	BALANCE O	TOROLOGIC
	F 1982 N.C.M.							
	NWATER	GROUN	SURFACE	EVAPO-	SURFACE	RAIN-	AREA	BASIN
DRAFT'			OUTFLOW	TRANSPN	INFLOW		(SQ.KM)	NO.
.0	.0	.0	3152.8	883.5	.0	4057.9	1181.5	1
	.0	.0	12.0	2.9	.0	15.0	5.2	2
	.0	. 3	411.6	92.8	.0	15.0 504.9	160.4	3
.0	.0	. 1	170.9	38.5		209.5	66.5	4
.0	12.8	.0 .3 .1	523.2	44.2	411.6	168.8	59.0	4 5 6 7 8 9
	R 7	яя	35.5	17.4	.0	57.6	70.1	6
.0	33.8	34.7	376.7	77.6	170.9	318.0	111.1	7
	12.3	13.3	3225.7	52.0	3152.8	138.4	48.4	8
.0	10.5	10.6	646.3	39.8	535.2	161.7	56.5	9
	8.5		83.9	26.1	.0	118.3	41.3	10
.0	5.0	5.0	93.8	18.9	35,5	82.3	41.3 28.8	11
1	1.7	1.9	478.7	35.8	376.7	139.7	48.8	12
	8.3	8.8	3290.6	44.4	3225.7	118,2	41.3	13
Δ.	10.2	10.2	717.1	27.1	646.3	118,2 108.2	37.8	14
18.1	-7.4	4.4	162.5	24.0	83.9	107.1	37.4	15
25.6	-8.6	8.7	227.4	46.7	93.8	191.0	66.7	16
	33.6	33.8	557.3	35.7	478.7	148.2	51.6	17
.0	13.6	13.9	3356.3	48.0	3290.6	127.B	44.6	16
1	2.5	4.8	772.0	20.6	717.1	80.2	28.0	19
20.4	-8.2	4.4 8.7 33.8 13.9 4.8 12.5	234.2	26.8	162.5	110.9	38.8	20
74.1	~ (1.4	35.1	491.4	43.1	221.4	170.7	39.5	21
	2.5	2.5	36.2	9.6	.0	48.5	16.9	22
10.9	2.4	2.5 12.3	80.9	22.2	.0	115.4	40.3	23
. Ó	5.4	9.4	3446.7	58.3	3356.3	158.3	55.3	24
. 0	9.1	9.9	845.5	29.0	772.0	112.5	39.3	25
74.9	-19.B	55.7	371.8	49.4	270.4	206.5	72.2	26
90.7	-83.3	55.7 7.0	193.3	36.9	80.9	156.4	54.7	27
319.6	26.3	345.1	23800.2	1851.4	18088.4	7931.8	2512.4	TOTAL

YEAR OF 1983 UNIT \* M.C.M.

BASIN	AREA	RAIN-	SURFACE		SURFACE		DWATER	
NO.	(SQ.KM)	FALL	INFLOW	Transpn	OUTFLOW	RECHARGE	CUTFLOW	DRAFT
						_	_	
1	1181.5	3551.7	.0	937.3	2593.1	٠.	.0	.0
2	5.2	13.1	.0	3.4	9.6	.0	۰.	.o
3	160.4	441.9		106.3		.3	.0	.0
4	66,5	183.3	.0	44.1	138.7	.1	.0	.0
5	59.0		334.2	46.2		13.1	13.3	.0
6 7	20.1	50.5	.0		24.6	11.0	11.0	.0
7	111.1	278.3			291.6	41.5		۰,0
8	48.4	121.2	2593.1	53.2			11.7	.0
g	56.5	141.6	431.9	42.6	519.4	11.2	11.1	.0
10	41.3	103.5	.0	29.2	64.5	9.5		.0
ii	28.B	72.0	24.6	20.8	70.0	5.7	5.6	.0
12	48.8	122.3	291.6	37.8	374.0	1.8	1.7	. 1
13	41.3	103.4	2649.0	45.5	2698.9	7.9	7.8	-0
14	37.8	94.7	519.4	29.0	574.9	10.0	.10.0	.0
15	37.4	93.7	64.6	26.B	125.9	5.4	-9.2	15.4
16	56.7	167.2	70.0	53.0	174.7	9.2		
17	51.8	129.7	374.0	38.7		37.7		
18	14.6	111.B	2698.9	49.2	2748.7	12.6	12.6	
19	28.0	70.2	574.9	21.8	618.7	4.5		
20	38.8	97.1			179.3	14.5		
21	59.6	149.4	174.7	49.2	216.9	57.4		
22	16.9	42.4	.0	11.3	28.3	2.8	2.6	.0
23	40.3	101.0			62.8	12.1	. 8	9.8
24	55.3	138.5			2818.7	8.4	8.0	.0
25		98.4	618.7			9.4	8.8	.0
26	72.2					66.1		63.6
27	54.7		62.8		151.2	8.4	-75.8	79.4
TOTAL	2512.4	6942.4	14703.3	1982.1	19262.2	372.2	73.1	280.3

HYDROLOGIC BALANCE OF JEAFA DISTRICT BASIN (

BASIN (CASE 1)

SURFACE EVAPO- SURFACE GROUNDWATER INFLOW TRANSPH OUTFLOW RECHARGE OUTFLOW AREA (SQ.KM) BASIN NO. DRAFT 5070.2 18.7 630.9 261.7 210.9 72.0 397.3 173.0 102.8 147.8 102.8 147.7 135.2 133.2 133.2 133.2 133.2 133.3 60.6 144.2 144.2 144.5 258.0 195.0 4074.8 15.1 517.9 215.0 662.6 45.0 479.7 4178.6 821.6 105.5 119.3 612.5 4270.5 914.2 204.6 293.1 714.5 4365.1 986.1 298.1 388.4 491.8 1098.6 476.8 1098.6 476.8 1098.6 476.8 1098.6 .0 .0 .0 .0 .0 .11.7 .44.3 .13.4 .10.9 .0.7 .2.0 .10.8 .14.4 .1.5 .8.7 .14.8 .13.5 .14.8 .13.5 .14.8 .13.5 .14.8 .13.5 .14.8 .13.5 .14.8 .13.5 .14.8 . 1181.5 5.2 160.4 66.5 59.0.1 111.1 456.5 41.3 37.8 41.3 37.8 44.6 66.7 51.8 44.6 28.0 940.3 39.6 10.3 39.3 278.2 430.5 112.9 9910.6 23326.1 2071.4 30725.7 TOTAL

EYDROLOGIC BALANCE OF JHAPA DISTRICT

BASIN (CASE 1)

BASIN	AREA	RAIN-	SURPACE	EVAPO~	SURFACE	GROUND	WATER	
KO.			INFLOW	TRANSPH	OUTFLOW	RECHARGE O	UTFLOY	DRAFT
1	1181.5	4151.5	.0	1009.0	3069.8	.0	.0	.0
. 5		15.3		3.9		0	.0	.0
1 2 3	160.4	516.6	.0	121.6	391.4		0	.0
	66.5	214.3	.0	50-4	162.5		.0	
. ?	59.0	172 7	391.4	51.6	493,3		15.6	.0
- 2		59.0		16.3	29.7		12.3	.0
4 5 6 7	1111	325.3	162.5	92.2	344.4	47.6		.0
	48.4	141.6	3069.8	F7 0	2142 0	12 1	12.9	.0
8	56.5	165.5	504.7	47 2	608.2	13.1	12.7	.0
10	41.3	121 0	.6	72:1	76.0	11.1	10.0	
îĭ	28.8		29.7	23.2	83.3	6.7	6.5	.0
12	48.8	142.9	344.4	41.8	442.0	2.2	1.9	.1
	41.3		3143.9	45.9	3209.7	8.7	8.6	٠.
14	37.8	110 7	608 2	31 7	674.5	11.6	11.2	.0
15	77.4	100 5	76.0	70.0	140 A	£ 5.	-10.0	12.1
16	66.7	195.4	83.3	56.3	209.0	9.9	14.1	16.8
17	51.8	151.6		42.6	508.2	41.4	40.8	.0
18	44.6	130.7	3209.7	19 7	7276.2	13.0	13.7	.0
19	28.0	82.0	674.5	23.8	740.0	3.2	2.2	
20	28 A	113.5	148.0	31.8	212.3	16.4 .	-9.3	21.8
21	59.6	174 6	200 0	52.6	265.4	62.B	- 9	62.5
22	16.9	49 6		12.7	33.4	3.2	3.0	.0
23		118.0	.0	29.9	77 4	14.0	1.3	10.8
24	55.3	161.9	3276.2	60.8	3366.9	9.5	7.2	.0
25	30 3	115.1	726.8	33.4	796.3	10.9	10.2	0
26	72.2	711.3	745.6	35.5	324.2	12.7		29.9
27	54.7	160.0	73.4	44.7	177.4	9.7	-67.1	72.8
TOTAL	2512.4	8114.7	17419.2	2148.0	22853.7	422.0	128.8	251.3

YEAR OF 1986 UNIT = M.C.M.

BASIN	AREA	RAIN-	SURFACE	EVAPO~	SURFACE	GROUNI	DWATER	
NO.		PALL		TRANSPH	OUTPLOW	RECHARGE (	UTPLOW	DRAFT
NO.	(30.141)	*******						
1	1181.5	2485.5	.0	909.3	1681.4	.0	.0	. 0
2	5.2	9.2	.0	3.2	6.0 210.8	.0	.0	.0
2 3		309.3	.0	101.6	210.8	.3	.0	.0
4	66.5	128.3	.0	42.1	87.5	.1	.0	.0
	59.0		210.8	45.7	258.3	13.4	14.8	
6	20.1	35.3	0	14.1	13.4		8.6	.0
5 6 7	111.1	194.8	B7.5	80.9	165.6	39.3	41.4	
ė.			1681.4		1705.9	9.2	9.4	.0
9	56.5	99.1	264.4	41-4	312.8	10.9		
10	41.3	72.4	.0	28.7	37.2	7.5	8.1	
11		50.4	13.4	20.0	39.3	5.3	5.5	
12			165.6	36.9	213.9	1.8	2.1	
13	41.3	72.4	1705.9	44.5	1728.1	6.5	6.7	
14	37.8	66.3	312.8	28 6	343.1	9.0	9.5	
15		65.6	37.2	26.4	72,2	5.3		
16	66.7	117.0	39.3	51.4	99.4	9.4		20.6
17	51.8	90.7	213.9	37.4	241.0	27.6		.0
18	44.6	78.3	1728.1	48.1	1748.5	10.7	10.9	.0
19	28.0	49.1	343.1	21.1	368.0	3.9	3.4	.1
20	38.8	67.9	72.2	27.6	100.4	13.1		
21	59.6	104.6	99.4	47.3	117.6	43.7	-26.8	
22	16.9	29.7	.0	10.6	17.5		2.8	
23	40.3	70.7	.0	24.9	37.8			12.4
24	55.3	96.9	1748.5	59.3	1780.9	6.5		.0
25	20.2	60 0	368 A	29 7	399.9	8.6	9.5	.0
26	72.2	126.5	117.8	50.7	144.2	51.4	-2.4	
27	54.7	95.8	37.8	39.0	87.9	8.3	-69.8	83.3
TOTAL	2512.4	4858.3	9247.1	1921.9	12018.5	310.9	57.8	293.6

HYDROLOGIC BALANCE OF JHAPA DISTRICT

BASIN (CASE 1)

YEAR OF 1987 UNIT - M.C.K. EVAPO-TRANSPN SURFACE OUTFLOW GRODOWATER AREA (SQ.KM) RAIN-FALL SURFACE INFLOW BASIN NO. RECHARGE OUTFLOW DRAFT 2736.5 10.1 340.5 141.3 113.8 38.9 214.4 93.3 109.1 79.7 73.0 72.0 128.8 986.2 54.1 74.8 115.1 74.8 115.1 77.8 106.7 77.8 1181.5 5.2 160.5 59.0 20.1 111.1 48.4 56.5 41.3 28.8 44.6 37.8 37.8 41.3 37.8 44.6 28.0 39.6 16.7 51.8 59.6 16.3 39.6 16.3 39.3 1805.0 228.9 95.1 284.0 15.9 189.9 1836.5 347.0 45.7 245.1 1865.0 382.6 81.8 116.1 279.0 1892.1 411.3 141.3 141.7 18.9 41.9 45.7 279.0 1892.1 41.2 94.5 18.3 18 123456789101123451892212234567 .0 .0 .0 .0 .0 .0 .0 .0 .0 .1 .0 .0 .0 20.3 8.2 .0

1975.2

HYDROLOGIC BALANCE OF JHAPA DISTRICT

5348.8

2512.4

TOTAL

BASIN (CASE 1)

13140.7

301.3

252.9

45.1

GROUNDWATER RECHARGE OUTFLOW SURFACE OUTFLOW BASIN NO. AREA (SQ.KM) SURPACE INPLOW EVAPO-TRANSPN RAIN-FALL 1092.8 3.8 118.5 49.1 55.5 17.1 99.5 52.3 51.6 34.6 34.6 35.1 31.9 60.9 48.2 26.4 33.5 55.9 12.6 59.6 36.9 61.5 3397.2 12.5 422.7 175.4 141.3 266.2 115.9 135.4 99.0 68.9 129.9 90.6 159.9 124.0 67.1 92.8 142.9 442.9 442.9 132.9 132.9 132.9 2286.4 8.7 303.9 126.2 372.0 20.2 244.0 2338.9 451.0 57.9 313.5 495.0 105.1 146.0 356.7 2432.0 530.7 147.8 147.8 149.0 149 1181.5 160.4 66.5 59.0 20.1 111.1 48.4 56.5 51.3 28.8 41.3 37.4 66.7 51.8 66.7 51.8 66.3 59.6 16.3 59.6 70.3 72.2 72.2 24.2 57.0 .0 10.5 .0 .0 50.3 65.7 2274.6 369.9 137.4 236.3 6640.3 12899.6 2512.4 JATOT

BYDROLOGIC BALANCE OF JEAPA DISTRICT BASIN (CASE 1)

YEAR OF 1989 UNIT = M.C.M.

BASIN NO.			SURFACE INFLOW			GROUI RECHARGE		DRAFT
1	1181.5	3673.7	.0	942.5	2735.0	٥	.0	.0
2		13.5			10.0			
1 2 3	160.4	457,1	.0	109.4	347.5	.3		.ŏ.
4	66.5	189.6	.0	45.4	144.2	. 1	ň	.0
5 6 7	59.0	152.8	347.5	47.9	438.3		15.2	
6	20.1	52.2	.0	14.A	25.7	11.7	31 7	Α.
7	111.1	287.9	144.2	85.1	304.7	42.3 12.1	11.7 42.5	.ŏ
8	48.4	125.3	2735.0	54.6	2793.7	12.1	12.1	.0
9	56.5	146.4	448.3	44.2	538.4	12.1	12.3	.0
10	41.3	107.1	.0	30.0	66.9	10.2	10.2	.0
11	2R.R.	74.5	75.7	21 1	73.2	6.0	6.0	۸
12	48.8	126.5	304.7	38.9	390.3	2.0	1.9	. 1
13	41.3	107.0	2793.7	46.6	2846.0	8.1	8.1	.0
14	37.8	97.9	538.4	30.3	595.2	10 A	10.0	.0
15	37.4 66.7	95.9	66.9	27.4	130.6	5.8	-8.5	13.7
16	66.7	172.9	73.2	53.4	183.8	9.2	-11.3	19.6
17	51.8	134,1	390.3	38.8	446.3	39.4	39.1	.0
	44.6	115.7	2846.0	50.3	2898.8	12.6	12.6	. 0
	28.0	72.6	595.2	22.7	640.4	4.7	3.3	.1
20	38.8	100.4	130.6	29.1	187.2	4.7 14.7	-9.2	23.7
	59.6	154.5	163.8	49.4	231.7	57.6	-5.6	63.3
. 22	16.9	43.9	.0	11.5	29,2	3.1	2.8	.0
23	40.3	104.4	.0	27.1	64.8	12.6		
24	55.3	143.3	2898.8	59.7	2973.8	8.6	8.5	.0
25	39.3	101.8	640.4	31.1	701.6	9.6		
26	72.2	186.9	216.5	53.4	281.7		11.9	56.2
27	54.7	141.6	64.8	41.3	156.3	8.8	-63.8	72.9
TOTAL	2512.4	7180.7	15444.1	2009.4	20235.4	384.9	121.9	259.9

HYDROLOGIC BALANCE OF JEAPA DISTRICT

						YEAR C		
BASIN NO.	AREA (SQ.KM)	RAIN~ FALL	SURFACE INFLOW	EVAPO- TRANSPN	SURPACE		DWATER OUTFLOW	DRAFT
1	1101.5	6181.8	.0	1147.2	4963.0	0		•
2	5.2	22.6	.0	4,5		0	.0	.0
3	160.4	769.2	.0		630.6	.0	.0	.0
4	66.5	319.1		136.1 57.3	261.7	.3	.0	.0
	59.0	257.2			809.7	1	0	-0
2	20.1			58.3			17.0	.0
5 6 7 8	111,1	87.8		18.5	53.1	16.2	16.0	.0
	48.4	484.4		105.4	585.8	54.9	53.1	.0
9			4963.0	55.9	5098.9	18.3	17.1	.0
10	56.5	246.4	828.1	54.2	1003.9		16.0	.0
	41.3	180.2	.0	37.4	127.3	15.5	14.5	.0
11 12	28.8	125.4	53.1	26.3	144.1	8.1	7.9	.0
	48.8	212.8		47.3	748.7		2.2	.1
13	41.3	180.1	5098.9	47.7			10.7	0
14	37.8		1003.9	36.1	1117.5		13.7	.0
15	37.4	163.1	127.3	34.1	248.6	7.7	-11.6	9.5
16	66.7	291.0	144.1		357.8		-9.0	13.4
17	51.6	225.7	748.7		869.4	56.8	55.4	.0
18	44.6	194.7		51.6	5343.4	18.0	17.5	.0
19	28.0	122.2		27.0	1205.B	6.8	-2.6	. 1
20	38.8	168.9	248.6		362.1	19.3	-10.1	19.4
21	59.6		357.8	58.8	474.5	81.8	32.7	47.1
22	16.9	73.8	.0	14.6	54.3	4.9	3.3	-0
23	40.3	175.8	.0	34.4	121.3	20.1	.9	8.6
24	55.3	241.1	5343.4	63.9	5506.1	13.9	3.4	.0
25	39.3	171.3	1206.0	36.0	1325.6	13.8	12.9	.0
26	72.2	314.6	416.4	67.0	571.6	92.4	41 1	41.2
27.	54.7	238.3	121.3	51.2	296.9		19.9	54.9
TOTAL	2512.4	12083.4	28475.2	2423.2	37518.8	537.6	252.2	194.2

HYDROLOGIC BALANCE OF JEAPA DISTRICT

			YEAR OF 1991 Unit = M.C.K.							
BASIN NO.	(SO.KK)	RAIN- FALL	SURFACE INPLOW	EVAPO- TRANSPN	SURFACE CUTFLOW	GROUNDWATER RECHARGE OUTFLOW		DRAPT		
1	1181.5	4138.7	.0	914.9	3268.9	.0	٠,٥	.0		
2	5.2	15.3	.0		11 8	.0	. o	,õ		
3	160.4	515.0	.0				. 0	.0		
. 4	66.5	213.6	.0	44.5	169.0	.1	.0	, õ		
5	59.0	172.2	407.4	45.5	519.6	14.5		, o		
5 6 7	20.1	58.8	. o	14.4		11.9	12.0			
7	111.1	324.3			368.7	43.0	44.1	.0		
8	48.4	141.2	3268.9		3342.7	13.6	13.7	.0		
9	56.5	165.0	531.4	41.5	642.6	12.3	12,5	. 0		
. 10	41.3	120.6	.0	29.0	80.6	11.0	11.4	. 0		
11	28.8	63.9	32.4	20.5	89.7	6.2		.o		
12	48.6	142.5	368.7	36.9	472.2	2.0	2.1	.ĩ		
13	41.3	. 120.5	3342.7			9.0	9.2	.0		
14	37.8	110.3	642.6	28.2	713.6	11.2	11.3	. o		
15	37.4	109.2	80.6	26.4	157.5	5.9	-7.1	14.3		
16	66.7	194.8	89.7	52.1	223.4	10.0	~7.6	20.5		
17	51.8	151.1	472,2	37.7	543.7	42.0	42.2	.0		
18	44.6	130.3	3408.3		3474.7		14.3.			
19	28.0	81.8	713.6	21.3	769.0	5.0	2.0	.1		
20	38.8	113.1	157.5	28.3	227.3	15.0	-10.6	31.0		
21	59.6	174.1	223.4		288.0	62.7	- 7	64.8		
22	16.9	49.4	.0	11.4	34.8	3.3	3.7	0		
23	40.3	117.7	.0	26.7		13.6	3.7	15.4		
24	55.3	161.4	3474.7	60.8	3565.8	9.9	8.5	.0		
25	39.3	114.7	769.1	30.0	843.5	10.3	10.7	. 6		
26	72.2	210.6	262.1			69.5	16.7	58.2		
27	54.7	159.5	77.4	39.5	188.5	8.9	-60.1	74.0		
	2612 4	BARO P	18491 7	1052 6	24222 0	408 3	152.6	220 6		

BASTN (CASE 1)

HYDROLOGIC BALANCE OF JEAPA DISTRICT

YEAR OF 1992 UNIT \* M.C.M.

		na TV	SURFACE	EVAPO-	SURFACE	GROUNDWATER		
BASIK	AREA	RAIN-	INFLOW	TRANSPN	OUTPLOW	RECHARGE	CUTFLOW	DRAFT
KO.	(SQ.KM)	FALL	INITOR	LOUISIN	0011202			
1	1181.5	2380.6	.0	791.8	1631.2	.0	.0	.0
2	5.2	8.8	.0	2.8	5.9	٠.0	.0	.0
3	160.4	296.2	.0	89.9	206.1	.3	.0	.0
3	66.5	122.9	.0	37.3	85.6	.1	.0	٥٠
5	59.0	99.0	206.1	40.0	253.6	11.6	12,4	.0
, , , , , , , , , , , , , , , , , , ,	20.1	33.8	.0	12.4	13.0	8.4	8.5	.0
6 7	111.1	186.5	85.6	71.1	166.2	34.9	35.8	.0
8	48.4	81.2	1631.2	51.6	1652.2	9.1	9.3	.0
ě	56.5	94.9	259.5	36.7	307.8	10.0	10.2	.0
10	41.3	69.4	.0	25.4	36.8	7.2	8.0	-0
11	28.8	48.3	13.0	17.7	38.8	4.8	4.9	.0
12	48.8	82.0	166.2	32.3	214.3	1.6	1.8	.1
13	41.3	69.3	1652.2	44.l	1671.4	6-4	6.7	.0
14	37.8	63.5	307.8	25.0	337.9	8.3	8.7	.0
15	37.4	62.8	36.8	23.1	71.8	4.7	-4.4	15.4
16	66.7	112.1	38.8	44.7	99.1	7.7	-6.9	21.7
17	51.8	86.9	214.3	33.0	241.5	26.7	26.9	.0
18	44.6	75.0	1671.4	47.6	1688.7	10.4	10.6	.0
19	28.0	47.0	337.9	18.8	362.6	3.6	3.7	. 1
20	38.8	65.1	71.8	24.3	100.8	11.7	-10.1	28.7
21	59.6	100.1	99.1	41.7	116.5	42.3	-29.9	73.5
22	16.9	28.4	0.0	9.4	17.1	1.9	3.0	.0
23	40.3	67.7	.ŏ	22.0	37.1	8.6	2.9	13.7
24	55.3	92.9	1688.7	57.2	1718.8	6.0	6.5	.0
	39.3	66.0	362.6	26.4	394.6	7.6	8.2	-0
25 26	72.2	121.1	117.9		142.9	51.2	-6.3	65.2
26 27	54.7	91.8	37.1	34.7	86.7	7.5	-72.4	84.8
21	1.10	31.0	3	3	••••			
TOTAL	2512.4	4653.2	8997.8	1705.9	11698.7	292.5	37.8	303.1

HYDROLOGIC BALANCE OF JEAPA DISTRICT

BASIN (CASE 1)

YEAR OF 1993 UNIT # M.C.M. GROUNDWATER RECHARGE OUTFLOW rain-Fall SURFACE INFLOW EVAPO~ TRANSPN SURFACE OUTFLOW AREA (SQ.KM) BASIN NO. 1181.5 5.2 160.4 66.5 59.0 20.1 111.1 48.4 56.5 41.3 37.8 48.8 48.8 48.8 59.6 16.9 40.3 39.3 72.2 54.7 3408.5 12.6 424.1 175.9 141.8 48.4 267.1 116.3 135.9 99.3 69.1 117.3 90.9 160.4 124.4 93.2 143.4 93.2 143.4 93.2 143.4 13.5 94.9 985.3 3.8 117.9 49.3 15.6 88.6 52.7 45.0 52.1 39.9 49.3 28.7 754.2 40.3 28.7 22.9 29.0 59.3 56.4 42.9 .0 .3 .1 14.2 11.3 11.3 11.4 10.0 5.9 17.6 10.0 5.9 1.6 10.0 36.1 14.4 14.9 15.1 17.8 9.0 12.1 17.8 9.5 66.7 8.8 123456789101121314561189221223452627 7.3 .0 .0 48.3 65.1 371.1 106.9 221.8 2084.0 17609.5 6662.5 13451.2 TOTAL

(6) Under Draft with Irrigation Water Demand < Water Demand x 2.00>

HYDROLOGIC BALANCE OF JHAPA DISTRICT RASIN (CASE 1)

						UNIT -	M.C.M.	
BASIN NO.	AREA (SQ.KM)	RAIN- FALL	SURFACE INFLOW	EVAPO- TRANSPN	SURFACE OUTFLOW		IDWATER OUTFLOW	DRAFT
1	1181.5	3689.2	.0	993.6	2700.1	.0	.0	.0
2	5.2	13.6	.0	3.7	9.9	.0	.0	.0
2 3	160.4	459.1	.0	116.7	342.0	.3	.0	.0
4	66.5	190.4	.0	48.4	142.0	.1	.0	.0
	59.0	153.5	342,0	50.0			14.9	
6	20.1	52.4	.0	15.6	26.2	10.6		
5 6 7 8 9	111.1		142.0	89.9	297.7	43.4	43.2	.0
à	48.4	125.8		53.9	2760.0		12.1	.0
9	56.5	147.0	440.7	46.2	528.9		12.5	
10	41.3	107.5	.0	32.1	65.3		10.0	.0
îi	28.8	74.8	26.2	22.3	72.7	6.0	6.0	.0
12	46.8	127.0	297.7	40.7			2.0	. 1
13	41.3	107.5	2760.0		2813.4		8.1	.0
14	37.B	98.4	528.9	31.3	585.0	11.0	10.9	.0
15	37.4	97.3	65.3	29.3	127.4			13.1
16	66.7	173.7	72.7	55.4	182.2	9.2	-11.8	
17	51.8	134.7	381.9	41.1	439.4		36.1	
18	44.6	116.2	2813.4	49.7	2866.9		13.0	
19	28.0	72 Q	585 ()	23.5	529.5			
20	38.8	100.8	127.4	30.7	183.1			
21	59.6	155.2	182.2	51.0	232.6			
22	16.9	44.1	.0	12.2		3.0	3.0	
23	40.3	104.9	.0	28.8	63.5	12.6	1.2	9.9
24	55.3	143.9	2866.9			8.7	6.9	.0
25	39.3	102.3	629.6	32.9	689.1	9.8	9.7	.0
26	72.2	187.7		56.0	280.6		7.4	55.4
27	54.7	142.2	63.5	43.7	152.9	9.1	-66.B	74 - 4
TOTAL	2512.4	7211.2	15237.3	2105.5	19973.1	375.5	103.5	257.4

HYDROLOGIC HALANCE OF JRAPA DISTRICT

BASIN (CASE 1)

BASIN	AREA	RAIN-	SURFACE	EVAPO-	SURFACE		DWATER	
NO.	(SQ.KM)	FALL	INFLOW	TRANSPN	OUTFLOW	RECHARGE	OUTFLOW	DRAFT
1	1161.5	3615.5	.0	931.8	2743.9	.0	.0	.0
ž	5.2	13.3	.0		10.3	.0	0	.0
ā	160.4	449.9		97.3	352.6	.3	.0	.0
4	66.5		.o	40.3		.1	.0	.0
-	59.0		352.6			12.3	14.2	.0
ŕ		51.4	.0		29.5	7.9	8.2	
5 6 7	111.1	283.3	146.2	82.4			35.9	
Ŕ		123.3		52.8			12.1	
8	56.5		454.0	41.4				
10	41.3	105.4		27.6	69.9	7.9		.0
îĭ	28.8		29.5		78.6	4.7		
12		124.5		37.7	399.6	1.7	2.2	.1
13	41.3	105.3	2803.0	45.1	2855.5	8.2	8.4	- 0
14	37.8	96.4	546.8	28.6	605.4			.0
15	37.4		69.9	25.4	135.5	4.4	-7.8	
16	66.7		78.6	52.4				
17	51.8	132.0						
18	44.6	113.9	2855.5	48.8			13.2	
19	28.0	71.4	605.4	21.7	650.9		1.3	
20	38.8	98.8	135.5	28.0	194.9			25.9
21	59.6	152.1	189.5	49.7	250.1		-32.3	82.3
22	16.9	43.2	.0	10.2		2.4	2.8	.0
23	40.3		.0	23.7		11.3	2.8	13.9
24			2908.0	60.4		9.0		٠.
25		100.2				8.6		.0
26		184.0		50.8				
27	54.7	139.4	67.8	39.1	161.3	. 6.8	-78.1	96.4
TOTAL.	2512-4	7067.1	15577.0	1945.9	20457.1	306.7	35.8	344.7

HYDROLOGIC BALANCE OF JHAFA DISTRICT

BASIN (CASE 1)

			CONTRACE	ESULDO	CUDETCA	GROUNE	WATER		
BASIN	AREA		INFLOW	EVALUT	OUTELON	RECHARGE (	MULTEL ON	DRAFT	
NO.	(SQ.KK)	PALL	INFLOW	Tromsen	OOTLOW	10001011011			
1	1181.5	4057.9	.0	683.5	3152.8	.0		.0	
ž	5.2	15.0	-0	2.9	12.0	.0	.0	.o	
ã	160.4	504.9	.0	92.8	411.6	3	.0	.0	
ž	66.5	209.5		38.5	170.9		.0		
5	. 59.0	168.8	411.6	44.2	523.2	13.1	12.6	.0	
6	20 1	57.6	.0	13.4	35.5	8.8	8.7	.0	
7.	111.1	318.0	170.9	77.6	376.7	34.7	33.8	.0	
8		138.4		52.0	3225.7	13.3	. 12.3	.0	
ğ	56.5		535.2	. 39.8	646.3	10.8		.0	
10	41 3	118.3	- 0	26.1	83.9		8.4	.0	
	~~ ~	02.2	3 2 5	100	97 A	5.0	5.0	0	
12	48 8	139.7	376.7	35.8	478.7	1.9	1.7	. 1	
13	41.3	118.2	3225.7	44.4	3290.6	8.0	8.3	.0	
14	37 R	108.2	646.3	27.1	717.1		. 10.3	.0	
15	37.4	107.1	83.9	24.0	162.5	4.4	-9.2		
16	66.7		93.8		227 4	0.7	-10 6	29.6	
îř	\$1 A		478.7	35.7	557.3	33.8	33.6	.0	
18		127.8	3290.6	48.0	3356.3	13.9	13.6	.0	
19	28.0	BO . 2	717.1	20.6	772.0	4.6	2.9		
20	38.8	110.9	162.5	26.8	234.2	12.5	~6.8		
21			227.4	45.1	297.2	55.1	-34.2		
22			.0	9.8	36.2	2.5		.0	
23	40.3	115.4	.0	22.2	80.9	12.3	2.7	10.2	
24	55.3	158.3	3356.3	58.3	3446.7	9.4	-5.9		
25			772.0	29.0	845.5	9.9	9.1	.0	
26	72.2	206.5	270.4	49.4	371.8	55.7	-28.6		
27	54.7	156.4	80.9	35.9	193.3	7.0	~89.9	97.4	
TOTAL	2512.4	7931.8	18088.3	1851.4	23800.1	345.1	2.8	347.9	

BASIN (CASE 1)

HYDROLOGIC BALANCE OF JHAPA DISTRICT

YEAR OF 1983 UNIT = M.C.M.

			ermer or	EVAPO-	SURFACE	CHOUN	DWATER	
BASIN	AREA	RAIN-	SURFACE					DRAFT
NO.	(SO.KM)	FALL	INFLOW	TRANSPN	COTFLOW	HECHARGE	COTFLOS	DEVII
1	1181.5	3551.7	.0	937.3	2593.1	.0	.0	.0
2	5,2	13.1	.0	3.4	9.5	0	.0	.0
3	160.4	441.9	.0	106.3	334.2	. 3	.0	
4	66.5	183.3	.0	44.1	138.7	. 1	.0	.0
	59.0	147.8	334.2	46.2	422.2	13.1	13.3	.0
6	20.1	50.5	.0	14.7	24.6	11.0	11.0	.0
5 6 7	111.1	278.3	138.7			41.5		
8	48.4		2593.1	53.2	2649.0	11.7		
9	56.5	141.6	431.9	42.6	519.4	11.2	11.1	
10	41.3	103.5	.0	29.2	64.6	9.5		.0
11	28.8	72.0		20.8	70.0	5.7	5.6	
12	48.8	122.3	291.6	37.0	374.0		1.7	1
13	41.3	103.4		45.5			7.8	.0
14	37.8	94.7	519.4	29.0	574.9		10.0	.0
15	37.4	93.7	64.6	26.8	125.9		~10.6	
16	66.7	167.2	70.0	53.0	174.7	9.2	-15.0	
17	51.8	129.7	374.0		427.0	37.7	37.6	
18	44.6	111.8	2698.9	49.2	2748.7	12.6	12.6	
19	28.0	70.2	574.9			4.5		
20	38.8	97.1	125.9	29.0	179.3			
21	59.6	149.4	174.7	49.2	216.9		-18.8	75.8
22	16.9		.0		28.3	2.8	2.7	
23	40.3	101.0	.0				1.2	
24	55.3	138.5	2748.7	59.7		8.4	8.0	
25	39.3	98.4	618.7	30.7	676.9	9.4		
26	72.2	180.7		53.7				
27	54.7	136.9	62.8	39.8	151.2	8.4	-83.6	87.4
TOTAL	2512.4	6942.4	14703.3	1982.1	19262.1	372.2	42.9	306.6

HYDROLOGIC BALANCE OF JRAPA DISTRICT

BASIN (CASE 1)

YEAR OF 1984

						•		
BASIN NO.	AREA (SQ.KM)	RAIN-	SURFACE	EVAPO- TRANSPN	SURFACE		OWATER OUTFLOW	DRAFT
no.	(30.141)	IADD	AIII DON		*****	10010100	••••	
1	1181.5	5070.2	.0	981.6	4074.8	.0	.0	.0
2	5.2	18.7	. 0	3.6	15.1	.0-	. 0	.0
ã	160.4	630.9	.0	113.6	517.9	.3	.0	.0
4	66.5	261.7	.0	47.1	215.0	. 1	.0	.0
	59.0		517.9	49.9	662.6	16.7	15.1	.0
5 6 7		72.0	.0	15.4	45.0	11.8	11.7	.0
ž	111.1	397.3	215.0	88.2	479.7	45.0	44.3	.0
8		173.0	4074.8	53.2	4178.6	15.8	13.6	.0
Š	56.5	202.1		44.9	821.6	13.7		.0
10	41.3		.0	31.3	105.5	11.2	10.9	٠,0
11			45.0	21.9	119.3	6.7	6.7	0
12	48.8	174.6	479.7	39.8	612.5	2.2	2.0	. 1
13	41.3	147.7		45.4	4270.5			.0
14	37.8	135.2	821.6	30.2	914.2	12.5	10.8	.0
15	37.4	133.8	105.5	28.6	204.6	6.2	-12.1	15.7
16	66.7		119.3	54.9		9.8	-16.9	
17	51.8	165.1	612.5	10.4	714.5	43.0	40.3	
16		159.7	4270.5	49.1	4365.1	15.9	14.4	
19	28.0	100.2	914.3	22.8	986.1		1.7	. 1
20	38.6	138.6	204.6	30.0	298.1	15.4		
21	59.6	213.3	293.1	50.8	368.4	66.8		77.2
22	16.9	60.6	.0	11.9	45.5	3.2	2.8	.0
23	40.3	144.2	.0	27.6	100.9	15.0	1.8	11.7
24	55.3	197.8	4365.2	59.6	4491.8	11.6		.0
25	39.3	140.5	986.2	32.0	1083.6	11.3		.0
26	72.2	258.0	343.6	55.1	476.8	70.0		71.5
27	54.7		100.9	12.5	244.7	9.4	-81.8	89.7
TOTAL	2512.4	9910.6	23326.1	2071.4	30725.7	430.5	81.0	312.5

EYDROLOGIC BALANCE OF JRAPA DISTRICT

BASIN (CASE 1)

YEAR OF 1985

BASIN	AREA	RAIN-	SURFACE	EVAPO-	SURFACE	GROUN RECHARGE	DWATER	DRAFT	
NO.	(SQ.104)	FALL	INFLOW	TRANSPH	OUTFLOW	RECHARGE	OUTSTOM	DRAFT	
1	1181.5	4151.5	.0-	1009.0	3069.8	. 0	.0	0	•
2	5,2	15.3	.0	3,9	11.3	.0	.0	.0	
3	160.4	516.6	.0	121.6	391.4	. 3	.0		
4	66.5	214.3	.0	50.4	162.5	1	.0	.0	
5	59.0	172.7	391.4	51.6	493.3			.0	
6	20.1	59.0	.0	16.3	29.7	12.5	12.3	.0	
7	111.1		162.5	92.2	344.4	47.6	46.2	-0	
8	48.4	141.6	3069.8	53.8	3143.9	13.1	12.9	.0	
9	56.5	165.5	504.7	47.2	608.2	13.1	12.7	.0	
10	41.3		.0	32.8	76.0	11.1		.0	
11	28.8	84.2	29.7	23,2	83.3	6.7	6.6	.0	
12	. 48.8	142.9	344.4	41.8		2.2	1.9	. 1	
13	41.3	120.9	3143.9	45.9	3209.7	8.7		0	
14	37.8	110.7	608.2	31.7	674.5	11.6	11.2	0	
15	37.4	109.5	75.0	30.0	148.0	6.5	-11.5	14.0	
16	66.7	195.4	83.3	56.3	209.0	9.9		19.7	
. 17.	51.8	151.6	442.0	42.6	508.2		40.8	.0	•
18	44.6	130.7	3209.7	49.7	3276.2	13.8	13.7	۰.0	
19	28.0	82.0	674.5	23.8		5.2		.1	
20	38.8		148.0	31.8					
21	59.6			52.0	265.4		-10.3	71.9	
22	16.9	49.6	.0	12.7	33.4	3.2	3.0		
23	40.3	118.0	.0	29.9			1.7	11.0	
24	55.3	161.9		60.0		9.5		0	
25	39.3	115.1	726.8	33.4			10.1	.0	
26	72.2	211.3	245.6	58.6					
27	54.7	160.0	73.4	44.7	177.4	9.7	-78.9	84.8	
TOTAL	2512.4	8114.7	17419.2	2148.0	22853.6	422.1	94.4	287.4	

YEAR OF 1986 UNIT = M.C.M.

BASIN NO.	AREA (SO.KM)			EVAPO- TRANSPN	SURFACE	GROUN RECHARGE		DRAFT
						_		
1	1181.5	2485.5		909.3	1681.4			-0
2	5.2	9.2			6.0	٥.		.0
3	160.4	309.3		101.6	210.8		.0	.0
4	66.5	128.3	.0		87.5		.0	.0
5 6 7	59.0		210.8				14.8	
6	20.1	35.3	.0		13.4	8.4		
7			87.5		165.6		41.4	
8 9			1681.4				9.4	
9			264.4					
10	41.3	72,4	.0	28.7	37.2			
11	28.6	50.4	13.4	20.0			5.5	
12	48.8	85.6	165.6	36.9	213.9	1.8	2.1	
13	41.3	72.4	1705.9	44.5	1728.1	6.5		
14	37.8	66.3	312.8	28.0	343.1	9.0		.0
15	37.4	65.6	37.2	26.4	72,2	5.3	-8.6	
16	66.7	117.0	39.3	51.4	99.4	9.4	-11.2	23.9
17	51.8	90.7	213.9	37.4	241.0		28.1	
18	44.6	78.3	1728.1	48.1	1748.5	10.7	10.9	.0
19	28.0	49.1	343.1	21.1	368.0	3.9	3.5	- 1
20		67.9	72.2		100.4			24.9
21		104.6	99.4	47.3	117.6	43.7	-36.0	81.1
22		29.7	.0	10.6		2.0		
23		70.7	.0	24.9	37.8	8.7	2.3	11.0
24	55.3		1748.5					.0
25	39.3		368.0			8.6		.0
26	72.2		117.8					
27	54.7		37.8		87.9			
TOTAL	2512.4	4858.3	9247.1	1921.9	12018.5	310.9	25.0	327.3

YDROLOGIC BALANCE OF JRAPA DISTRICT

BASIN (CASE 1)

YEAR OF 1987 UNIT # M.C.M.

BASIN NO.	AREA	RAIN- FALL	SURFACE	EVAPO- TRANSPN	SURFACE	GROUN	DWATER	DRAFT
no.	(59.101)	I MUL	INIBON	HOUSEN	0011100	100CM3110G	0011 DQH	2.411
ı	1181.5	2736.5	.0	933.4	1805.0		.0	.0
ž	5.2	10.1	.0	3.5	6.6	.0	.0	. 0
	160.4	340.5	.0	111.3	228.9	.3	.0	
4	66.5	141.3	.0		95.1	. 1	.0	.0
5	59.0	. 113.8				12.0	12.0	.0
ě	20.1	38.9	.0		15.9	8.5	8.4	.0
3 4 5 6 7 8 9	111.1	214.4	95.1	82.8	189.9	36.B	36.3	
Ŕ	48.4	93.3	1805.0		1836.5		9.6	٥.
g	\$6.5	109.1	290.5		347.0	10.1	9.9	.0
10	41.3	79.7		29.8	41.9	8.0	8.0	.0
11	28.5	55.5		20.7	45.7	5.1	5.1	.0
12	48.6	94.2		37.4	245.1	1.7	1.5	. 1
13	41.3	79.7				6.6	6.6	.0
14			347.0		382.6	8.6	8.5	.0
15	37.4		41.9	27.2	81.8	5.1	-8.8	14.6
16	66.7	128.8	45.7	50.8	116.1	7.6	-11.2	20.7
17	51.8	99.9		38.3	279.0	27.7	27.6	.0
18	44.6	86.2	1865.0	48.3	1092.1	10.8		.0
19	28.0	54.1	382.6	21.7	411.3	3.6	3.6	. 1
20	38.8		81.8	28.2	. 116.3	12.1	-7.3	18.9
21.	59.6		116.1	46.7	141.7	42.6	-31.7	
2.2	16.9	32.7	.0	11.5	18.9	2.3	2.5	.0
23	40.3	77.8	0	27.1	41.1	9.7	1.4	7.5
24	.55.3	106.7	1892.1	58.3	1934.0	6.6	6.7	0
25	39.3	75.8	411.3	30.5	448.4	8.2	8.0	.0
26	72.2	139.3		51.8	172.9	49.6		65.1
27	54.7	105.5		40.5	98.1	7.9	-79.8	86.6
TOTAL	2512.4	5348.8	10066.5	1975.2	13140.7	301.3	12,0	287.5

HYDROLOGIC BALANCE OF JEAPA DISTRICT

BASIN (CASE 1)

YEAR OF 1988 UNIT - M.C.M.

	AREA					GROUN	DWATER	nn.m	
NO.	(SO.KK)	FALL	INFLOW	TRANSPR	OUTPLOW	RECHARGE	COLLTON	DRAFT	
. 1	1181.5	3397.2	.0	1092.8	2286.4	.0	.0	.0	
2	5.2	12.5	.0	3.8	303.9	. 0	.0	-0	
3	160.4	422.7 175.4	.0	118.5	303.9	. 3	0	.0	
4		175.4		49.1	120.2		.0		
5	59.0	141.3	303.9	56.5	372.0	16.8			
5 6	20.1	48.3	0	17.1	20.2	11.0	11.0		
7	111.1	266.2	126.2	99.5	244.0	48.0	49.6	0	
8	48.4	115.9	2286.4	52.3	2338.9	10.9	10,9		
. 9	56.5	135.4	380.7	51.6	451.0	13.5	13.5	.0	
10	41.3	99.0	.0.	34.6	54.2	10.2	10.1	. 6	
11	28.8	68.9	20.2	24.3	57.9	6.9	6.9	.0	•
12	48.B	117.0	244.0	45.2	313.5	2.3	2.3	, Ι	
13	41.3	98.9	2338.9						
14	37.B	90.6	451.0	35.1	495.0	11.5	11.4	.0	
15	37.4	89.6	54.2	71 Q	105.1	6.7	+10.4	13.1	
16	66.7	159.9	57.9	60.9	146.0	10.7	~15.2	19.3	
17	51.8	124.0	313.5	45.0	356.7	35.8	35.9	.0	
18	14.6	107.0	2385.6	48,2	2432.0	35.8 12.2	12.1	. 0	
19	28.0	67.1	495.0	26.4	530.7	5.1	3.0	. 1	
20	38.8	92.8	105.1	33.5	147.8	16.6	-8.2	24.2	
	79.0								
22		40.6	.0	12.6	25.3	2.7	2.6	.0	
23	10.3	96.6		29.1	55.1	12.4	. 5	10.5	
24	55.3	132.5	2432.0	27.0	2496.6	8.1	7.0	. 0	
25	39.3	94.2	.530.7	36.9	577.0	11.0	11.2	.0	
. 26	72.2	172.9	173.2	61.5	219.4	65.1	6.0	58.7	
27	54.7	130.9	55.1	48.1	127.7	10.3	-67.4	76.3	
TOTAL	2512.4	6640.3	12899.6	2274.6	16856.3	389.9	105.5	267.4	

YEAR OF 1989

BASIN	AREA	RAIN-	SURFACE	EVAPO-	SURFACE	GROUN	DWATER	
NO.	(SQ.KM)	FALL	INFLOW	TRANSPN		RECHARGE	OUTFLOW	DRAFT
NO.	(30.27)	1100	2111					
1	1181.5	3673.7	.0	942.5	2735.0	٠.0	.0	.0
2	5.2	13.5	.0	3.5	10.0	.0	.0	.0
2 3	160.4	457.1	.0	109.4	347.5	, 3	.0	.0
4	66.5	189.6	.0	45.4	144.2	. 1	.0	.0
5	59.0	152.8	347.5	47.9	438.3	14.2	15.2	.0
5 6	20.1	52.2	.0	14.6	25.7	11.7	11.7	.0
7	111.3	287.9	144.2	85.1	304.7	42.3		.0
Ř	48.4	125.3	2735.0	54.6	2793.7	12.1	12.1	-0
8	56.5	146.4	448.3	44.2	538.4	12.1		.0
10	41.3	107.1	.0	30.0	66.9	10.2	10.2	.0
ii	28.8	74.5	25.7	21.1	73.2	6.0	6.0	.0
12	48.8	126.5	304.7	38.9	390.3	2.0	1.9	. 1
13	41.3	107.0	2793.7	46.6	2846.0	8.1	6.1	.0
14	37.8	97.9	538.4	30.3	595.2	10.B	10.9	.0
15	37.4	96.9	66.9	27.4	130.6	5.8	-10.5	15.8
16	66.7	172.9	73.2	53.4	183.8	9.2	-14.3	22.5
17	51.8	134.1	390.3		446.3	39.4	39.4	.0
18	44.6	115.7	2846.0	50.3	2898.8	12.6	12.6	.0
ĩš	28.0	72.6	595.2	22.7	640.4	4.7	3.6	, 1
20	38.8	100.4	130.6	29.1	187.2	14.7	-8.1	22.8
21	59.6	154.5	183.8	49.4	231.7	57.6	-13.2	71.1
22	16.9	43.9	.0	11.5	29.2	3.1	2.7	.0
23	40.3	104.4	.0	27.1		12.6	1.7	10.5
24	55.3	143.3	2698.8		2973.8	8.6	8.6	.0
25	39.3	101.8	640.4		701.6	9.6	9.6	.0
26	72.2	186.9	216.5			68.3	2.6	65.4
27	54.7		64.8			8.8	-74.8	83.9
2.							*	
TOTAL	2512.4	7180.7	15444.1	2009.4	20235.4	384.9	90.9	292.2

HYDROLOGIC BALANCE OF JHAPA DISTRICT

BASIN (CASE 1)

YEAR OF 1990

						ONIX	e m.C.m.	
BASIN NO.	AREA (SQ.KM)	RAIN- FALL	SURFACE	EVAPO- TRANSPN	SURFACE	GROU! RECHARGE	NDWATER OUTFLOW	DRAFT
NO.	(04)	13.00						
1	1181.5	6181.8	.0	1147.2	4963.0	.0	.0	.0
2	5.2	22.8	.0	4.5	18.3	.0	.0	.0
. 3	160.4	769.2	.0	138.1	630.6	. 3	.0	.0
. 3	66.5	319.1	.0	57.3		.1	.0	.0
5	59.0	257.2	630.6				17.0	.0
6	20.1	87.8	.0	18.5			16.0	
7	111.t	484.4	261.7	105.4		54.9		.0
8	46.4	210.9	4963.0	55.9	5098.9		17.1	.0
9	56.5	246.4		54.2	1003.9			.0
10	41.3	180.2	.0	37.4	127.3	15.5		.0
11	28.8	125.4		26.3	144.1	8.1	7.9	.0
12	48.8	212.8		47.3	748.7	2.6	2,2	.1
13	41.3	180.1		47.7	5219.0			.0
14	37.8	164.8	1003.9	36.1	1117.5	15.0		.0
โร	37.4	163.1	127.3	34.1	248.6	7.7	-13.8	11.1
16	66.7	291.0		64.0	357.8	11.5	-19.5	15.6
17	51.8	225.7		48.2	869.4	56.8	55.4	.0
18	44.5	194.7			5343.4		17.5	.0
19	26.0	122.2	1117.5	27.0	1205.B	6.8		,1
20	38.8	168.9	248.6	36.1	362.1	19.3	-9.2	20.0
21	59.6		357.8		474.5			55.4
22	16.9	73.8	.0	14.6	54.3	4.9	3.4	.0
23	40.3	175.8	.0	34.4	121.3		1.1	8.9
24	55.3	241,1	5343.4	63.9	5506.1	13.9	3.6	.0
25	39.3	171.3		38.0			12.7	.0
26	72.2	314.6	416.4	67.0	571.6	92.4		
27	54.7	236.3	121.3	51.2	296.9	11.5	-60.3	64.6
mode a f	2512.4	12002 4	20475 1	2423 2	27518 B	537.6	214.0	223.9

HYDROLOGIC BALANCE OF JHAPA DISTRICT

BASIN (CASE 1)

YEAR OF 1991 UNIT = M.C.M

						UNIT :	M.C.M.	
BASIN NO.	AREA (SQ.KM)	RAIN- FALL	SURPACE INFLOW	EVAPO- TRANSPN	SURPACE	GROUN RECHARGE	OUTFLOW	DRAFT
1	1181.5	4138.7	.0	914.9	3268.9	.0	.0	.0
2	5.2	15.3	.0	3.4	11.8	.0	.0	-0
3	160.4	515.0	.0		407.4		.0	.0
4	66.5	213.6	.0	44.5		.1	.0	.0
5	59.0	172.2	407.4			14.5	15.2	.0
6	20.1	58.8	-0	14.4	32.4	11.9		
ž	111.1		169.0	81.7	368.7	43.0	44.1	
8		141.2	3268.9	54.2			13.7	.0
9	56.5		531.4	41.5	642.6	12.3	12.5	.0
10	41.3	120.6	-0	29.0	80.6	11.0	11.4	.0
ii	28.8	83.9	32.4	20.5	89.7	6.2	0.3	
12	48.6	142.5	368.7	36.9	472.2	2.0	2.1	. 1
13	41.3	120.5		46.3	3408.3	9.0	9.2	.0
14	37.8	110.3	642.6	28.2	713.6	11.2	11.3	-0
15	37.4	109.2	80.6	26.4	157.5	5.9	-9.3	
16	66.7			52.1	223.4	10.0	-12.0	
17	51.8	151.1	672.2	37.7			42.2	. 0
18	44.6	130.3	3408.3	50.1	3474.7		14.3	.0
19	28.0	81.8	713.6	21.3			2.4	1
20	38.8	113.1	157.5	28.3	227.3	15.0	-10.0	
21		174.1	223.4	48.3	288.0	62.7	-8.9	72.9
22	16.9		.0	11.4	34.8	3.3	3.7	
23	40.3	117.7	.0	26.7	77.4	13.6	3.6	16.5
24	55.3	161.4	3474.7	60.B	3565.8			0
25	39.3	114.7	769.1	30.0	843.5			
26	72.2	210.6	262.1	52.4		69.5		
27	54.7	159.5			188.5	8.9	-71.1	65.5
TOTAL	2512.4	8069.8	18491.7	1953.5	24272.0	405.3	120.3	314.0

BASIN (CASE 1)

HYDROLOGIC BALANCE OF JRAPA DISTRICT

YEAR OF 1992 UNIT = M.C.M.

BASIN	AREA	RAIN-	SURFACE	EVAPO~	SURFACE	GROUN	DWATER	
NO.	(SO.104)	FALL	INFLOW	TRANSPN			OUTFI.OW	DRAFT
1	1181.5	2380.6	.0	791.8	1631.2	.0	.0	.0
2	5.2	8.8	.0	2.8	5.9	.0	.0	.0
3	160.4	296.2	.0	89.9	206.1	.3	.0	.0
4	66.5	122.9	.0	37.3	85.6	. 1	.0	.0
5 6	59.0	99.0	206.1	40.0	253.6	11.6	12.4	.0
6	20.1	33.8	.0	12.4	13.0	8.4	8.5	.0
7	111.1	186.5	85.6		166.2	34.9		.0
8 9	48.4	81.2	1631.2	51.6		9.1	9.3	.0
9	56.5	94.9	259.5	36.7	307.8	10.0	10.2	.0
10.	41.3	69.4	.0		36.8	7,2	7.9	.0
11	28.8	48.3	13.0	17.7		4.8	4.9	.0
12	48.8	82.0	166.2		214.3	1.6	1.8	. 1
13	41.3	69.3	1652.2				6.7	.0
14	37.8	63.5	307.8		337.9	8.3	8.7	.0
15	37.4	62.8	36.6	23.1		4.7		
16	66.7	112.1	38.8		99.1	7.7		25.2
17	51.8	86.9	214.3	33.0	241.5	26.7		.0
18	44.6	75.0	1671.4		1688.7	10.4	10.6	.0
19	28.0	47.0	337.9	18.6	362.6		3.7	. 1
20	38.8	65.1	71.8	24.3	100.8			23.9
21	59.6	100.1	99.1	41.7	116.5		-36.4	81.8
22	16.9	28.4	.0	9.4	17.1	1.9	3.0	.0
23	40.3	67.7	. 0	22.0	37.1	8.6	2.9	11-9
24	55.3	92.9	1688.7	57.2	1718.8	6.0	6.6	.0
25	39.3	66.0	362.6		394.6	7.6	8.4	.0
26	72.2	121.1	117.9			51.2		
27	54.7		37.1		86.7	7.5	-83.8	96.3
TOTAL	2512.4	4653.2	8997.8	1705.9	11698.7	292.5	7.0	333.1

HYDROLOGIC BALANCE OF JHAPA DISTRICT

BASIN (CASE 1)

YEAR OF 1993

*****			G===1.05	EVAPO-	SURPACE	CROUN	DWATER	
BASIN	ARBA		INFLOW	TRANSPN		RECHARGE		DRAFT
NO.	(SQ.KM)	FALL	INLFOR	immorn	OULTROW	recurron	OQIEBON	Diag.
1	1181.5	3408.5	.0	985.3	2379.0	.0	.0	.0
2	5.2	12.6		3.8		.0		.0
3	160.4	424.1	.0	117.9	305.8	. 3	.0	.0
4	66.5	175.9	۰.	48.9	127.0	.1	.0	.0
5	59.0	141.8	305.8	49.3	127.0 384.1	14.2	13.9	
4 5 6 7 8	20.1	48.4	.Q	15.6	. 21.5	. 11.3		0
7	111,1	267.1	127.0	88.6	262.7	42.7	41.3	.0
8	48.4	116.3	2379.0	52.7.	2430.9 472.4	11.2		.0
9		135.9	392.9	45.0	472,4	11.4	11.0	.0
10	41.3	99.3	.0	31.5	57.8	10.0	9.5	
11		69.1	21.5	22.1	62.6	5.9	2.8	
12	48.8	117.3	262.7	39.9	338.2	1.9	1.6	
13	41.3	99.3	2430.9	45.0	2477.2	7.6	7.4	
14	37.8	90.9	472.4	30.3	522.9 113.2	10.0	9.7	
15	37.4	89.9	57.8	28.7	113.2	5.8		
16	66.7	160.4	62.6	54.2	158.6	9.0		
17	51.8	124.4	338.2	40.8	385.7	36.1	35.8	٥.
18	44.6	107.3	2477.2	48.7	2523.3	12,2		0
19	28.0	67.4	522.9	22.9	563.0	4.4		
20	38.8	93.7	113.2	30.5	160.9			19.9
21	59.6	143.4	158.6	49.7	196.2	54.1		
22	16.9	40.7	۰.	12.4	25.3	3.0	2.8	.0
23		96.9	.0	29.0	55.B	12.1	.8	7.5
24	55.3	132.9	2523.3	59.3	2580.8	7.8	7.5	.0
25		94.5	563.0		615.6	9.5	8.6	0
26	72.2	173.5	186.2		236.5		-2.2	
27	54.7	131.4	55.6	42.9	135.5	8.8	-74.8	76.5
TOTAL	2512.4	6662.5	13451.2	2084.0	17609.5	371.1	74.6	256.2

#### (7) Under Draft with Irrigation Water Demand <Shallow Aquifer Draft>

HYDROLOGIC BALANCE OF JEAPA DISTRICT

BASIN (CASE 1)

						YEAR O		
					•	UNIT =	M.C.M.	
BASIN	AREA.	RAIN-	SURFACE	EVAPO-	SURPACE			
NO.	(SQ.KM)	FALL	INFLOW	Transph	OUTFLOW	RECHARGE	OUTFLOW	DRAFT
1	1181.5	3689.2	.0	1025.4	2691.3	.0	.0	.0
2	5.2	13.6	.0	3.7		0	, o	.0
3	160.4	459.1	.õ	116.7	342.6	. 3	, 0	.0
4	66.5	190.4	.0	48.4	141.9	.i	.0	.0
- 5	59.0	153.5		50.7				.0
5	20,1	52.4	.0	15.8	26.2		11.2	.0
5 7	111.1	289,1	141.9	91.7		44.9	40.5	.0
á	48.4	125.8	2691.3			11.7	11.6	.0
9	56.5	147.0	441.2	46.5			12.1	.0
10	41.3	107.5	.0	32.1	65.3	10.1	9.2	.0
ii	28.8	74.8	26.2	22.3			6.5	.0
12	48.8	127.0	297.8	40.9	361.9	2.1	2.0	. 1
13	41.3	107.5	2744.1	46.0		7.6	7.5	.0
14	37.8	98.4	529.2	31.6	585.3	11.1	-10.8	22.3
15	37.4	97.3	65.3	29.3	127.4	5.9	-4.9	13.7
16	66.7	173.7	72.7	54.5	182.0	8.4	-8,2	22.6
17	51.8	134.7	381.9	41.1	439.4	36.2	25.6	30.5
18	44.6	116.2	2797.7	49.7	2850.8	11.4	11.4	.0
19	28.0	72.9	585.3	23.4	625.4	9.4	-1.8	11.9
20	38.8	100.6	127.4	30.7	183.1	14.4	2,2	15.0
21	59.6	155.2	182.0	50.5	237.3	62.4	53.8	27.6
22	16.9	44.1	.0	12.2	28.₿	3.0	3.3	.0
23	40.3	104.9	.0	28.8	63.5	12.6	9.8	6.4
24	55.3	143.9	2850.8	60.6		7.5	6.3	.0
25	39.3	102.3	625.4	32.3	658.1	36.4	18.2	23.2
26	72.2	187.7		56.9	280.6	63.6	28.6	45.7
27	54.7	142.2	63.5	43.7			-17.2	32.2
TOTAL	2512.4	7211.2	15178.3	2139.2	19863.6	415.0	229.5	251.0

HYDROLOGIC BALANCE OF JHAPA DISTRICT

BASIN (CASE 1)

				•		YEAR O	F 1981	
						UNIT =	M.C.M.	
BASIN	AREA	RAIN-	SURFACE	EVAPO-	SURFACE		DWATER	
NO.	(SO.KM)	FALL	INFLOW	TRANSPN	OUTFLOW	RECHARGE	CUTPLOW	DRAFT
1	1181.5	3615.5	.0	931.6	2743.4	.0	.0	.0
2	5.2	13.3	.0	3.0	10.3	. 0	.0	.0
3	160.4	449.9	.0	97.3	352.6	. 3	.0	.0
4	66.5	185.5	-0	40.3	146.2	. 1	.0	.0
5	59.0	150.4	352.6	47.0	443.7		14.1	.0
. 6	20.1	51.4	.0	. 14.0	29.5	7.9	8,2	.0
7	111.1	283.3	146.2	82.4	314.5	32.6	35.8	.0
8 9	48.4	123.3		52.8		12.2	12.1	.0
ģ	56.5		454.0		546.8		11.0	.0
10	41.3	105.4	.0	27.6	69.9		8.9	
11	28.6	73.3	29.5	19.5	78.6	4.7	5.0	.0
12	48.8	124.5	314.5	37.7	399.6	1.7	2.2	. 1
13	41.3	105.3	2802.5	45.1	2855.0	8.2	8.4	.0
14	37.6	96.4	546.B	28.6			-14.5	32.5
15	37.4	95.4	69.9.	25.4	135.5		-5.3	20 - 2
16	66.7	170.2	78.6	52.4	189.5	4.4 7.8	-5.0	33,3
17	51.8	132.0	399.6	36.6	465.0	29.1	-15.3	44.6
18	44.6	113.9	2855.0		2907.5	13.1	13.3	.0
19	28.0	71.4	605.4	21.6	647.0	8.2	-1.6	17.5
20	38.8	98.8	135.5	28.0	194.9	11.4		22.1
21	59.6	152.1	189.5	49.7	250.1	43.7	5.4	40.8
22	16.9	43.2	.0	10.2	30.6	2.4	3.6	.0
23	40.3	102.8	.0	23.7	67.8	11.3		9.5
24	55.3	141.0	2907.5	60.4	2979.7	9.0	8.2	.0
25	39.3	100.2	647.0	29.6	686.8	30.8	6.2	. 33.6
26	72.2	184.0	225.5	50.8	310.5	48.2	3.7	66.4
27	54.7	139.4	67.8	39.1	161.3	6.8	-30.7	470
LATOT	2512.4	7067.1	15571.0	1944.9	20425.3	332.9	82.0	367.9

HYDROLOGIC BALANCE OF JHAPA DISTRICT

BASIN (CASE 1)

					•		OF 1982 .	
						UNIT	M.C.M.	
BASIN	AREA	RAIN-	SURFACE	EVAPO-	SURFACE	GROUN	OWATER	
NO.	(SQ.KY)	FALL	INFLOW	TRANSPH	OUTFLOW		CUTFLOW	DRAFT
1	1181,5	4057.9	.0	883.5	3152.8	.0	.0	.0
. 2	5.2	15.0	0	2.9	12.0	.0	.0	.0
3	160.4	504.9	0	92.8	411.6	. 3	.0	.0
4	66.5	209.5	.0	38.5	170.9	. 1	.0	. 0
5	59.0	168.8	411.6	44.2	523.2	13.1	12.8	.0
6	20.1	57.6	.0	13.4	35.5	8.8	8.7	.0
7	111.1	318.0	170.9	77.6	376.7	34.7	33.8	0
8	48.4	138.4	3152.8	52.0	3225.7	13.3	12.3	.0
. 9	56.5	161.7	535.2	39.8	646.3	10.8	10.9	0
10	41.3	118.3	.0	26.1	.83.9	8.3	8.6	.0
11	28.8	82.3	35.5	18.9	93.8	5.0	5.0	.0
12	48.8	139.7	376.7	35.6	478.7	1.9	1.7	. 1
13	41.3	118.2	3225.7	44.4	3290.6	8.8	6.6	.0
14	37.8	108.2	646.3	27.1	717.1	10.2	-17.6	35.4
15	37.4	107.1	83.9	24.0	162.5	4.4	~6.2	22.0
16	66.7	191.0	93.8	48.7	227.4	8.7	-9.3	36.4
17	51.8	148.2	478.7	35.7	557.3	33.8	-14.7	48.5
18	44.6	127.8	3290.6	48.0	3356.3		14.0	.0
19	28.0	80.2	717.1	20.4	767.7	9.3		19.1
20	38.8	110.9	162.5	26.8	234.2	12.5	-2.8	24.1
21	59.6		227.4	45.1	297.2	55.1	10.7	44.3
22	16.9	48.5	.0	9.8	36.2	2.5	3.9	.0
23	40.3	115.4	.0	22.2	80.9	12.3	6.7	10.5
24	55.3	158.3	3356.3	58.3	3446.6	9.5	9.1	. 0
25	39.3	112.5	767.7	28.4	815.6	36.2	-1.0	36.8
26	72.2	206.5	270.4	49.4	371.6	55.7	-14.4	72.3
27			80.9	36.9	193.3		-42.9	51.2
TOTAL	2512.4	7931.8	18083.8	1850.6	23765.6	375.9	32.8	400.4

HYDROLOGIC BALANCE OF JHAPA DISTRICT

BASIN (CASE 1)

YEAR OF 1983 UNIT = M.C.M.

BASIN			SURFACE		SURFACE		OWATER	
NO.	(SQ.KK)	FALL	INFEOR	TRANSPN	OUTFLOW	RECHARGE	OUIFLUM	DRAFT
1	1181.5	3551.7	.0	937.3	2593.1	.0	.0	.0
2	5.2	13.1	.0	3.4	9.6	.0	٠,٥	.0
	160.4	441.9	٠.	106.3	334.2	.3	. 0	, ò
4	66.5	183.3	.0	44.1	138.7	.1	.0	.0
5	59.0	147.8	334.2	46.2	422.2	13.1	13.3	.0
6	20.1	50.5	.0	14.7	24.6	11.0	11.0	.0
7	111,1	278.3	138.7			41.5	41,1	.0
3 4 5 6 7 8	48.4	121.2	2593.1			11.7	11.7	.0
9	56.5	141.6	431.9	42.6	519.4	11.2	11.2	.0
10	41.3	103.5	.0	29.2		9.5	9.3	.0
11	28.8	72.0	24.6	20.8		5.7	5.7	.0
12	48.8	122.3	291.6	37.8	374.0	1.8	1.7	. 1
13	41.3	103.4	2649.0	45.5	2698.9	7.9	7.9	.0
14	37.8	94.7	519.4	29.0	574.9	10.0	-19.0	30.0
15	37.4	93.7	64.6			5.4	-8.1	18.7
16	66.7	167.2	70.0		174.7	9.2	~14.2	
17	51.8	129.7				37.7	-3.5	
18	44.6	111.8	2698.9			12.6		
19	28.0	70.2	574.9			8.6		
20	38.8	97.1	125.9			14.5		
21	59.6	149.4	174.7	49.2	216.9	57.4	19.7	
22	16.9	42.4	.0		28.3	2.8	3.5	.0
23	40.3	101.0	.0		62.8	12.1	4.5	8.9
24	55.3	138.5	2748.7			8.4	7.4	. 0
25	39.3	98.4	614.6		644.0	38.8	4.7	31.2
26	72,2	180.7				66.1	-5.4	61.4
27	54.7	136.9	62.8	39.8	151.2	8.4	-38.9	43.4
TOTAL	2512.4	6942.4	14699.2	1981.4	19225.2	405.7	65.0	339.9

HYDROLOGIC BALANCE OF JHAPA DISTRICT

BASIN (CASE 1)

BASIN	AREA	RAIN-	SURFACE	EVAPO-	SURFACE	GROUT	NDWATER	
NQ.	(SQ.KM)	FALL		TRANSPH		RECHARGE		DRAFT
1	1101.5	5070.2	.0	981.6	4074.8	.0	.0	.0
2	5.2	18.7	.0	3.6	. 15.1	0,	.0	.0
3	160.4	630.9	.0	113.6	517.9	. 3	.0	.0
4	66.5	261.7	.0	47.1	215.0	. 1	.0	.0
5	59.0	210.9	517.9	49.9	662.6	16.7	15.1	.0
4 5 6 7 8 9	20.1	72.0	.0		45.0			.0
7	111.1	397.3	215.0	88.2	479.7	45.0	44.3	.0
8	48.4	173.0	4074.8	53.2	4178.6	15.8	13.6	.0
9 .	56.5	202.1	677.8	44.9			13.3	٠.0
10	41.3	147.8	.0		105.5			
11	26.8	102.8	45.0	21.9	119.3	6.7	6.7	.0
12	48.8	174.6	479.7	39.8	612.5 4270.5	2.2	2.0	. 1
13		147.7						.0
14	37.8		821.6	30.2		12.6		
15	37.4	133.8	105.5	28.6				
16	66.7	238.7		54.9	293.1	9.8		29.3
17	51.8	185.1	612.5	40.4	714.5		3.3	
18	44.6	159.7	4270.5	49.1	4365.1	15.9		.0
19	28.0	100.2	914.2	22.6	980.7	11.2		
20	. 36.8	138.6	204.6		298.1			
21	59.6		293.1		388.4		30.4	
22	16.9	60.6	.0	11.9	45.5	3.2	3.3	.0
23	40.3	144.2	.0	27.6	100.9	15.8	4.3	6.2
24	55.3	197.8	4365.2	59,6	4491.8		5.1	
25	39.3	140.5	980.7	31.1	1045,7	44.6	12.4	30.2
26	72,2	258.0	343.6	55.1	476.8	70.0		59.3
27	54.7		100.9	42.5	244.7	9.4	-34.5	41.9
TOTAL	2512.4	9910.6	23320.6	2070.4	30682.2	469.4	112.1	326.3

HYDROLOGIC BALANCE OF JHAPA DISTRICT

BASIN (CASE 1)

YEAR OF 1985 UNIT - M.C.M.

						01111	- 17.0.17.	
BASIN NO.	AREA (SQ.KM)	RAIN- FALL	SURFACE INFLOW	EVAPO- TRANSPN	SURFACE OUTFLOW	GROUI RECHARGE	NDWATER OUTFLOW	DRAFT
. 1	1181.5	4151.5	.0	1009.0	3069.8	0	.0	.0
2	5.2	15.3	.0	3.9	11.3	.0	.0	0
3	160.4	516.6	.0	121.6	391.4	. 3	.0	.0
4	66.5	214.3	.0	50.4	162.5	. 1	.0	. 0
5	59.0	172.7	391.4	51.6	493.3	15.9	15.6	.0
6	20.1	59.0	0	16.3	29.7	. 12.5	12.3	.0
7	111.1	325.3	162.5	92.2	344.4	47.6	46.2	٠0
- 8	48.4	141.6	3069.8	53.8	3143.9	13.1	12,9	.0
9	56.5	165.5	504.7	17.2	608.2	13.1	12.4	.0
10	41.3.	121.0	.0	32.8	76.0	11,1	10.8	0
11	28.6	84.2	29.7	23.2	83.3	6.7	6.6	.0
12	48.8	142.9	344.4	41.8	442.0	2.2	1.9	. 1
13	41.3	120.9	3143.9	45.9	3209.7	8.7	8.6	.0
14	37.8	110.7	608.2	31.7		11.6	-21.0	25.4
15	37.4	109.5	76.0	30.0	148.0	6.5	-11.0	15.0
16	66.7	195.4	83.3	56.3	209.0	9.9	-17.4	24.6
17	51.8	151.6	442.0	42 6	508.2	41.4	6.4	. 34.8
18	44.6	130.7	3209.7	49.7	3276.2	13.8	13.7	.0
19	28.0	82.0	674.5	23.7	722.1	10.0	-6.3	13.2
20 .	38.8	113.5	148.0	31.8	212.3	16.4	-4.5	16.5
21	59.6	174.6	209.0	52.0	265.4	62.8	30.9	30.9
22	16.9	49.6	.0	12.7	33.4	3.2	3.2	.0
23	40.3	118.0	0	29.9	73.4	14.0	4.8	6.6
24	55.3	161.9	3276.2	60.8	3366.8	9.6	8.7	0
25	39.3	115.1	722.1	32.9	758.6		14.2	26.4
26	72.2	211.3	245.6	58.8		75.9	14.2	52.3
. 27	54.7	160.0	73.4	44.7	177.4	9.7	-30.5	36.7
TOTAL	2512.4	8114.7	17414.5	2147.4	22611.1	460.7	132.5	282.3
1.				4-32	27	1		
								* .
	100				•	* . *		

BASIN (CASE 1)

YEAR OF 1986 UNIT = M.C.M.

					and the second	4		
BASIN NO.	AREA (SQ.KM)	RAIN- FALL	SURFACE INFLOW	EVAPO- TRANSPN	SURFACE OUTFLOW		DWATER OUTFLOW	DRAFT
1	1181.5	2485.5	.0	909.3	1681.4	.0	.0	.0
Ž	5.2	9.2	.0	3.2		.0	. 0	.0
3	160.4	309.3		101.6		.3	.0	.0
4	66.5	128.3	.0	42.1	87.5	.1	.0	.0
5	59.0	103.4		45.7		13.4	14.8	.0
6	20.1	35.3	.0	14.1	13.4	8.4	8.6	.0
7	111.1	194.8	87.5		165.6		41,4	.0
8	48.4	84.8	1681.4	52,2	1705.9		9.4	.0
9	56.5	99.1	264.4	41.4	312.8	10.9	11.5	.0
10	41.3	72.4	.0	28.7	37.2	7.5	8.1	.0
11	28.8	50.4	13.4	20.0	39.3	5.3	5.5	.0
12	48.8	65.6	165.6	36.9	213.9		2.1	.1
13	41.3	72.4	1705.9	44.5	1728.1	6.5	6.7	.0
14	37.8	66.3	312.8	28.0	343.1	9.0	-17.7	29.8
15	37.4	65.6	37.2		72.2	5.3	-8.8	
16	66.7	117.0	39.3	51.4	99.4	9.4		
17	51.8	90.7	213.9	37.4	241.0	27.6	~12.9	40.8
18	44.6	78.3	1728.1	48.1	1748.5	10.7	10.9	.0
19	28.0	49.1	343.1	21.0		7.4	-5.9	
20	. 38.8	67.9	72.2	27.6	100.4	13.1	-3.5	19.8
21	59.6	104.6	99.4	47.3	117.6	43.7	7.9	36.8
22	15.9	29.7	.0		17.5	2.0	2.9	
23	40.3	70.7	.0			8.7	5.3	
24	55.3	96.9					7.9	.0
25	39.3	68.9	364.6	28.8	376.0	29.8	3.8	31.0
26	72.2	126.5	117.8	50.7	144.2	51.4	.9	61.1
27	54.7	95.8	37.8	39.0	87.9	8.3	-30.7	43.0
TOTAL	2512.4	4858.3	9243.7	1920.8	11991.2	335.6	\$5.5	334.0

HYDROLOGIC BALANCE OF JRAPA DISTRICT

BASIN (CASE 1)

YEAR OF 1987

BASIN	AREA	RAIN-	SURFACE	EVAPO-	SURFACE	GROUN	DWATER	
ĸo.	(SQ.KM)	FALL	INFLOW	TRANSPH	OUTFLOW	RECHARGE	OUTFLOW	DRAFT
1	1181.5	2736.5	.0	933.4	1805.0	.0	.0	.0
2 3	5.2	10.1	-0		6.6	.0	0	.0
3	160.4	340.5	.0	111.3	228.9	.3	.0	.0
4 5 6	66.5	141.3	.0	46.1	95.1	. 1	.0	.0
5.	59.0	113.8	228.9	46.7	284.0	12.0	12.0	.0
6	20.1	38.9	.0	14.5	15.9	8.5	8.4	٠.0
7	111.1	214.4	95.1	82.8	189.9	36.8	36.3	.0
8	48.4	93.3				9.6	9.6	.0
9	56.5	109.1	290.5	42.5	347.0	10.1	10.1	.0
10	41.3	79.7	.0	29.8	41.9	8.0	8.0	.0
11	28.8	55.5			45.7		5.1	.0
12	48.8	94.2	189.9	37.4			1.6	·
13	41.3	79.7	1836.5	44.7	1865.0	6.6	6.7	.0
14	37.8	73.0	347.0	28.8	382.6	8.6	-14.3	25.9
15	37.4	72.2	41.9		81.8	5.1	-8.6	15.6
16	66.7	128.B	45.7	50.8	116.1	7.6	-12.8	25.6
17	51.8	39.9	245.1	38.3	279.0	27.7	-7.9	35.5
18	44.6	86.2	1865.0	48.3	1892.1	10.8	10.8	.0
19	28.0	54.1	362.6	21.5	407.9	7.2	-6.0	13.7
20	38.8	74.8	81.8	28.2	116.3	12.1	-3.4	17:1
21	59.6	115.1	116.1	46.7	141.7	42.6	10.5	
22	16.9	32.7	.0	11.5	18.9	2.3	2.7	.0
23	40.3	77.8	.0	27.1	41.1	9.7	4.0	7.1
24	55.3	106.7	1892.1	58.3	1934.0	5.6	6.9	.0
25	39.3	75.8	407.9	29.B	424.2	29.8	2.3	27.0
26	72.2	139.3	135.1	51.8	172.9	49.6	-3.9	53.2
27	54.7	105.5	41.1	40.5	98.1	7.9	-30.5	37.5
TOTAL	2512.4	5348.8	10063.2	1974.4	13113.2	326.3	47.5	290.2

HYDROLOGIC BALANCE OF JHAPA DISTRICT

BASIN (CASE 1)

YEAR OF 1988 UNIT = M.C.

						0.111		
BASIN	AREA (SO.KM)	RAIN- FALL	SURFACE	EVAPO- TRANSFN		GROUN	OUTFLOW	DRAFT
NO.	(SU.KE)	FALL	TULPOM	INANSEN	OULLION	RECHARGE	COLLEGE	DRAFT
1	1181.5	3397.2	.0.	1092.8	2286.4	.0	.0	.0
2 3 4	5.2	12.5			8.7	.0		
3	160.4	422.7	0	118.5	303.9	. 3	. 0	.0
4	66.5	175.4	.0	49.1	126.2		.0	.0
5	59.0	141.3	303.9		372.0		16.6	.0
6	20.1	48.3			20.2		11.0	
7	111.1		126.2	99.5	244.0	. 48.B	49.6	.0
8	48.4	115.9		52.3	2338.9	10.9		
9	56.5	135.4	380.7	51.6	451.0 54.2	13.5	13.3	.0
10	41.3	99.0		34.6	54.2	10.2	10.1	
11	28.8	68.9	20.2	24.3	57.9	6.9	6.9	.c
12	48.8	117.0	244.0	45.2	313.5	2.3	2.3	- 1
13	41.3	98.9	2338.9	14.6	2385.6	7.5 11.5	7.3	
14	37.8	90.6	451.0	35.1	495.0	11.5	-17.0	23.7
1.5	37.4	89.6	54.2	31.9	105.1	6.7	-11.0	14.4
16	66.7		57.9	60.9	146.0	10.7	-17.2	23.7
17	51.8	124.0	313.5	15.0	356.7	35.8	. 3,4	32.4
18	44.6	107.0	2385.6	48.2	2432.0	12.2	3.4 12.1	.0
. 19	28,0	67,1	495.0	26.3	526.2	9.7	~7.4	12.6
20	36.8	92.8	105.1	33.5	147.8	16.6	-3.1	15.8
21	59.6	142.9	146.0	55.9	179.3	53.6	24.5	29.3
22	16.9	40.6	.0	12.6	25.3	2,7	2.5	.0
23	40.3	96.6	.0	29.1	55.1	12.4	3.9	
24	55.3	132.5	2432.0	59.6	2496.6	8.1	7.2	.0
25	39.3	94.2		35.8	546.1 219.4	38.5	14.2	24.6
26	72.2	172.9	173.2	61.5	219.4	65.1	17.4	48.5
27	54.7	130.9		48.1	127.7	10.3	-23.9	34,2
TOTAL	2512.4	6640.3	12895.0	2273.4	16820.8	422.0	133.5	265.8

	BALANCE OF	****	D * C * D * C * C		
RIDROFOCIC	DVPVICE OL	JUKLY	DISTRICT	BASIN	100

YEAR OF 1

BASIN	AREA	RAIN-	SURFACE	EAYbo~	SURFACE	GROUN	OWATER	
NO.	(SQ.KM)	FALL	INFLOW	TRANSPH	CUTFLOW	RECHARGE	OUTFLOW	DRAFT
1	1181.5	3673.7	۰.	942.5	2735.0	.0	.0	.0
2 3	5.2	13.5	.0	3.5	10.0	.0	.0	.0
3	160.4	157.)	.0	109.4		.3	.0	.0
4	66.5	189.6	.0	45.4	144.2	.1	.0	.0
5	59.0	152.8	347.5	47.9		14.2	15.2	.0
5 6 7		52.2	.0		25.7	11.7	11.7	.0
	111.1	287.9			304.7	42.3	42.5	. 0
8	48.4	125.3				12.1	12,1	.0
9	56.5	146,4	448.3	44.2	538.4	12.1	12.3	.0
10	41.3	107.1		30.0	66.9	10.2	10.2	. 0
- 11	28.8	74.5	25.7	21.1	73.2	6.0	6.0	-0
12	48.8	126.5	304.7	38.9	390.3	2.0	1.9	. 1
13	41.3	107.0	2793.7	46.6	2846.0	8.1	. 8 . 1	.0
14	37.8	97.9	538.4			10.8	-15.9	26.6
15	37.4	96.9	, 66.9	27.4	130.6	5.8	-11.1	16.5
16	66.7	172.9		53.4		9.2	-17.0	27.3
17	51.8	134.1	390.3	38.8	446.3	39.4	3.0	36.4
18	44.6	115.7	2846.0	50.3	2898.8	12.6	12.6	
19	28.0	72.6	595.2	22.5	636.2	9.1	-5.4	14.3
20	38.B		130.6	29.1	187.2	14.7	-3.1	. 18.1
21	59.6		183.8	49.4		57.6	24.4	33.3
. 22	16.9	43.9	.0	11.5	29.2	3.1	2,7	.0
23	40.3	104.4	.0		64.8	12.6	4.5	8.0
24	55.3	143.3		59.7		8.6	8.5	٠0
25	39.3	101.8	636.2	30.1	668.3	39.7	11.5	27.6
26	72.2	186.9	216.5			68.3	13.5	
27	54.7	141.6	64.8	41.3	156.3	8.8	~29.5	38.4
TOTAL	2512.4	7180.7	15439.9	2008.2	20197.9	419.4	118.6	300.8

HYDROLOGIC BALANCE OF JHAPA DISTRICT

BASIN (CASE 1)

YEAR OF 1990 UNIT = M.C.M.

						CNIT	M.C.M.	
BASIN	ARRA		SURFACE	EVAPO- TRANSPN		GROU	NOWATER OUTPLOW	DD4.000
NO.	(SQ.KM)	FALL	INFLOW	TRANSPR	GUTFLOW	RECHARGE	OUTPLOW	DRAFT
1	1181.5	6181.8	.0	1147.2	4963.0		.0	.0
2 3	5.2	22.8	.0	4.5	18.3	.0	.0	. 0
3	160.4	769.2		138.1	630.6		.0	.0
4	66.5	319.1	.0	57.3	261.7	. 1	.0	.0
5 6 7	59.0	257.2	630.6	58.3	809.7		17.1	.0
6	20.1	87.8	.0	18.5	53.1	16.2	16.0	.0
7	111.1		261.7		585.6			
8	48.4	210.9			5098.9			
9	56.5	246.4	828.1		1003.9	16.5		
10	41.3		.0	37.4	127.3			
11	28.8		53.1	26.3	144.1		7.9	.0
12	48.8	212.8		47.3	748.7	2.6		. 1
13	41.3	180.1			5219.0			.0
14	37.8	164.8	1003.9		1117.5	15.1		19.3
15	37.4		127.3	34.1		7.7		11.6
16	66.7	291.0	144.1	64.0	357.8	11.6	~22.7	19.1
17	51.8	225.7	748.7	48.2	869.4	56 B	30.2	26.5
16	44.6	194.7			5343.4			
19	28.0	122.2	1117.5		1199.3			
20	38.8	168.9	248.6	36.1	362.1	19.3		
21	59.6		357.8		474.5			
22	16.9		.0	14.6		4.9		
23	1.40.3		.0	34.4	121.3			
24	55.3	241.1			5506.0			
25	39.3	171.3			1276.6			20.1
26	72.2	314.6		67.0				39.6
27	54.7	236.3	121.3	51.2	296.9	11.5	-21.2	27.9
TOTAL	2512.4	12083.4	28468.4	2422.3	37463.2	587.3	270.5	216.2

HYDROLOGIC BALANCE OF JHAPA DISTRICT

BASIN (CASE 1)

YEAR OF 1991 UNIT # M.C.M

						ONIT :	m.C.m.	
BASIN NO.	ARSA (SO,KM)	RAIN- FALL	SURFACE	EVAPO- TRANSPN	SURFACE		NDWATER OUTFLOW	DRAFT
1 -	1181.5		.0	914.9			.0	-0
2	5.2	15.3		3.4	11.8		.0	.0
3	160.4	515.0	.0	107.4	407.4		.0	.0
4	66.5	213.6	.0					.0
5	59.0	172.2						
5 6 7	20.1		.0		32.4			
7	111.1		169.0					.0
в	48.4	141.2						
9	56.5		531.4					
10	41.3		.0		80.6	11.0	11.4	
11	28.8	B3,9	32.4	20.5		5.2		
12	48.8	142.5	368.7	36.9	472.2	2.0		. 1
1.3	41.3	120.5	3342.7	46.3	3408.3	9.0		
- 14	37.8		642.6	28.2	713.6			
15			80.6			5.9		17.3
16	66.7		89.7					
17	51.8	151.1	472.2				4.3	37.8
18	44.6	130.3	3408.3	50.1			14.2	
19	. 28.0	81.8	713.6	21.2	764.4.	9.7		
20		113.1	157.5	28.3				
21	59.6	174.1	223.4	48.3	288.0	62.7	28.8	
22	16.9	49.4	0	11.4	34.6	3.3		-0
23	40.3		.0		77.4		7.5	8.4
24	55.3	161.4	3474.7				9.5	.0
25			764.4		808.0			28.7
26	72.2	210.6	262.1	52.4	350.8	69.5	18.3	56.2
27	54.7	159.5	77.4	39.5	188.5	8.9	-27.5	39.9
TOTAL					24231:8	441.5	152.7	313.1

YEAR OF 1992 UNIT = M.C.M.

BASIN	AREA	RAIN-		EVAPO-		GROU?		22.20
NO.	(SQ.KM)	FALL	inflow	TRANSPN	COTFLOW	RECRARGE	OUTFLOW	DRAFT
1	1181.5	2380.6	.0	791.8	1631.2	.0	.0	.0
	5.2	8.8	,0	2.8	5.9	.0	.0	.0
2	160.4	296.2	, ŏ		206.1		.0	.0
4		122.9			85.6	.1	.0	.0
5	59.0		206.1		253.6		12.4	
õ	20.1	33.8	.0	12.4	13.0	8.4	8.5	.0
7		186,5	85.6	71,1	166.2	34.9	35.8	
8			1631.2	51.5	1652.2	9.1	9.3	
9	56.5	94.9	259.5	36.7	307.8	10.0	10.5	.0
10	41.3	69.4	.0				7.6	
11	28.6	48.3	13.0		38.6		4.9	
12	48.8	82.0	166.2		214.3			1
13	41.3	69.3	1652.2	44.1	1671.4	6.4		.0
14	37.8	63.5	307.8	25.0	337.9	8.3		
1.5	37.4	62.8	36.8	23.1	71.8	4.7		
16	66.7	112.1	38.8	44.7	99.1	1.7		
17	51.8		214.3		241.5	26.7	-15.3	
18	44.6	75.0	1671.4				10.6	
. 19	28.0		337.9			6.8		
20	38.8	65.1	71.8				2.3	
21	59.6	100.1	99.1	41.7		42.3		38.1
22						1.9		.0
23		67.7		22.0	37.1	8.6		8.8
24	55.3	92.9			1716.8			
25		66.0	359.5		370.7		1.2	31.9
26			117.9		142.9	51.2	~2.9	
27	54.7	91,8	37.1	34.7	86.7	7.5	-33.6	44.4
TOTAL	2512.4	4653.2	8994.7	1705.1	11671.7	317.1	39.8	345.5

HYDROLOGIC BALANCE OF JHAPA DISTRICT

BASIN (CASE 1)

YEAR OF 1993 UNIT = M.C.M.

					-			
BASIN	AREA	RAIN-	SURFACE	EVAPO-	SURFACE	GROUN	DWATER	
NO.	(\$Q.KM)	FALL	INFLOW	TRANSPN	OUTFLOW	RECHARGE	OUTFLOW	DRAFT
1	1161.5	3408.5	.0	985.3	2379.0	. 0	.0	.0
2	5.2	12.6	.0	3.8	8.8	.0	.0	.0
3	160.4	424.1	.0	117.9	305.8	.3	.0	.0
4	66.5	175.9	.0	48.9	127.0	.1	.0	.0
5 6 7	59.0	141.8	305.8	49.3	3B4.1	14.2	13.9	.0
6	20.1	48.4	.0	15.6	21.5	11.3		.0
7	111.1	267.1	127.0	88.6	262.7	42.7		.0
В	48.4	116.3	2379.0		2430.9	11.2	11.0	.0
8 9	56.5	135.9	392.9	45.0	472,4	11.4	10.9	.0
10	41.3	99.3	.0	31.5	57.8	10.0	9.5	.0
11	28.8	69.1	21.5	22.1	62.6	5.9	5,8	.0
12	48.8	117.3	262.7	39.9	338.2	1.9	1.6	. 1
13	41.3	99.3	2430.9	45.0	2477.2	7.6	7.5	.0
14	37.8	90.9	472.4	30.3	522.9	10.0	-17.5	22.6
15	37.4	89.9	57.8	28.7	113.2	.5.8	-9.2	13.6
16	66.7	160.4	62.6	54.2	158.6	9.0	-16.3	22.3
17	51.8	124.4	338.2	40.8	385.7	36.1	5.0	31.0
18	44.6	107.3	2477.2	48.7	2523.3	12.2	12.2	.0
19	28.0	67.4	522.9	22.7	559.0	8.5	-5.7	11.9
20	38.6	93.2	113.2	30.5	160.9	14.9		14.9
21	59.6	143.4	158.6	49.7	196.2	54.1		27.8
22	16.9	40.7	.0	12.4	25.3	3.0	3.0	.0
23	40.3	96.9	.0	29.0	55.8	12.1	4.3	6.2
24	55.3	132.9	2523.3	59.3	2588.8	7.8	6.6	.0
25	39.3	94.5	559.0	31.6	583.4	38.5	10.4	23.5
26	72.2	173.5	186.2	56.4	236.5	66.7	. 9.5	46.5
27	54.7		55.6	42.9	135.5	8.8	-28.8	32.7
TATOT	2512.4	6662.5	13447.2	2083.1	17573.4	404.1	108.5	253.0

## 4.6 Project Cost

# JHAPA DISTRICT PRIORITY SUB-AREA (150 ha/D.T.W Q = $120\ell/s$ ) Summary of Project Cost Estimate

**TABLE 4.6.1** 

(Unit: 1,000 NRs)

			Cost		Remarks	
No.	Work Items	L/C	F/C	Total		
1	Well Development	219	1,297	1,516	T.A = 17,000 ha L/C; Local Currency F/C; Foreign Currency	
2	Pump Station	1,076	2,886	3,962		
3_	Irrigation Canal System	1,295	948	2,243		
44-	Drainage System	380	87	467		
5	Farm Road System	1,535	1,023	2,558	·	
6	Land Acquisition	2,100		2,100		
	Total (1-6)	6,605	6,241	12,846	Cost of One D.T.W Area	
7	Whole Area Cost	746,365	705,233	1,451,598	No of D.T.W: 113	
8_	Building for O & M	7,527	3,980	11,507		
9	Procurement of O&M and Office Equipment	2,940	52,170	55,110		
10	Technical Support	108,030	304,530	412,560		
11	Project Administration	107,730		107,730		
12	Total Investment Cost US Dollar Equivalent	972,592	1,065,913 21,318	2,038,505 40,770	(7 - 11) (×1,000)	
10	Per (ha)	1,144 97,259	1,254 106,591	2,398	= 2,400 US\$/ha (12 × 0.10)	
13	Physical Contingencies					
14	Price Escalation	486,296	159,887	646,183		
15	Total Project Cost	1,556,147	1,332,391 26,648	2,888,538 57,771	(× 1,000)	

## MAHOTTARI DISTRICT PRIORITY SUB-AREA A<sub>1</sub> (66 ha/D.T.W Q = 66 $\ell$ /s) A<sub>2</sub> (97 ha/D.T.W Q = 97 $\ell$ /s)

# Summary of Project Cost Estimate

TABLE 4.6.2

(Unit: 1,000 NRs)

			Cost		Remarks	
No.	Work Items	L/C	F/C	Total	IVEIII AS	
<u> </u>	Well Development $\Lambda_1$ Well Development $\Lambda_2$	$-\frac{219}{219}$	1,297 1,297	1,516 1,516	T.A= 7,000 ha L/C; Local Currency F/C; Foreign Currency	
_2	$egin{array}{lll} { m PumpStation} & { m A_1} \\ { m PumpStation} & { m A_2} \end{array}$	697 864	1,625 2,250	2,322 3,114	A <sub>1</sub> ; 4,000 ha A <sub>2</sub> ; 3,000 ha	
3	Irrigation Canal System A <sub>1</sub> Irrigation Canal System A <sub>2</sub>	<u>604</u> 837	<u>442</u> 613	1,046 1,450		
4	Drainage System A <sub>1</sub> Drainage System A <sub>2</sub>	177 245	<u>41</u> 56	218 301		
5	$egin{array}{ll} Farm Road System & A_1 \ Farm Road System & A_2 \end{array}$	716 992	$\frac{477}{662}$	1,193 1,654		
6	Land Acquisition A <sub>1</sub> Land Acquisition A <sub>2</sub>	990 1,380	~	990 1,380		
	Total A <sub>1</sub> (1-6) Total A <sub>2</sub> (1-6)	3,403 4,537	3,882 4,878	7,285 9,415	Cost of One D.T.W Area Cost of One D.T.W Area	
7	Whole Arca Cost A <sub>1</sub> A <sub>2</sub>	207,583 140,647	236,802 151,218	444,385 291,865	No of D.T.W: 61 No of D.T.W: 31	
	Total $(\Lambda_1 + \Lambda_2)$	348,230	388,020	736,250		
8	Building for O & M	5,018	2,653	7,671		
9	Procurement of O&M and Office Equipment	1,960	34,780	36,740		
10	Technical Support	72,020	203,020	275,040		
11	Project Administration	71,820	<del> </del>	71,820		
12	Total Investment Cost	499,048	628,473	1,127,521	(7 - 11)	
	US Dollar Equivalent Per (ha)	9,981	12,569 1,796	22,550 3,222	(×1,000) = 3,200 US\$/ha	
13	Physical Contingencies	49,905	62,847	112,752	$(12 \times 0.10)$	
14	Price Escalation	249,524	94,271	343,795		
15	'Total Project Cost	798,447	785,591	1,584,068	(× 1,000)	
	US Dollar Equivalent	15,970	15,712	31,682	( \ 1,000)	

## BANKE-BARDIYA DISTRICT PRIORITY SUB-AREA (157 ha/D.T.W Q = $110\ell/s$ ) Summary of Project Cost Estimate

**TABLE 4.6.3** 

(Unit: 1,000 NRs)

	4.0.0		,		(01111: 1,000 141(3)	
			Cost		Remarks	
No.	Work Items	L/C	F/C	Total	Remarks	
11	Well Development	219	1,297	1,516	T.A = 8,000 ha L/C; Local Currency F/C; Foreign Currency	
2	Pump Station	1,072	2,776	3,848		
3	Irrigation Canal System	1,381	1,011	2,392		
4	Drainage System	405	93	498		
5	Farm Road System	1,637	1,091	2,728		
6	Land Acquisition	2,250		2,250		
	Total (1-6)	6,964	6,268	13,232	Cost of One D.T.W Area	
7	Whole Area Cost	355,164	319,668	674,832	No of D.T.W: 51	
8_	Building for O & M	5,018	2,653	7,671		
9	Procurement of O&M and Office Equipment	1,960	34,780	36,740		
10	Technical Support	72,020	203,020	275,040		
11	Project Administration	71,820		71,820	-	
12	Total Investment Cost US Dollar Equivalent	505,982	560,121 11,202	1,066,103 21,322	(×1,000)	
	Per (ha)	1,265	1,400	2,665	= 2,700 US\$/ha	
13	Physical Contingencies	50,598	56,012	106,610	$(12\times0.10)$	
14	Price Escalation	252,991	84,018	337,009		
15	Total Project Cost	809,571	700,151	1,509,722		
	US Dollar Equivalent	16,191	14,003	30,194	(× 1,000)	

### 4.7 Project Evaluation

Table 4.7.1 Standard Conversion Factor

		*			(Million	ks)
Item	1986/87	1987/88	1988/89	1989/90	1990/91	Average
(1) Total Amount of Import (CIF Price)	10927.1	13893.8	16296.8	18355.7	23255.7	16545.8
(2) Total Amount of Export (FOB Price)	3003.0	4128.0	4211.1	5169.5	7403.3	4783.0
(3) Total Amount of Import Duty	1285.3	1984.2	2133.9	2646.0	2752.7	2160.4
(4) Total Amount of Export Duty	79.4	107.9	62.7	32.6	78.5	72.2
(5) Total Amount of Subsidy for Export		n	0	0	0	0
	13930.1	18021.8	20507.9	23525.2	30659.0	21328.8
$ \frac{(6) = (1) + (2)}{(7) = (1) + (2) + (3) - (4) + (5)} $	15136.0	19898.1	22579.1	26138.6	33333.2	23417.0
	0.920	0.906	0.908	0.900	0.920	0.911
(8) $SCF = (6) \div (7)$	1 0.040	3 0.000	V. 000	3,000		

Source: Statistical Yearbook of Nepal, 1993

Table 4.7.2 Economic Farmgate Prices of Trade Crops

	Unit	Wheat	Maize	Paddy
Forecasted prices in 2005.	US\$/ton	137	87	251
1990 constant dollars				
Prices forecast in 1993	US\$/ton	147	93	269
constant dollars				
Adjustment of quality	%	95	95	90
Forecasted price after quality adjustment	US <b>\$</b> /ton	140	88	242
Shipping & handling	US\$/ton	73	70	40
CIF/FOB Calcutta price	US\$/ton	213	158	282
Transportation & handling to Nepal border	}			·
Jhapa	US\$/ton	35	35 [	35
Mohottari	US\$/ton	43	43	43
Banke	US\$/ton	50	50	50
Nepal border price	]			
Jhapa	Rs/ton	12152	9457	15533
Mohottari	Rs/ton	12544	9849	15925
Banke	Rs/ton	12889	10192	16268
Conversion coefficient	%	100	100	65
Processing cost	Rs/ton	0	0	200
By-product	Rs/ton	260	210	310
Commodity price			<u> </u>	
Jhapa	Rs/ton	12412	9667	10206
Mohottari	Rs/ton	12804	10059	10461
Banke	Rs/ton	13149	10402	10684
Transportation & handling to farmgate	Rs/ton	100	100	100
Farm-gate price				· .   • • • • • • • • • • • • • • • • • • •
Jhapa	Rs/ton	12312	9567	10100
Mohottari	Rs/ton	12704	9959	1036
Banke	Rs/ton	13049	10302	1058

Table 4.7.3 Economic Farmgate Prices of Fertilizers

		Urea	TSP	Muriate
	Unit			of Potash
Forecasted price in 2005,1990 constant dollars	US <b>\$</b> /ton	140	121	103
Price forecast in 1993 constant price	US\$/ton	150	130	110
Shipping & handling	US\$/ton	65	70	70
CIF/FOB price at Culcatta Port	US\$/ton	215	200	180
Transportation & handling to Nepal border				
Jhapa	US\$/ton	30	30	30
Mahottari	US\$/ton	38	- 38	38
Banke	US\$/ton	47 [	47	47
Nepal border price				
Jhapa	Rs/ton	12007	11254	10309
Mahottari	Rs/ton	12399	11646	10701
Banke	Rs/ton	12840	12087	11142
Transportation to farmgate	Rs/ton	100	100	100
Percent of constituent	%	(N) 46	(P) 46	(k) 60
Farmgate price				
Jhapa	Rs/ton	26319	24683	17348
Mahottari	Rs/ton	27171	25535	18001
Banke	Rs/ton	27913	26276	18570

Table 4.7.4 Farmgate Prices (Jhapa)

			Price		
		Unit	Financial E	conomic	Remarks
1.	Seeds	_			
	Paddy	Rs/kg	10.00	10.61	
	Wheat	Rs/kg	11.65	23.90	
	Maize	Rs/kg	14.20	25.12	
	Mustard	Rs/kg	23.00	21.95	•
	Pigeon Peas	Rs/kg	16.00	14.58	
	Lentil	Rs/kg	18.00	16.40	
	Cauliflower	Rs/kg	300.00	273.30	
	Potato	Rs/kg	10.00	9.11	
	Onion	Rs/kg	225.00	204.97	
	Vegetables (cabbage)	Rs/kg	305.00	277.86	
2.	Crops				
	Paddy	Rs/ton	4790	10106	
	Wheat	Rs/ton	4250	12312	
	Maize	Rs/ton	<b>459</b> 0	9567	
	Mustard (oilseeds)	Rs/ton	23110	23110	•
	Pigeon Peas	Rs/ton	17190	17190	
	Lentil	Rs/ton	14940	14940	
	Cauliflower	Rs/ton	7690	7690	
	Potato	Rs/ton	3880	3880	
	Onion	Rs/ton	8940	8940	
	Vegetables (cabbage)	Rs/ton	6740	6740	
3.	By-products				
	Paddy Straw	Rs/kg	0.40	0.36	
	Wheat Straw	Rs/kg	0.25	0.23	
	Maize Stalks	Rs/kg	0.20	0.18	
	Lentil Stalks	Rs/kg	0. 25	0.23	
	Mustard Stalks	Rs/kg	0.20	0.18	
4.	Fertilizer				
	Nitrogen	Rs/kg	12.17	26.32	
	Phosphate	Rs/kg	17.39	24.68	•
	Potash	Rs/kg	14.17	17, 35	
	Barnyard Manure	Rs/ton	200.00	182.00	
5.	Agri-Chemicals				
	Parathion	Rs/kg	338.5	308.4	
	BHC Dust	Rs/kg	5.9	5.4	
	Malathion Dust	Rs/kg	12.6	11.5	
	Hinosan	Rs/lit.	463.0	421.8	•
	2-4D	Rs/kg	203.8	185.7	
6.	Farm Labor				
	Hired Labor	Rs/day	32	22	
٠	Hired Bullock with Labour	Rs/day	100	68	

Table 4.7.5 Farmgate Prices (Mahottari)

		Price	?	
	Unit	Financial I	conomic	Remarks
1. Seeds				
Paddy	Rs/kg	8.50	9.01	
Wheat	Rs/kg	10.50	21.50	
Maize	Rs/kg	15.00	26.51	
Mustard	Rs/kg	22.00	20.04	
Pigeon Peas	Rs/kg	16.00	14.58	
Lentil	Rs/kg	18.00	16.39	
Cauliflower	Rs/kg	300.00	273.30	
Potato	Rs/kg	8.00	7.29	
Onion	Rs/kg	225.00	204.97	
Vegetables (cabbage)	Rs/kg	300.00	273.30	
2. Crops				
Paddy	Rs/ton	6070	10361	•
Wheat	Rs/ton	6010	12704	
Maize	Rs/ton	4920	9959	
Mustard (oilseeds)	Rs/ton	23480	23480	
Pigeon Peas	Rs/ton	15420	15420	
Lentil	Rs/ton	14940	14940	
Cauliflower	Rs/ton	6000	6000	
Potato	Rs/ton	4530	4530	
Onion	Rs/ton	4140	4140	
Vegetables (cabbage)	Rs/ton	3430	3430	
3. By-products				
Paddy Straw	Rs/kg	0.50	0.46	
Wheat Straw	Rs/kg	0.30	0.27	
Maize Stalks	Rs/kg	0.20	0.18	•
Lentil Stalks	Rs/kg	0.25	0.23	
Mustard Stalks	Rs/kg	0.20	0.18	
4. Fertilizer	•			
Nitrogen	Rs/kg	11.22	27.17	
Phosphate	Rs/kg	17.39	25.35	
Potash	Rs/kg	13, 58	18,00	
Barnyard Manure	Rs/ton	200.00	182.00	
5. Agri-Chemicals		•		
Parathion	Rs/kg	338.5	308.4	
BHC Dust	Rs/kg	5.9	5.4	4
Malathion Dust	Rs/kg	12.6	11.5	
Hinosan	Rs/lit.	463.0	421.8	•
2-4D	Rs/kg	203.8	185.7	
6. Farm Labor				
Hired Labor	Rs/day	35	24	
Hired Bullock with La	bour Rs/day	100	68	

Table 4.7.6 Farmgate Prices (Banke)

•		Price						
	Unit	Financial		Remarks				
1. Seeds	· /· · · · · · · · · · · · · · · · · · ·							
Paddy	Rs/kg	9.05	9.59					
Wheat	Rs/kg	11.65	23.90					
Maize	Rs/kg	14.90	26.37					
Mustard	Rs/kg	30.00	27.33					
Pigeon Peas	Rs/kg	20.00	18, 22	•				
Lentil	Rs/kg	18.50	16.85					
Cauliflower	Rs/kg	550.00	501.05					
Potato	Rs/kg	8.00	7.29					
Onion	Rs/kg	225.00	204.97					
Vegetables (cabbage)	Rs/kg	340.00	309.74					
2. Crops								
Paddy	Rs/ton	5270	10584					
Wheat	Rs/ton	6310	13049	•				
Maize	Rs/ton	5570	10302					
Mustard (oilseeds)	Rs/ton	20330	20330	•				
Pigeon Peas	Rs/ton	24230	24230					
Lentil	Rs/ton	21600	21600	•				
Cauliflower	Rs/ton	7000	7000					
Potato	Rs/ton	3600	3600					
Onion	Rs/ton	8940	8940					
Vegetables (cabbage)	Rs/ton	12060	12060					
3. By-products								
Paddy Straw	Rs/kg	0.50	0.46					
Wheat Straw	Rs/kg	0.25	0.23					
Maize Stalks	Rs/kg	0.25	0.23	•				
Lentil Stalks	Rs/kg	0.25	0.23					
Mustard Stalks	Rs/kg	0.20	0.18	· · · · · · · · · · · · · · · · · · ·				
4. Fertilizer								
Nitrogen	Rs/kg	12.17	27.91					
Phosphate	Rs/kg	18.08	26.28					
Potash	Rs/kg	14.16	18.57	•				
Barnyard Manure	Rs/ton	200.00	182.00					
5. Agri-Chemicals								
Parathion	Rs/kg	338.5	308.4					
BHC Dust	Rs/kg	5.9	5.4					
Malathion Dust	Rs/kg	12.6	11.5					
Hinosan	Rs/lit.	463.0	421.8	* *				
2-4D	Rs/kg	203.8	185.7	•				
6. Farm Labor								
Hired Labor	Rs/day	37	25					
Hired Bullock with Labou	-	100	68	the second of				
	- I WIND							

Table 4.7.7 Incremental Agricultural Benefit (Jhapa)

	M. Paddy Rainfed	M. Paddy Irrigated	S.Paddy Irrigated	Maize	Wheat	Miscellaneous (Mustard)	Total
Without Project						(BRISTALU)	·
Yield(ton/ha)	2.33	-	-	1.31	1.59	_	
Price (Rs/ton)	10, 106	~	-	9.567	12, 312	, <del>-</del> -	
GPV (RS/ha)	24, 321	-	-	12,815	19, 951	,- 	
Production Cost (Rs/ha)	8,935	-	-	7.368	10,588	~	
NPV (Rs/ha)	15, 386	-	-	5, 447	9, 363	<del>-</del>	
Cropping Area(ha)	15,300	-	_	1,700	4,420		81 100
Total NPV (RS1000)	235, 406	-	-	9,260	41.384	-	21,420 286,050
With Project						•	
Yield(ton/ha)		4.00	3.80	2.70	2.70	0.80	
Price (Rs/ton)		10, 106	10, 106	9,567	12, 312	23, 110	
GPV (RS/ha)	_	42, 152	39,987	26,412	33, 880	18.673	
Production Cost (Rs/ha)	-	12,839	10, 276	11, 168	12.895	9.055	
NPV (Rs/ha)	-	29, 313	29,711	15, 244	20.985	9.618	
Cropping Area(ha)	-	17,000	6,800	2.550	5.100		04 000
Total NPV (RS1000)	-	498, 321	202,035	38,872	107,024	2, 550 24, 526	34.000 870,777
Incremental NPV (Rs1000)	-235, 406	498, 321	202, 035	29,612	65, 639	24,526	584, 727
Note:GVP includes income :	from by-pr	oducts					007,161

Table 4.7.8 Incremental Agricultural Benefit (Mahottari)

	M. Paddy Rainfed	M.Paddy Irrigated	S. Paddy Irrigated	Wheat	Pulses (Lentil)	Onion	Potato	Others (Oi Iseeds)	Total
Without Project								To traceria)	
Yield (ton/ha)	2.29	· -	- '	1.48	0.60	_	_	0.54	
Price (Rs/ton)	10,361		-	12,704	14.940	_	_	23, 480	
GPV (RS/ha)	24,733	<b>-</b> '.	-	19, 212	9.086	_	_	12,805	
Production Cost (Rs/ha)	9.338	-	-	11.479	3,673	_	<u>.</u> .	6, 483	
NPV (Rs/ha)	15,395	-	-	7.733	5.413	_			
Cropping Area(ha)	6,300	-	-	1.400	1,400	-	_	6,322 700	0.000
Total NPV (RS1000)	96, 989	-	-	10.826	7.578	<del>.</del> .	-	4,425	9,800 119,818
With Project				•					
Yield (Lon/ha)		3.40	3, 60	2.60		13.00	12.00		
Price (Rs/ton)	. –	10.361	10, 361	12,704	_	4.140		-	
GPV (RS/ha)	-	36.837	38,983	33,751		53, 820	4,530	-	
Production Cost (Rs/ha)	-	12,697	10,584	13, 583	_	26, 899	54,360	-	
NPV (Rs/ha)		24, 140	28,399	20, 168	_		35, 598	-	
Cropping Area(ha)	-	7,000	700	3, 430	_	26, 921	18, 762	-	
Total NPV (RS1000)	· _	168,980	19,879	69, 176	-	1,330	1,540	-	14,000
		20.7,000	,013	03,170	_	35,805	28,893		322, 734
Incremental NPV (Rs1000)	-96,989	168,980	19,879	58, 350	-7,578	35,805	28, 893	-4,425	202,916

Table 4.7.9 Incremental Agricultural Benefit (Banke)

	M.Paddy Rainfed	M. Paddy Irrigated	Maize	Mustard	Wheat	Pulses (Lentil)	Potato	Others	Total
Without Project						(L.CHETE)		(Cauliflow	er)
Yield(ton√ha)	1.95		1.61	0.55	1.40	0.68	2		
Price(Rs/ton)	10,584		10, 302	20,330	13,049	21,600	_		
GPV (RS/ha)	21,552	<del>-</del> ,	17,030	11.309	18,598	14,826	~	. <del>.</del> 	
Production Cost (Rs/ha)	9,618	<del>-</del>	8,626	6,593	10,575	3,763			
NPV (Rs/ha)	11,934	-	8,404	4,716	8,023	11.063	<u>.</u>		
Cropping Area(ha)	6,400	-	800	800	2,400	800	<u>-</u> -	_	11,200
Total NPV (RS1000)	76,378	-	6,723	3,773	19, 255	8,850	-	> <b>-</b>	114,979
With Project								31.	
Yield(ton/ha)		3.50	2.60	0.80	2.10	1.00	11.00	11.00	
Price(Rs/ton)	-	10.584	10, 302	20,330	13,049	21,600	14.00	11.00	
GPV (RS/ha)	-	38,608	27.498	16,417	27.897	21,807	3,600	7.000	
Production Cost (Rs/ha)	. <b>-</b> .	13, 428	13.058	10, 680	13, 491	6.058	50,400	77,000	
NPV (Rs/ha)	<del>.</del>	25, 180	14.440	5,737	14, 406	15,749	22,546 27,854	19.934	
Cropping Area(ha)		6,960	1,200	1.040	4,000	1,360	1.200	57,066	. 10 000
Total NPV (RS1000)	. · <del>-</del>	175, 253	17, 328	5,966	57,624	21,419	33, 425	240 13,696	16,000 324,711
Incremental NPV (Rs1000) Note:GVP includes income i	-76,378	175, 253	10,605	2.194	38, 369	12,568	33, 425	13,696	209,731

Table 4.7.10 Cost and Return of Crops (Economic) - Jhapa

District: Jhapa
Cron: Rainfed Paddy-Monsoon

Crop:Rainfed Paddy-Monsoon						
		Unit	Without	Project	With P	roject
	Unit	Price	Quant-	Value	Quant-	Value
		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost						
a.Labor Cost				. ,	[	
Labor	day	22	172	3784	185	4070
Bullock Labor	lay	68	41	2788	44	2992
Sub-total				6572		7062
b. Input Cost		l				
Seed	kg	10.61	62	658	62	658
Manure	kg	0.18	900	162	900	162
Fertilizer		l				
N	kg	26.32	30	790	40	1053
P	kg	24.68	10	247	20	494
K	kg	17.35	0	0	15	260
Agri-Chemicals	kg	]	0	60		150
Sub-total				1916		2776
Miscellaneous (5% of total)				447		518
Total Costs				8935		10356
2. Gross Income				24321		36559
a. Main Product	ton	10106	2.33	23547	3.50	35371
b. By-product	ton	360	2.15	774	3.30	1188
B. Net Profit	Rs			15386		26203

District:Jhapa Crop:Irrigated Paddy(HYV)-Monsson

of op. Itt iga ceu faudy (III v) mo	UGGU	11				
		Unit	Without	Project	With P	roject
	Unit	Price	Quant-	Value	Quant-	Value
		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost		-				
a.Labor Cost						
Labor	day	22	179	3938	197	4334
Bullock Labor		68	43	2924	49	3332
Sub-total			}	6862		7666
b. Input Cost						
Seed	kg	10.61	56	594	56	594
Manure	ton	0.18	1650	297	1650	297
Fertilizer				]		
N	kg	26.32	46	1211	80	2106
P	kg	24.68	15	370	40	987
K	kg	17.35	10	174	20	347
Agri-Chemicals	kg	]	0	75		200
Sub-total	<u> </u>	L		2721	J	4531
Miscellaneous(5% of total)		ļ		504		642
Total Costs				10087		12839
2. Gross Income	]	]		27781	:	42152
a. Main Product	ton	10106	2.64	26629	4.00	40424
b. By-product	ton	360	3.20	1152	4.80	1728
B. Net Profit	Rs			17694		29313

District: Jhapa

Crop: Irrigated Paddy (HYV) - Spring Paddy Unit Without Project With Project UnitPrice Quant-Value Quant- Value (Rs) ity (Rs) ity (Rs) .Production Cost a. Labor Cost 22 100 Labor 2200 114 2508 day 68 Bullock Labor 42 2856 47 3196 Sub-total 5056 5704 b. Input Cost 69 69 10.61 732 732 Seed kg Manure 0.18 1090 196 1090 196 ķģ Fertilizer 26.32 24.68 17.35 40 1053 70 1842 kg 370 30 15 740 kg. 174 10 20 347 kg 0 75 200 Agri-Chemicals κg 2600 Sub-total 4058 Miscellaneous (5% of total 403 514 Total Costs 8059 10276 Gross Income 14847 39987 10106 1.41 14199 3.80 38403

ton

ton

360

1.80

648

6788

4.40

1584

29711

District:Jhapa

. Net Profit

a. Main Product

b. By-product

		Unit	Without	Project	With P	roject
	Unit	Price	Quant-	Value	Quant-	Value
·		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost	·	]	}			
a.Labor Cost		]				
Labor	day	22	133	2926	160	3511
Bullock Labor		68	29	1972	34	2312
Sub-total				4898		5823
b.Input Cost		I				
Seed	kg	25.12	25	628	25	628
Manure	kg	0.18	2880	518	2880	518
Fertilizer						
N	kg	26.32	25	658	80	2106
P	kg	24.68	10	247	40	987
K	kg	17.35	0	0	20	347
Agri-Chemicals	kg		l	50		200
Sub-total	l			2101		4786
Miscellaneous (5% of total)				368		558
Total Costs				7368		11168
2. Gross Income				12815		26412
a. Main Product	kg	9567	1.31	12533	2.70	25831
b. By-product	kg	180	1.57	283	3.23	581
B. Net Profit	Rs			5448		15245

District:Jhapa

Crop: Wheat						
		Unit	Without	Project	With P	
	Init	Price	Quant-	Value	Quant-	Value
		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost		,,	.,.,			
a. Labor Cost				,	,	
Labor	day	22	119	2618	140	3080
Bullock Labor	day	68	40	2720	47	3196
Sub-total	, , , , , ,			5338		6276
b. Input Cost						
Seed	kg	23.9	120	2868	120	2868
Manure	kg	0.18	1700	306	1700	306
Fertilizer				]		
N	kg	26.32	40	1053	50	1316
P	kg	24.68	18	444	40	987
K	kg	17.35	0	0	20	347
Agri-Chemicals	kg	}	0	50		150
Sub-total	1	1		4721	[	5974
Miscellaneous (5% of total)				529		645
Total Costs		1		10588	I	12895
2. Gross Income	T			19951		33880
a. Main Product	ton	12312	1.59	19576	2.70	33242
b. By-product	ton	230	1.63	375	2.77	637
B. Net Profit	Rs			9363	<u> </u>	20985

District: Jhapa Crop:Lentil & Pulses

Crop:Lentil & Pulses						
		Unit	Without	Project		
	Unit	Price	Quant-	Value	Quant-	Value
		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost						
a.Labor Cost		j		]		
Labor	day	22	72	1584	83	1826
Bullock Labor		68	11	748	. 13	898
Sub-total				2332	0.	2724
b. Input Cost				 	,	
Seed	kg	16.4	22	361	22	361
Manure	kg	0.18	300	54	300	54
Fertilizer	j	]		 		
N	kg .	26.32	15	395	25	658
P	kg	24.68	20	494	40	987
K	kg	17.35	0	0	0	0
Agri-Chemicals	kg		0	0		65
Sub-total	L	.L		1303	]	2125
Miscellaneous (5% of total)	ĺ			191		255
Total Costs		I		3827	<b>]</b>	5104
2. Gross Income	<b>.</b>		_   , <i>, ,</i>	9086	<b></b>	16657
a. Main Product	ton	14940	0.60	8964	1.10	16434
b. By-product	ton	230	0.53	122	0.97	223
B. Net Profit	Rs	<u> </u>		5259		11553

District:Jhapa

Crop: Mustard (Oilcrops) Unit Without Project With Project UnitPrice Quant-Value Quant- Value (Rs) (Rs)ity ity (Rs) .Production Cost a.Labor Cost 22 83 98 1826 2156 Labor 2312 38 2584 Bullock Labor Sub-total 4138 4740 b. Input Cost Seed 20 20 21.95 439 439 2500 Manure 0.18 2500 450 450 kg Fertilizer kg 26.32 921 50 1316 24.68 10 247 40 987 Κg 0 K 30 17.35 0 521 kg Agri-Chemicals 0 0 150 ķg... 2057 3863 Sub-total 326 Miscellaneous (5% of total 453 6521 Total Costs 9055 14239 18673 Gross Income ton 23110 14097 0.610.8018488 a. Main Product 180 0,79 142 1.03 185 b. By-product ton 7718 Net Profit 9618

District: Jhapa

Crop:Potato						
		Unit	Without		With P	roject
	Unit	Price	Quant-	Value	Quant-	Value
		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost						
a.Labor Cost						}
Labor	day	22	311	6842	338	7436
Bullock Labor		68	27	1836	31	2108
Sub-total				8678		9544
b.Input Cost						
Seed	kg	9.11	950	8655	950	8655
Manure	kg	0.18	11500	2070	11500	2070
Fertilizer		1				
N	kg	26.32	300	7896	330	8686
P	kg	24.68	100	2468	110	2715
K		17.35	25	434	28	477
Agri-Chemicals	kg		0	150		300
Sub-total				21672		22902
Miscellaneous (5% of total)				1597		1708
Total Costs	[			31948		34154
2. Gross Income				35269		46560
a. Main Product	ton	3880	9.09	35269	12.00	46560
b. By-product	ton	0	0	0	0	0
B. Net Profit	Rs			3322		12406

District: Jhapa

Crop: Vegetables (Cauliflower)			Internal		101 th 15	
•		Unit	Without	Project		
	Unit	Price	Quant-	Value	Quant-	
		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost						
a.Labor Cost		]	·		,	
Labor	day	22	345	7590	385	8470
Bullock Labor		68	25	1700	29	1972
Sub-total	i		<u> </u>	9290		10442
b. Input Cost		1				
Seed	kg	273.3	0.5	137	0.5	137
Manure	kg	0.18	15000	2700	15000	2700
Fertilizer		l				
N	kg	26.32	50	1316	100	2632
P	kg	24.68	48	1185	80	1974
K	kg	17.35	25	434	50	868
Agri-Chemicals	kg			150		300
Sub-total				5921		8611
Miscellaneous (5% of total)				801		1003
Total Costs	}			16012		20055
2. Gross Income				47524	<b></b>	84590
a. Main Product	ton	7690	6.18	47524	11.00	84590
b. By-product	ton	0	0.30	0	0.50	0
B. Net Profit	Rs			31513	1	64535

Table 4.7.11 Cost and Return of Crops (Economic) - Mahottari

District:Mahottari Crop:Rainfed Paddy-Monsoon

crop. Natified raddy monsoon		Unit	Without	Pro.iect	With P	With Project	
	Unit	Price	Quant-	Value	Quant-		
		(Rs)	ity	(Rs)	ity	(Rs)	
1.Production Cost							
a.Labor Cost							
Labor	day	24	164	3936	175	4200	
Bullock Labor	day	68	44	2992	47	3196	
Sub-total	<u> </u>			6928		7396	
b.Input Cost							
Seed	kg	9.01	64	577	64	577	
Manure	kg	0.18	900	162	900	162	
Fertilizer	l <i>.</i>		]				
N	kg	27.17	35	951	40	1087	
Р	kg	25.35	10	254	20	507	
K	kg	18.00	0	0	15	270	
Agri-Chemicals			0	0		200	
Sub-total				1943		2802	
Miscellaneous (5% of total)				467		537	
Total Costs			}	9338		10735	
2. Gross Income				24733		30322	
a. Main Product	ton	10361	2.29	23675	2.80	29011	
b. By-product	ton	460	2.30	1058	2.85	1311	
B. Net Profit				15395		19587	

District:Mahottari

Crop: Irrigated Paddy (HYV) - Monsson

or optifized and the second		Unit	Without	Project	With P	roject
	Unit	Price	Quant-	Value	Quant-	
		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost						
a.Labor Cost			]			
Labor	day	24	159	3816	175	4200
Bullock Labor	day	68	41	2788	47	3196
Sub-total				6604		7396
b.Input Cost	[					
Seed	kg	9.01	60	541	60	541
Manure	kg	0.18	2100	378	2100	378
Fertilizer						
N	kg	27.17	62	1685	80	2174
P	kg	25.35	20	507	40	1014
K	kg	18.00	10	180	20	360
Agri-Chemicals			0	0		200
Sub-total				3290		4666
Miscellaneous (5% of total)				521		635
Total Costs	[			10415		12697
2. Gross Income	J		]	29231		36837
a. Main Product	ton	10361	2.70	28016	3.40	35227
b. By-product	ton	460	2.64	1214	3.50	1610
B. Net Profit				18816		24140

District:Mahottari

Crop: Irrigated Paddy (HYV) - Spring Paddy Unit Without Project With Project UnitPrice Quant-Value Quant- Value (Rs)ity (Rs) (Rs)ity Production Cost a.Labor Cost 24 day 100 114 2736 2400 Labor 68 3196 Bullock Labor llay 42 2856 47 Sub-total 5256 5932 b. Input Cost 9.01 60 541 60 541 Seed kg 2000 0.18 360 2000 360 Manure kg Fertilizer N 27.17 25.35 70 50 1359 1902 kg . 15 380 30 761 kg 180 18.00 K 10 20 360 kg 200 0 0 Agri-Chemicals Sub-total 2819 4123 425 529 Miscellaneous (5% of total) 8500 10584 Total Costs 32967 38983 Gross Income a. Main Product 3.05 37300 10361 31601 3.60kg. 2.97 3.66 460 1366 1684 b. By-product kg. 28399 24467 B. Net Profit

District:Mahottari

-		
Cron	٠	Maize

orob:warze						
		Unit	Without	Project	With P	roject
	Unit	Price	Quant-	Value	Quant-	Value
		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost						
a. Labor Cost						
Labor	day	24	125	3000	150	3600
Bullock Labor	day	68	32	2176	38	2611
Sub-total				5176		6211
b. Input Cost						
Seed	kg	26.51	28	742	28	742
Manure	kg	0.18	2100	378	2100	378
Fertilizer						
N	kg	27.17	60	1630	80	2174
Р		25.35	10	254	30	761
К		18.00	0	0	20	360
Agri-Chemicals				25		200
Sub-total				3029		4614
Miscellaneous (5% of total)				432		570
Total Costs	[	[		8637		11395
2. Gross Income				19839		26469
a. Main Product	ton	9959	1.95	19420	2.60	25893
b. By-product	ton	180	2.33	419	3.20	576
B. Net Profit				11203	l	15074

District:Mahottari

rop:Wheat	}	Unit	Without	Project	With Project				
•	Unit	Price	Quant-	Value		Value			
		(Rs)	ity	(Rs)	ity	(Rs)			
Production Cost									
a. Labor Cost	]	1	]						
Labor	day	24	98	2352	116	2784			
Bullock Labor	day	68	47	3196	55	3740			
Sub-total		L		5548		652			
b. Input Cost	<u>l</u>	<u>[</u>	<u> </u>	l					
Seed	kg	21.5	120	2580	120	258			
Manure	kg	0.18	1800	324	1800	324			
Fertilizer	}								
N	kg .	27.17	65	1766	70	190			
P	kg	25.35	20	507	40	101			
K	kg	18.00	10	180	20	36			
Agri-Chemicals	<u> </u>	l	0	0		20			
Sub-total				5357	<b></b>	638			
Miscellaneous (5% of total)			1	574	<b>.</b>	67			
Total Costs			<u> </u>	11479	<b>.</b>	1358			
. Gross Income	J	<b> </b>		19212		3375			
a. Main Product	ton	12704	1.48	18802	2.60	3303			
h By-product	ton	270	1 52	1 410	9 67	7			

District:Mahottari Crop:Lentil & Pulses

Crop:Lentil & Pulses						
1.4		Unit	Without	Project	With P	roject
	Unit	Price	Quant-	Value	Quant-	Value
		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost						
a.Labor Cost	l	<u> </u>	<u> </u>	<u> </u>		
Labor	day	24	60	1440	71	1704
Bullock Labor	day	68	12	816	12	816
Sub-total				2256		2520
b. Input Cost	l	l:	<b>]</b>			
Seed	kg	16.39	35	574	35	574
Manure	kg	0.18	1200	216	1200	216
Fertilizer	l	<u> </u>			·	
N	kg	27.17	]7.	190	25	679
P	kg	25.35	10	254	40	1014
K	kg	18.00	0	0	0	0
Agri-Chemicals	kg	l	0	0		200
Sub-total		[		1233		2683
Miscellaneous (5% of total)		ļ		184	<u> </u>	274
Total Costs				3673	[	5477
2. Gross Income	]	<b>]</b>		9086		16657
a. Main Product	kg	14940	0.60	8964	1.10	16434
b. By-product	kg	230	0.53	122	0.97	223
B. Net Profit				5413	<u> </u>	11180

District: Mahottari Crop: Mustard (Oilcrops)

Crop: Mustard (Ullcrops)		Unit	Without	Pro ject	With P	ro ject
	[[n]+	Price:	Quant-	Value	Quant-	
	Ուլւ		1 .			(Rs)
		(Rs)	ity	(Rs)	ity	(ILS)
1.Production Cost						
a.Labor Cost		]	<u> </u>			
Labor	day	24	86	2064	112	2688
Bullock Labor	day	68	30	2040	35	2380
Sub-total			}	4104		5068
b. Input Cost						
Seed	kg	20.04	20	401	20	401
Manure	kg	0.18	2500	450	2500	450
Fertilizer	.,,,,,	}	}			
N	kg	27.17	35	951	50	1359
P	kg	25.35	10	254	30	761
К	kg	18.00	0	0	30	540
Agri-Chemicals	]	}	0	0		200
Sub-total				2055		3710
Miscellaneous (5% of total)				324	]	462
Total Costs			Ţ	6483	<b>.</b>	9240
2. Gross Income	[			12805		18969
a. Main Product	kg	23480	0.54	12679	0.80	18784
b. By-product	kg	180	0.70	126	1.03	185
B. Net Profit				6322		9730

District:Mahottari

Crop:Potato							
		Unit	Without	Project	roject With Projec		
	Unit	Price	Quant-	Value	Quant-	Value	
		(Rs)	ity	(Rs)	ity	(Rs)	
1.Production Cost				,		2.2	
a.Labor Cost							
Labor	day	24	316	7584	342	8208	
Bullock Labor	day	68	42	2856	48	3264	
Sub-total				10440		11472	
b. Input Cost							
Seed	kg	7.29	990	7217	990	7217	
Manure	κg	0.18	15100	2718	15100	2718	
Fertilizer		l	]		<b>.</b>		
N	kg	27, 17	300	8151	310	8423	
Р	kg	25.35	100	2535	110	2789	
K	kg	18.00	50	900	50	900	
Agri-Chemicals	l		0	0	<b>.</b>	300	
Sub-total				21521	<u>]</u>	22346	
Miscellaneous (5% of total)		1		1682	l	1780	
Total Costs		[		33643	1	35598	
2. Gross Income		1		45662		54360	
a. Main Product	ton	4530	10.08	45662	12.00	54360	
b. By-product	ton	0	0	0	0	0	
8. Net Profit				12019		18762	

District:Mahottari

Crop: Vegetables (Cauliflower)

Crop. resectables (Gaulillower)	۲	11			m	
į		Unit	Without			
	∥nit	Price	Quant-	Value	Quant-	Value
	}	(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost						
a.Labor Cost		ĺ,	]			
Labor	day	24	330	7920	368	8832
Bullock Labor	day	68	23	1564	27	1836
Sub-total		l		9484		10668
b. Input Cost		}				
Seed	kg	273.3	0.5	137	0.5	137
Manure	kg	0.18	14500	2610	14500	2610
Fertilizer		}				
N ·	kg	27.17	50	1359	100	2717
P	kg	25.35	48	1217	80	2028
K	kg	18.00	25	450	50	900
Agri-Chemicals		]		300		500
Sub-total				6072		8892
Miscellaneous (5% of total)				819		1029
Total Costs				16375		20589
2. Gross Income	l			60000		72000
a. Main Product	ton	6000	10.00	60000	12.00	72000
b. By-product	ton	0	0.30	0	0.50	0
B. Net Profit				43625		51411

District:Mahottari

Crop:Onion

OI OP OUTOU							
		Unit	Without	Project	With P	Project	
	Unit	Price	Quant-	Value	Quant-	Value	
The second second second		(Rs)	ity	(Rs)	ity	(Rs)	
1.Production Cost							
a.Labor Cost							
Labor	day	24	430	10320	480	11520	
Bullock Labor	day	68	29	1972	29	1972	
Sub-total				12292		13492	
b.Input Cost							
Seed	kg	204.9	8.0	1640	8.0	1640	
Manure	kg	0.18	30000	5400	30000	5400	
Fertilizer							
N	kg	27.17	55	1494	66	1793	
P		25.35	45	1141	54	1369	
K	kg	18.00	60	1080	70	1260	
Agri-Chemicals			1	500		600	
Sub-total				11255		12062	
Miscellaneous (5% of total)				1239		1345	
Total Costs				24786		26899	
2. Gross Income				41400		53820	
a. Main Product	ton	4140	10.00	41400	13.00	53820	
	ton	0	0.00	0	0.50	0	
B. Net Profit				16614		26921	

Table 4.7.12 Cost and Return of Crops (Economic) -Banke

Crop:Rainfed Paddy-Monsoon						
		Unit	Without	Project	With Pr	
i l	Init	Price	Quant-	Value	Quant-	Value
·		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost		<u>.</u>				
a. Labor Cost	<b></b>					
Labor	day	25	156	3900	165	4125
Bullock Labor	day	68	44	2992	48	3264
Sub-total		<u> </u>		6892		7389
b. Input Cost						
	kg	9.59	65	623	65	623
Manure	kg	0.18	570	103	800	144
Fertilizer				ļ		
N	kg	27.91	45	1256	40	1116
P	kg	26.28	10	263	20	526
K	kg	18.57	0	0	15	279
Agri-Chemicals		1	0	] 0		200
Sub-total			]	2245	1	2888
Miscellaneous (5% of total)		1		481	1	541
Total Costs	ļ	1		9618	1	10818
2. Gross Income	1			21552		28806
a. Main Product	ton	10584	1.95	20586	2.60	27518
b. By-product	ton	460	2.10	966	2.80	1288
B. Net Profit	1			11934		17989

District:Banke Crop:Irrigated Paddy(HYV)-Monsson

Crop: Iffigated raddy (iiiv) the	11330		Without	ro ject	With Pr	n iect
				Value	Quant-	
·	Unit	Price	Quant-			
		(Rs)	ity	(Rs)	ity	(Rs)
I.Production Cost						
a.Labor Cost	<b>[</b> ,	[,,,,,,,,,,	ļ			<u> </u>
Labor	day	25	162	4050	179	4475
Bullock Labor	day	68	46	3128	55	3740
Sub-total				7178		8215
b. Input Cost	]	l				
Seed	kg	9.59	64	614	64	614
Manure	kg	0.18	400	72	400	72
Fertilizer		J				
N	kg	27.91	50	1396	80	2233
Р	kg	26.28	15	394	40	1051
K	kg	18.57	10	186	20	371
Agri-Chemicals			0	0	1	200
Sub-total				2661	<u> </u>	4541
Miscellaneous (5% of total	)			518	]	671
Total Costs	-	1		10357	<u> </u>	13428
2. Gross Income				23367	]	38608
a. Main Product	ton	10584	2.12	22438	3.50	37044
b. By-product	ton	460	2.02	929	3.40	1564
3. Net Profit				13010		25180

Crop: Irrigated Paddy (HYV) -Sp			Without	Pro.iect	With P	ro.iect
	Unit	Price				
		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost						
a.Labor Cost			}			
Labor	day		]			
Bullock Labor	day	<u> </u>				
Sub-total	L		<u> </u>			<b></b>
b. Input Cost		ļ. <i></i>		<b>.</b>		
Seed	kg		<b>]</b>	<u> </u>		
Manure	kg .	ļ		ļ		
Fertilizer	ļ	<b></b>		<b>1</b>		
N	kg	1		ļ		ļ
P	kg					
К	kg			<i>.</i>		
Agri-Chemicals	ļ <i></i>	J		ļ		
Sub-total	ļ		ļ	<u> </u>		ļ
Miscellaneous(5% of total)	ļ			<u> </u>		
Total Costs	ļ					
2. Gross Income	ļ	ļ	ļ			
a. Main Product	ton	<b></b>	[			Į
b. By-product	ton		J		<u>.</u>	·
B. Net Profit	1	!	1	1	l	[

District:Banke Crop:Maize

V.	υp	• ITK	TT C	7
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ı				

Crop:Maize	,					
İ	}	Unit	Without 1	Project	With P	ro,ject
	Unit	Price	Quant-	Value	Quant-	Value
		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost					.,	
a.Labor Cost			ļ		2	
Labor	day	25	132	3300	156	3900
Hired Labor	day	68	39	2652	46	3128
Sub-total	<u> </u>	[		5952		7028
b.Input Cost						
Seed	kg	26.37	26	686	26	686
Manure	kg	0.18	5640	1015	5640	1015
Fertilizer		l	<u> </u>			
N	kg	27.91	10	279	70	1954
P	kg	26.28	10	263	40	1051
K	kg	18.57	0	0	20	371
Agri-Chemicals	<u>]</u>	l	<u> </u>	0	.,	300
Sub-total			<u> </u>	2243	<u> </u>	5377
Miscellaneous (5% of total)	Ì			431		653
Total Costs				8626		13058
2. Gross Income	l		ļ	17030		27498
a. Main Product	ton	10302	1.61	16586	2.60	26785
b. By-product	ton	230	1.93	444	3.10	713
B. Net Profit				8404		14440

Crop: Wheat						
		Unit	Without	Project	With Pr	roject
i	Init	Price	Quant-	Value	Quant-	Value
ļ		(Rs)	ity	(Rs)	ity	(Rs)
I.Production Cost						
a. Labor Cost		l				
Labor	lay	25	120	3000	143	3575
Bullock Labor	day	68	39	2652	45	3060
Sub-total		1		5652		6635
b. Input Cost						
Seed	kg	23.9	125	2988	125	2988
Manure	kg	0.18	975	176	975	176
Fertilizer				]		
N	kg	27.91	30	837	50	1396
Р	kg	26.28	15	394	40	1051
K	kg	18.57	0	0	20	371
Agri-Chemicals	}	}	0	0	<b>.</b>	200
Sub-total				4395	l	6181
Miscellaneous (5% of total)				529	l	675
Total Costs				10575		13491
2. Gross Income				18598		27897
a. Main Product	ton	13049	1.40	18269	2.10	27403
b. By-product	ton	230	1.43	329	2.15	495
B. Net Profit				8022		14407

District:Banke Crop:Lentil & Pulses

Crop:Lentil & Pulses					10111 5	
		Unit	Without !	roject	With Pr	
	Unit	Price	Quant-	Value	Quant-	Value
		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost						
a. Labor Cost			]			
Labor	day	25	75	1875	90	2250
Bullock Labor	day	68	14	952	16	1.088
Sub-total	l			2827	0	3338
b. Input Cost				. , , ,		
Seed	kg	16.85	23	388	23	388
Manure	kg	0.18	450	81	450	81
Fertilizer						
N	kg	27.91	10	279	25	698
: P	kg	26.28	0	0	40	1051
K	kg	18.57	0	]0	0	0
Agri-Chemicals			0	0		200
Sub-total				748		2418
Miscellaneous (5% of total)	<u> </u>			188		303
Total Costs	Ì			3763		6058
2. Gross Income	ļ			14826	<b>.</b>	21807
a. Main Product	ton	21600	0.68	14688	1.00	21600
b. By-product	ton	230	0.60	138	0.90	207
B. Net Profit				11063		15749

Crop:Mustard (Oilcrops)						
		Unit	With P	roject		
·	Unit	Price	Quant-	Value	Quant-	Value
		(Rs)	i.ty	(Rs)	ity	(Rs)
1.Production Cost						
a. Labor Cost		]				
Labor	day	25	110	2750	132	3300
Bullock Labor	day	68	30	2040	36	2448
Sub-total		}		4790		5748
b. Input Cost						
Seed	kg	27.33	20	547	20	547
Manure	kg	0.18	3600	648	3600	648
Fertilizer		]				
N	kg	27.91	10	279	. 50	1396
P		26.28	0	0	40	1051
K		18.57	0	0	30	557
Agri-Chemicals			0	0		200
Sub-total		1		1474		4398
Miscellaneous (5% of total)				330		534
Total Costs				6593		10680
2. Gross Income				11309		16417
a. Main Product	ton	20330	0.55	11182	0.80	16264
b. By-product	ton	180	0.71	128	0.85	153
3. Net Profit				4716	<u> </u>	5737

District:Banke

Crop:Potato		Unit	Without	Pro ject	With P	ro.iect
	( Unit	Price	Quant-	Value	Quant-	
		(Rs)	ity	(Rs)	ity	(Rs)
.Production Cost						
a.Labor Cost	1					
Labor	day	25	367	9175	390	9750
Bullock Labor	day	68	50	3400	59	4012
Sub-total				12575		13762
b. Input Cost		[				
Seed	kg	7.29	560	4082	560	4082
Manure	kg	0.18	8000	1440	8000	1440
Fertilizer	]	]	<u> </u>	<i></i>		<i></i>
N	kg	27.91	40	1116	45	1256
P	kg	26.28	20	526	22	578
K	kg	18.57	0	0	0	0
Agri-Chemicals	<u> </u>	]	0	0		300
Sub-total	L			7164		7657
Miscellaneous (5% of total)				1039		1127
Total Costs	[	1	<u> </u>	20778		22546
2. Gross Income			l	43128		50400
a. Main Product	ton	3600	11.98	43128	14.00	50400
b. By-product	ton	0	0	0	0	0
B. Net Profit			<u> </u>	22350	<u> </u>	27854

Crop:Vegetables(Cauliflower)						
·		Unit	Without	Project	With P	roject
	Unit	Price	Quant-	Value	Quant-	Value
		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost			. <b></b>			
a. Labor Cost						
Labor	day	25	320	8000	356	8900
Bullock Labor	day	68	25	1700	29	1972
Sub-total	l			9700		10872
b. Input Cost		l	<u> </u>			
Seed	kg	501	0.5	251	0.5	251
Manure	kg	0.18	15000	2700	15000	2700
Fertilizer			]	0		
N	kg	27.91	50	1396	80	2233
P	kg	26.28	48	1261	70	1840
K	kg	18.57	25	464	40	743
Agri-Chemicals				500		300
Sub-total	1			6572		8066
Miscellaneous (5% of total)				856		997
Total Costs				17128		19934
2. Gross Income		[		62020	l	77000
a. Main Product	ton	7000	8.86	62020	11.00	77000
b. By-product	ton	0	0.50	0	0.80	0
B. Net Profit	1	1		44892	L	57066

Table 4.7.13 (1) Calculation of BIRR (Jhapa)

Year   1   1   2   3   4   5   6   7   8   9   10   11   12   13   14   15   16   16   16   16   16   16   16	nitialReinvest. In Cost C. 138 166 154 116 254 256 252 185 160 0 0 0 0 0 0	eplace-	Cost 0 & M Cost 0 0 0 0 0 10 15 22 29 36 36 36 36 36 36	Total  (1)  138  166  154  116  254  266  267  274  214  196  36  58  52	Project Benefit (2) 0 0 0 0 0 0 0 257 310 380 432 473 508 531	Net Benefit (2)-(1) -138 -166 -154 -116 -254 -9 43 106 218 277 472	Project Cost 125, 5 137, 2 115, 7 79, 2 157, 7 150, 2 137, 0 127, 8 90, 8	0. 10 Project Benefit 0. 0 0. 0 0. 0 0. 0 145, 1 159, 1 177, 3 183, 2	orth Val 0. 20 Net Renefit -115. 0 -115. 3 -89. 1 -55. 9 -102. 1 -3. 0 12. 0 24. 7 42. 2 44. 7 63. 5	0. 21 Net Renefit -114. 0 -113. 4 -86. 9 -54. 1 -97. 9 -2. 9 11. 3 23. 1 39. 2 41. 2
Year   1   1   2   3   4   5   6   7   8   9   10   11   12   13   14   15   16   16   16   16   16   16   16	nvest. m 138 166 154 116 254 256 252 252 185 160 0 0 0	ent	Cost 0 0 0 0 0 10 15 22 29 36 36 36	(1) 138 166 154 116 254 266 267 274 214 196 36 58	(2) 0 0 0 0 0 257 310 380 432 473 508	(2)-(1) -138 -166 -154 -116 -254 -9 43 106 218 277 472	Project Cost 125, 5 137, 2 115, 7 79, 2 157, 7 150, 2 137, 0 127, 8 90, 8	Project Renefit 0.0 0.0 0.0 0.0 145.1 159.1 177.3 183.2	Net	Net Renefit -114.0 -113.4 -86.9 -54.1 -97.9 -2.9 11.3 23.1 39.2
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	Cost C 138 166 154 116 254 256 252 252 185 160 0 0	081 0 0 0 0 0 0 0 0 0 0 2 22 16	0 0 0 0 10 15 22 29 36 36 36	138 166 154 116 254 266 267 274 214 196 36 58	0 0 0 0 0 257 310 380 432 473 508	-138 -166 -154 -116 -254 -9 43 106 218 277 472	125, 5 137, 2 115, 7 79, 2 157, 7 150, 2 137, 0 127, 8 90, 8	0. 0 0. 0 0. 0 0. 0 0. 0 145, 1 159, 1 177, 3 183, 2 182, 4	-115.0 -115.3 -89.1 -55.9 -102.1 -3.0 12.0 24.7 -42.2	-114. 0 -113. 4 -86. 9 -54. 1 -97. 9 -2. 9 11. 3 23. 1 39. 2
4 5 6 7 8 9 10 11 12 13 14 15	166 154 116 254 256 252 252 185 160 0 0	0 0 0 0 0 0 0 0 0 2 22 16	0 0 0 10 15 22 29 36 36 36	166 154 116 254 266 267 274 214 196 36	310 380 432 473 508	-166 -154 -116 -254 -9 43 106 218 277 472	137, 2 115, 7 79, 2 157, 7 150, 2 137, 0 127, 8 90, 8	0, 0 0, 0 0, 0 0, 0 145, 1 159, 1 177, 3 183, 2	-115. 3 -89. 1 -55. 9 -102. 1 -3. 0 12. 0 24. 7 -42. 2 -44. 7	-113. 4 -86. 9 -54. 1 -97. 9 -2. 9 11. 3 23. 1 39. 2 41. 2
4 5 6 7 8 9 10 11 12 13 14 15	154 116 254 256 252 252 185 160 0 0	0 0 0 0 0 0 0 0 2 22 16	0 0 10 15 22 29 36 36 36	154 116 254 266 267 274 214 196 36	310 380 432 473 508	-154 -116 -254 -9 43 106 218 277 472	115. 7 79. 2 157. 7 150. 2 137. 0 127. 8 90. 8	0, 0 0, 0 0, 0 145, 1 159, 1 177, 3 183, 2	-89. 1 -55. 9 -102. 1 -3. 0 12. 0 24. 7 42. 2	-86. 9 -54. 1 -97. 9 -2. 9 11. 3 23. 1 39. 2 41. 2
4 5 6 7 8 9 10 11 12 13 14 15	116 254 256 252 252 185 160 0 0	0 0 0 0 0 0 0 22 16 16	0 0 10 15 22 29 36 36 36	116 254 266 267 274 214 196 36 58	310 380 432 473 508	-116 -254 -9 43 106 -218 -277 472	79, 2 157, 7 150, 2 137, 0 127, 8 90, 8 75, 6	0, 0 0, 0 145, 1 159, 1 177, 3 183, 2	-55, 9 -102, 1 -3, 0 12, 0 24, 7 42, 2 44, 7	-54, 1 -97, 9 -2, 9 11, 3 23, 1 39, 2 41, 2
5 6 7 8 9 10 11 12 13 14 15	254 256 252 252 185 160 0 0	0 0 0 0 0 0 0 22 16 16	0 10 15 22 29 36 36 36 36	254 266 267 274 214 196 36 58	310 380 432 473 508	-254 -9 43 106 218 277 472	157. 7 150. 2 137. 0 127. 8 90. 8 75. 6	0, 0 145, 1 159, 1 177, 3 183, 2 182, 4	-102. 1 -3. 0 12. 0 24. 7 42. 2 44. 7	-97, 9 -2, 9 11, 3 23, 1 39, 2 41, 2
6 7 8 9 10 11 12 13 14 15	256 252 252 185 160 0 0	0 0 0 0 0 0 22 16 16	10 15 22 29 36 36 36 36	266 267 274 214 196 36 58	310 380 432 473 508	-9 43 106 218 277 472	150, 2 137, 0 127, 8 90, 8 75, 6	145. 1 159. 1 177. 3 183. 2 182. 4	-3. 0 12. 0 24. 7 42. 2 44. 7	-2. 9 11. 3 23. 1 39. 2 41. 2
7 8 9 10 11 12 13 14 15	252 252 185 160 0 0 0	0 0 0 0 22 16 16	15 22 29 36 36 36 36	267 274 214 196 36 58	310 380 432 473 508	106 218 277 472	127. 8 90. 8 75. 6	177, 3 183, 2 182, 4	12, 0 24, 7 42, 2 44, 7	11. 3 23. 1 39. 2 41. 2
11 12 13 14 15 16	252 185 160 0 0 0	0 0 0 22 16 16	22 29 36 36 36 36	214 196 36 58	432 473 508	218 277 472	90, 8 75, 6	183, 2 182, 4	42, 2 44, 7	39, 2 41, 2
11 12 13 14 15 16	160 0 0 0 0 0	16 16	36 36 36 36	196 36 58	473 508	277 472	75. 6	182.4	44.7	41.2
11 12 13 14 15 16	0 0 0 0	16 16	36 36 36	36 58	508	472	12. <u>0</u> . 0			41.4
12 13 14 15 16	0 0 0 0 0	16 16	36 36	58						<u>58. 0</u>
13 14 15 16	0 0 0 0	16 16	36			473	18, 5			48. 0
14 15 16	0 0 0	16		3/1	549	497	15, 1	159.0	46. 5	
15 16	ď		<b>ડ</b> ા	52	561	509	13. 7	147.7	39, 6	35, 3
16	0		36	36	569	533	8, 6		34, 6	30, 5
4 774		<u>Q</u> _	36	36	<u>573</u>	537	7.8		29. 0	<b>=======</b>
17	g	<u>g</u>	36	36	<u>585</u>	549 549	7. 1	115.7 105.2	24. 7 20. 6	21. 5 17. 8
18	g	<u>u</u>	36 36	<u>36</u> 36	585 585	549 549	6, 5 5, 9		17. 2	
19 20	<u>0</u>	74	36	110	585	475	16. 4	87.0		10.5
21	n d	74	36	110	585	475	14. 9		10, 3	
22	<u>0</u> _	96	36	132	585	453	16, 2		8. 2	6, 8
23	0	90	36	126	585	459	14. 1	65. 3	6. 9	
24	0	90	36_	126	585	459	12.8	59. 4		4.
25	<u> </u>	95	36	131	<u>585</u>	454	12. 1	54. (		3, 9
26	0	29	36 36	65	585 585	520 520	5, 5 5, (			3. 3. 1
27 28	0	29 29	36	65 65	585		4.5		3. 2	
	ď	29	36	65	585		4.	36, 9		$\overline{2}$ .
30	ď	25	36	61	585		3. 5	33, 5	2.2	21
31	0	0	36	36	585	549	1.9		1.5	1.
32	0	22	36	58	585	527	2.	27. 7	1. 5	
33	g	16	36	52	585		2.3	25. 2	1. {	
34	<u> </u>	16	36 36	52	585 585		2. ( 3. (		3 - · · · · · · · · · · · · · · · · · ·	
35 36	0	74 74		110 110						
36 37	o	74	36 36	110	585	475 475	3, 6 3, 7	17. 2	0.7	3 n.
38	Ď	74	36	110	585	475	2.9	) 15, 6	0, 3 0, 4 0, 3	0.
39	0	74	36	110	585	475	2.	[ 14. 2	0.4	Ĭ <u>Ö</u> .
40	<u>g</u>	66	36	102 36	585	483	$\frac{2}{0}$	3 12.5	<u> </u>	3 <u>V</u> .
41	<u>q</u>	0	36	36	585 585	549 527	0,	11.8		0, 1 0, 3 0, 3 0,
42	0	22 16	36 36	58 52	585 585	<u>54</u> 1	0,	1 10. 3 9. 7	n 7	2 0.
43 44	<u>u</u>	16 16	36	5 <u>2</u>	585	527 533 533	0.	8. 8	0. 3 0. 3	$ \vec{0} $
45	ď		36 36	36	585	al 549	U,	8. (	) <u> </u>	2 0.
46	0	0	36	36	585	549	0,	4 7.3	3 <b>1</b> 1	l0.
47	q	0	36	36	585	549	0	1 7.3 4 6.6 4 6.6	<u>Q.</u>	1 0.
48	0	0	36	36	585	549	Q	4 6. (		0.
49	<u> </u>	0	36	36	585	549		3 5. 5 2 5. 1		1 <u>0.</u> 0 0.
50 Total	1, 933	99 1. 357	36 1, 552	135 4, 842	585 25, 033			2 5. I 4 2. 985. S		0 0. 4 -0.
Lingil	1. 200	1.99/	<u>, 1, (Ji)/2)</u>	4. 042	a Code Uili	<u>a - 2U- 171</u>		BIRR=		21.
	a Maria							B/C Rat	io at 10	X 2.0

4-355

Table 4.7.13 (2) Calculation of EIRR (Mahottari)

								(Unit:		
	Proi					Net			orth Val 0.13	ue 0, 14
	InitialRepla	ce- 0 &	iM( T	otal B	enef i t	Benefit	D. Rate=	0, 10 Project	Net	Net
Year	Invest, ment	0.		1)	(2)	(2)-(1)	Cost	Renefit	Renefit	Benefit
	Cost Cost	0	··· <u>//</u>	93	\ <u>\'\'</u>	-93			-82, 3	<u>-81, 6</u>
l	93 115	<u>u</u>	_ <del>u</del>	115		-115	95. C	0, 0	90. 1	88. 5
2	111	<u>d</u>	_ŭ		<b>d</b>	-111	83, 4	0.0	-7 <u>6</u> , 9	<u>-74. 9</u>
	65		Ō	_65	0	-65		0.0	- <u>39, 9</u>	-38, 5
		0	_0	159	0	-159		0. C	- <u>86. 3</u> -34. 6	-82, 6 -32, 8
6	157	<u> </u>	6	163	91			51. 4 67. 7	-15.7	-14. 8
7	157	0	12	169	$\frac{132}{162}$	-37 22				
8	121	0	19 19	140 137	183	46		77.6		14.1
(	118	<u>u</u>	19	10 101	193	174		74.4	51.3	46. 9
	1 d	Ö	19	19 19	198	179		69, 4	46, 7	
12		18	19	37	203	166		64.	38. 3	34. 5
1 <i>5</i>	ă ă	18	_19	37	203	166	10.	7 58. 8	33. 9	30.2
		0	19	19	203	184				29, 4 25, 8
1!	5 0	0	19	19	203	$\frac{18^{4}}{18^{4}}$		5 48.6 1 44.5	26.	
19	<u> </u>	<u> </u>	19	<u> </u>	203 203	18	4. 3.	8 40.	$\frac{20.0}{23.0}$	
	79	<u>0</u>	19 19	19 19	203 203	18		4 36.	20.	17. 4
1		<u>ŭ</u>	19	iğ	203	18		1 33.	2 18.1	15. 3
$\frac{1}{2}$		46	19	65	203		8 9.	730,	2 12.	
$\frac{2}{2}$	<u> </u>	46	19	65	203	13	8 8.	827.		8, 8
$\frac{2}{2}$	2 0	64	19	83	203			2 24.	<u>8.</u>	$\frac{6}{6}$
2	3 0	64	_19	83	203		<u> 9</u>	3 22.		2 5, 9 3 5, 9
2	4 0	46	19	65	203	13		6 20. 8 18.	6 7 7 6.	5. 3 6 5. 3
2		44	19	63 63	203 203			$\frac{3}{3} = 17.$		8 4,6
$[-\frac{2}{3}]$	<u>6</u> 0	44	19 19	63	203			8 15.	<b>5l</b> 5.	2 4.1
2	27 <u> </u>	44 44	19	63	20			4 14.	1 4.	<u>6</u> 3, 6
	28 0 29 0	28	19	47	20		6 3,	0 - 12.	8 4.	5 3, 5
	30 0	0	19	19	20	318	341.	1 11.	64.	$\frac{7}{2}$ $\frac{3}{2}$ $\frac{6}{2}$
	31 0	0	19	19	20		341.	0 10	6 4. 6 3.	2 3, 2 3 2, 5
	32 0	18	19	37	20			8 <u>9.</u> 6 8.	6 3. 7 2.	9 2. 2
	<u> 33                                   </u>	18	19	37	20 20		36 1. 34 0.			9 2.1
	34 0	0	19 19	19 65	<u>20</u> 20		20 9	2 7	2 1.	9 1.4
	350	46		65	<u>20</u>	3 1	38 2	6.	6 1.	7 1. 2
	36 0 37 0	46 46	19 19	65	20 20	3 1	$\tilde{1}$	. 9I <u>6</u> .	<u>U 1.</u>	<u> </u>
	38 0	46	19	65	$\sim 20$	31 - 1	381		4 1.	3 0. 9
\ <u> </u>	39 0	46	19	65	20	31	38 1	, 64	9 1. 5 1.	2 0, 8 4 1, 0 2 0, 8 0 0, 7
	40 0	0	19	19	20	3 1	84 0	. 44		4 1. (
1	41 0	0	19	19	20	1	84 0 66 0	. 4 4	7	n
]	42 0 43 0	18 18	_19_	37 37	20 20	[일	660 660	6 3	.7 1 4 0	9 0.6
1	430	Ig	19 19	19	20		84 0	$\frac{3}{3}$	. 11 0	8 0.6
	44 0 45 0	0 28	19	47	20		560	$\begin{bmatrix} \underline{6} \\ \underline{2} \end{bmatrix}$	. 8 0	al n
	45 0 46 0	28	19	47	20	)31	56 0	).6 2	.8 <u>0</u>	6 0. 5 0. 4 0. 4 0. 3 0
	47 0	28	19	47	20	031	560	). 51 2	. 3 0	. 5 0.
	48 0	28	19	47	20	03 1	.56 (	), 5 2	. 1 0	. 4 0.
1	49 0	28	19	47	2	031	56	]. 4]1	. 90 . 70	. 4 <u> </u>
	50 0	62	19	81			22 ( )35 858	). 7 3 (1 ) 1 (1		8 -24
ĽΩ	tall 1.096	1.010	835	2. 941	8.8	76 5. S	1951 KEVI	BIRR=	<u> </u>	13.
								B/C Ra	tio at 1	0% 1.2
					1.0			,	<del>-</del>	

Table 4.7.13 (3) Calculation of BIRR (Banke)

	D		n n t	<del></del> r	Draisat	Mot			Rs. Mill	
ŀ	InitialRep		ost 0 & M		Project Renefit		D. Rate=	resent W O. 10	o. 14	ue 0, 19
Year	Invest. men			10141	Beller I t	Deliciti		Project		Net
	Cost Cos		Cost	(1)	(2)	(2)-(1)	Cost	Renefit	Benefit	Renefi
1	93	0	<u>0</u>	93	0	-93	84, 5 95, 9	<u>0. 0</u>	-81, 6 -89, 3 -75, 6 -36, 1	-80, 9
2 3	116	<u> </u>	g_	116	0	116	95. 9	<u>0. g</u>	<u>-89. 3</u>	
<u>3</u>	112 61	0	<u>0</u>	112 61	0	112 61	84. 1 41. 7	0, 0 0, 0	-75. b	-73. ( -34. (
5	173		ď	173	n	-173	4.00	0. 0	-89. 9	-86.
- Ğ	170	ŭ	Š	175	95	-80	107. <u>4</u> 98. 8	53.6	-36, 4	-34.
7	170	Q	10	180	126	-54	92, 4	64.7	-36, 4 -21, 6 7, 7	-20,
8	121	0	15	136	<u>158</u>	22	63, 4	<u>73. 7</u>	7.7	7. 1 45. 1
9	<u> </u>	<u>g</u>	15 15	15	174	159	6. 4 5. 8	73.8	48. 9 46. 9	45.
$\begin{array}{r} -10 \\ -11 \end{array}$	0	. u	15	15 15	189 197	$\begin{array}{r} 174 \\ 182 \end{array}$	5. 8 5. 3	72. 9 69. 0	45. 9 43. 1	43. ( 39.
19	<u>`</u>	18	15	33	204	171	<u>5, 3</u> 10, 5	65, 0	35. 5	32.
12 13	Ŏ	18	iš	33	206	173	9, 6	59. 7	35, 5 31, 5	28,
14	Q	0	15	15	210	195	3, 9	55, 3	31.1	27.
15	0	0	15	15	210	195	3.6	55, 3 50, 3	27. 3	24.
16	Q	0	15	15 15 15 15	210	195	3.3	45.7	24. 0	20.
	<u> </u>	<u> </u>	15	15	210	195	3.0	41.5	21.0	18.
18 19	0	0	15 15	10 15	210 210	195 195	2. 7 2. 5	37.8 34.3	18. 4 16. 2	15. 13.
20	<del>d</del>	48	15	63	$\frac{210}{210}$	147	9.4	31. 2	10. 7	
21	ŏ	48	iš	63	210	147	8.5	28. 4	9. 4	9. 7.
22	Q	66	15	81	210	129	10, 0		7. 2	6.
23	0	66	15	81	210	129	9, 0	23, 5	6.3	5.
24	O O	0	15	15	210	195	1.5		8.4	6.
25	<u> </u>	36	15	51	210	159	4.7	19.4	<u>6. 0</u>	4. 4. 3.
26	0	36 36	15 15	51 51	210 210	1 <u>59</u> 159	4, 3 3, 9	17. 6 16. 0	5. 3 4. 6	4.
27 28		36	is	51	210	159	3, 5	14.6	4.1	3. 3.
29	n n	ď	15	ĭ5	210	195	0. 9	13. 2	4, 4	3,
30	ď	Õ	15		210	195	0, 9	12.0	3, 8	2.
31	0	0	15	15	210	195	0, 8		3. 4	2.
32	<u> </u>	18	15	33	210	177	1.6		2.7	2.
33	<u> </u>	18	15	33	210	177	I.4	9, 0	2.3	<u>.</u>
34 35	<u> </u>	0 48	15 15	$\begin{array}{r} -15 \\ -63 \end{array}$	210 210	195 147		8. 2 7. 5	2. 3 1. 5	
<u> </u>	<u> </u>	40	15	<u>00</u>	210	147	2. 0	6.8	1 9	1
36 37	ď	48 48	15 15	63 63	210 210	147	1.9	6. 8 6. 2	1. 3	1. 0.
38	ď	48	15	63	210	147	1_7	5, 6	1. 0	U.,
39	i d		15	15	210	195	0.4	5, 6 5, 1	1. 2	0,
40	<u> </u>		15	15	210	195	0.3	4.6	1.0	<u> </u>
41	g_	10	15	15	210	195	0.3	4.2	0, 9 0, 7	0. 0.
42 43	0	18 18		33 33	210 210	177		3, 8 3, 5	0, 6	0. 0.
40	ď	0	15	15	210	195	0. 2	3, 2	0, <del>(</del>	0.
44 45	ă		15 15 15 15 15	34	210	176	0.5	2.9	0.5	1 0
46	<u> </u>	19 19 19	15	34	210	176	0.4	2.6 2.4	0.4	0.
47	10	19	15 15	34	210	176	0.4	2.4	0.4	0.
48	<u> </u>	19	15	34	210	176	0.4	2. 2	0.3	<u> </u>
49	<u>g</u>	0	15	15	210	195	0.1	2.0	0.3	<u> </u>
50 Total		65 813	15 660	80 2, 489	9, 119	130 6, 630		1, 122, 8	0.2	
TOTAL	1.010	<u>via</u>	gou	Z. 405	تلنيت	<u> </u>		BIRR=	14.2	14.

Table 4.7.14 Cost and Return of Crops(Financial) - Jhapa

District: Jhapa

Crop: Rainfed Paddy-Monsoon

or operatifical raday monisoon		Unit	Project	With Project		
	Unit	Price	Quant-	Value	Quant-	Value
· · ·		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost						
a.Labor Cost *			, , , ,			
Labor	day	32	46	1472	46	1472
Bullock Labor	day	100	16	1600	16	1600
Sub-total				3072		3072
b. Input Cost						
Seed	kg	10.00	62	620	62	620
Manure	kg	0.20	900	180	900	180
Fertilizer						
N	kg	12.17	30	365	40	487
P	kg	17.39	10	174	20	348
K	kg	14.17	0	0	15	213
Agri-Chemicals	kg		0	60		150
Sub-total		ļ		1399		1997
Miscellaneous (5% of total)				235		267
Total Costs	<u> </u>			4706	<u> </u>	5336
2. Gross Income				12021		18085
a. Main Product	ton	4790	2.33	11161	3.50	16765
b. By-product	ton	400	2.15	860	3.30	1320
B. Net Profit	Rs			7314		12749

Note:Hired labor

District:Jhapa

Crop: Irrigated Paddy (HYV) - Monsson

or op. irribacca radaj (irri). 310	11/2/20	**				
		Unit	Without	Project	With P	roject
	Unit	Price	Quant-	Value	Quant-	Value
		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost						
a.Labor Cost *						
Labor	day	32	63	2016	63	2016
Bullock Labor	}	100	11	1100	11	1100
Sub-total				3116		3116
b. Input Cost						
Seed	kg	10.00	56	560	56	560
Manure	ton	0.20	1650	330	1650	330
Fertilizer						
N	kg	12.17	46	560	80	974
Р	kg	17.39	15	261	40	696
K	kg	14.17	10	142	20	283
Agri-Chemicals	kg	}	0	75		200
Sub-total				1927	<b></b>	3043
Miscellaneous (5% of total)				265		324
Total Costs				5309		6483
2. Gross Income		·		13902		21080
a. Main Product	ton	4790	2.64	12622	4.00	19160
b. By-product	ton	400	3.20	1280	4.80	1920
3. Net Profit	Rs	<u> </u>		8593		14597

Note: Hired labor

District: Jhapa

		Unit	Without	Project	With P	Project	
	Unit	Price	Quant-	Value	Quant-	Value	
		(Rs)	ity	(Rs)	ity	(Rs)	
.Production Cost	]				7		
a.Labor Cost *							
Labor	day	32	30	960	30	960	
Bullock Labor	day	100	15	1500	15	1500	
Sub-total				2460		2460	
b. Input Cost	1	J					
Seed	kg	10.00	69	690	69	690	
Manure	кg	0.20	1090	218	1090	218	
Fertilizer	l						
N	kg .	12.17	40	487	70	852	
Р	kg	17.39	15	261	30	522	
K	kg	14.17	10	142	20	283	
Agri-Chemicals	kg :		0	75		200	
Sub-total				1872		2765	
Miscellaneous (5% of total)	L			228		275	
Total Costs				4560		5500	
2. Gross Income	<b></b>			7450		19962	
a. Main Product	ton	4790	1.41	6730	3.80	18202	
b. By-product	ton	400	1.80	720	4.40	1760	
3. Net Profit	Rs			2890		14462	

B. Net Profit Note:Hired labor

District:Jhapa Crop:Maize

crop:maize					Pa	
		Unit	Without	Project	With P	roject
language of the state of the st	Unit	Price	Quant-	Value	Quant-	Value
	Ì.	(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost						
a.Labor Cost *						
Labor	day	32	0	0	0	0
Bullock Labor		100	5	500	5	500
Sub-total				500		500
b. Input Cost						
Seed	kg	14.20	25	355	25	355
Manure	kg	0.20	2880	576	2880	576
Fertilizer			]:			
N	kg	12.17	25	304	80	974
P	kg	17.39	10	174	40	696
K	kg	14.17	0	0	20	283
Agri-Chemicals	kg	]		50		200
Sub-total				1459		3084
Miscellaneous (5% of total)				103		189
Total Costs				2062		3772
2. Gross Income				6327		13039
a. Main Product	кg	4590	1.31	6013	2.70	12393
b. By-product	kg	200	1.57	314	3.23	646
3. Net Profit	Rs	7		4265		9267

Note:Hired labor

District:Jhapa Cron:Wheat

Crop: Wheat					· · ·	
		Unit	Without	Project	With P	roject
·	Unit	Price	Quant-	Value	Quant-	Value
		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost						
a.Labor Cost *	]	]				
Labor	day	32	15	480	15	480
Bullock Labor	day	100	6	600	6	600
Sub-total	}	}		1080		1080
b.Input Cost						
Seed	kg	11.65	120	1398	120	1398
Manure	kg	0.20	1700	340	1700	340
Fertilizer	1	]	1	]		
N	kg	12.17	40	487	50	609
Р	kg	17.39	18	313	40	696
K	kg	14.17	0	0	20	283
Agri-Chemicals	kg		0	50		150
Sub-total	1			2588		3476
Miscellaneous (5% of total)				193		240
Total Costs	[			3861		4795
2. Gross Income				7165		12168
a. Main Product	ton	4250	1.59	6758	2.70	11475
b. By-product	ton	250	1.63	408	2.77	693
B. Net Profit	Rs			3304		7372
Maka Himad Jahan	-					

Note: Hired labor

District:Jhapa

Crop:Lentil & Pulses Unit Without Project With Project UnitPrice Value Quant- Value Quant-(Rs) (Rs) (Rs).Production Cost a.Labor Cost \* 32 576 18 576 Labor 100 Bullock Labor 0 576 0 Sub-total 576 b. Input Cost kg 18.00 22 396 396 Seed kg 0.20 300 60 300 60 Manure Fertilizer kg 12.17 25 15 183 304 20 17.39348 40 696 kg ....0 14.17 kg Agri-Chemicals 0 65 ĸġ Sub-total 986 1521 Miscellaneous (5% of total 82 110 1645 Total Costs 2207 9097 16677 . Gross Income ton 14940 0.60 8964 16434 a. Main Product 1.100.53b. By-product 133 0.97 243 250 ton 3. Net Profit 7452

Note: Hired labor

District:Jhapa

Crop: Mustard (Oilcrops)						
		Unit	Without	Project	With P	roject
	Unit	Price	Quant-	Value	Quant-	Value
		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost		<u> </u>	ļ			
a.Labor Cost *	ļ					
Labor	day	32	8	256	8	256
Bullock Labor	ļ	100	13	1300	13	1300
Sub-total	<u>[</u>	<b></b>		1556		1556
b. Input Cost	<u> </u>	l	<u> </u>			
Seed	kg	23.00	20	460	20	460
Manure	kg	0.20	2500	500	2500	500
Fertilizer	]	]	]			
N	kg	12.17	35	426	50	609
Р	kg	17.39	10	174	40	696
K	kg	14.17	0	0	30	425
Agri-Chemicals	kg		0	0		150
Sub-total	l			1560		2839
Miscellaneous (5% of total)				164		231
Total Costs				3280		4627
2. Gross Income				14255		18694
a. Main Product	ton	23110	0.61	14097	0.80	18488
b. By-product	ton	200	0.79	158	1.03	206
B. Net Profit	Rs		}	10975		14067

Note:Hired labor

District:Jhapa Crop:Potato

crop:Potato						
		Unit	Without	Project	With P	roject
	Unit	Price	Quant-	Value	Quant-	Value
· · · · · · · · · · · · · · · · · · ·		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost						
a.Labor Cost *		]				
Labor	day	32	176	5632	176	5632
Bullock Labor		100	6	600	6	600
Sub-total	1	1		6232		6232
b. Input Cost			}			
Seed	kg	10.00	950	9500	950	9500
Manure	kg	0.20	11500	2300	11500	2300
Fertilizer	1		}	,		
N	kg	12.17	300	3651	330	4016
P	kg	17.39	100	1739	110	1913
K	kg	14.17	25	354	28	390
Agri-Chemicals	kg	]	0	150		300
Sub-total				17694		18419
Miscellaneous (5% of total)				1259		1297
Total Costs				25186		25948
2. Gross Income	[			35269		46560
a. Main Product	ton	3880	9.09	35269	12.00	46560
b. By-product	ton	0	0	0	0	0
B. Net Profit	Rs	[	[	10084		20612

Note:Hired labor

District:Jhapa

Crop: Vegetables (Cauliflower)						
		Unit	Without	Project	With Po	roject
	Unit	Price	Quant-	Value	Quant-	Value
		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost						
a. Labor Cost *						
Labor	day	32	145	4640	145	4640
Bullock Labor		100	5	500	5	500
Sub-total		[		5140		5140
b. Input Cost	[		ļ			
Seed	kg	300	0.5	150	0.5	150
Manure	kg	0.20	15000	3000	15000	3000
Fertilizer	ļ	}	]		,,,	
N	kg .	12.17	50	609	100	1217
Р	kg	17.39	48	835	80	1391
K	kg	14.17	25	354	50	709
Agri-Chemicals	kg	l	l	150		300
Sub-total	l		l	5097		6767
Miscellaneous (5% of total)	[	L		539		627
Total Costs		<u> </u>		10776		12533
2. Gross Income	l			47524		84590
a. Main Product	ton	7690	6.18	47524	11.00	84590
b. By-product	ton	0	0.30	0	0.50	0
B. Net Profit	Rs			36748	l	72057

Table 4.7.15 Cost and Return of Crops(Financial)-Mahottari

District: Mahottari

Crop:Rainfed Paddy-Monsoon						· · · · · · ·
		Unit	Without	Project	With P	roject
·	Unit	Price	Quant-	Value	Quant-	Value
		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost			]			
a.Labor Cost						
Labor	day	35	54	1890	54	1890
Bullock Labor	day	100	10	1000	10	1000
Sub-total				2890		2890
b.Input Cost		<b>.</b>	l			
Seed	ĸg.	8.50	64	544	64	544
Manure	kg	0.20	900	180	900	180
Fertilizer		<u> </u>				
N N	kg	11.22	35	393	40	449
P	kg	17.39	10	174	20	348
K	kg	13.58	0	0	15	204
Agri-Chemicals		1	0	0	,	200
Sub-total		L		1291		1924
Miscellaneous (5% of total)				220		253
Total Costs	<u> </u>		<u> </u>	4401		5068
2. Gross Income	<b>.</b>	J	ļ	15020		18421
a. Main Product	ton	6070	2.29	13870	2.80	16996
b. By-product	ton	500	2.30	1150	2.85	1425
3. Net Profit	<u> </u>	1	<u> </u>	10619	<u> </u>	13353

District:Mahottari

Crop: Irrigated Paddy (HYV) - Monsson

		Unit	Without	Project	With P	roject
	Unit	Price	Quant-	Value	Quant-	Value
		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost	[]		<b></b>			
a.Labor Cost	l		<u> </u>			
Labor	day	35	57	1995	57	1995
Bullock Labor	day	100	11	1100	11	1100
Sub-total				3095		3095
b. Input Cost		 		<i></i>		
Seed	kg	8.50	60	510	60	510
Manure	kg	0.20	2100	420	2100	420
Fertilizer			<u>]</u>			
N	kg	11.22	62	696	80	898
P	4	17.39	20	348	40	696
K	kg	13.58	10	136	20	272
Agri-Chemicals		,	0	0		200
Sub-total	ļ			2109		2995
Miscellaneous (5% of total)	Ì	Ĺ		274		321
Total Costs	<u> </u>	ļ	<u> </u>	5478		6410
2. Gross Income				17733		22388
a. Main Product	ton	6070	2.70	16413	3.40	20638
<b>.</b>	ton	500	2.64	1320	3.50	1750
B. Net Profit	<u> </u>		<u> </u>	12255		15978

District:Mahottari

Crop:Irrigated Paddy(HYV)-Spring Paddy										
		Unit	Without	Project						
	Unit	Price	Quant-	Value	Quant-					
		(Rs)	ity	(Rs)	ity	(Rs)				
1.Production Cost		,								
a.Labor Cost						,				
Labor	day	35	30	1050	30	1050				
Bullock Labor	day	100	15	1500	15	1500				
Sub-total		<u> </u>		2550		2550				
b. Input Cost	ļ	<b></b>								
Seed	kg	8.50	60	510	60	510				
Manure	kg	0.20	2000	400	2000	400				
Fertilizer	]					. <b></b>				
N	κg	11.22	50	561	70	785				
P	kg	17.39	15	261	30	522				
K	kg .	13.58	10	136	20	272				
Agri-Chemicals		l	0	0		200				
Sub-total				1868	:	2689				
Miscellaneous (5% of total)				233		276				
Total Costs				4650	<u> </u>	5514				
2. Gross Income				19999	1	23682				
a. Main Product	kg	6070	3.05	18514	3.60	21852				
b. By-product	kg	500	2.97	1485	3.66	1830				
B. Net Profit				15348		18168				

District:Mahottari Crop:Maize

Crop:Maize			<u> </u>			
		Unit	Without	Project	With Pr	roject
	Jnit	Price	Quant-	Value	Quant-	Value
		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost						
a.Labor Cost						
Labor	day	35	0	0	0.	0
Bullock Labor	day	100	4	400	4	400
Sub-total				400		400
b.Input Cost						
Seed	kg	15.00	28	420	28	420
Manure	kg	0.20	2100	420	2100	420
Fertilizer		<b>]</b>	ļ			 
N	kg	11.22	60	673	80	898
P	kg	17.39	10	174	30	522
K	kg .	13.58	0	0	20	272
Agri-Chemicals		]	<u> </u>	25		200
Sub-total				1712		2731
Miscellaneous (5% of total)		.[	1	111		165
Total Costs	Ĺ			2223		3296
2. Gross Income	ļ	.,		10060		13432
a. Main Product	ton	4920	1.95	9594	2.60	12792
b. By-product	ton	200	2.33	466	3.20	640
3. Net Profit		<u> </u>	<u> </u>	7837	<u> </u>	10136

District:Mahottari Crop:Wheat

Crop: Wheat						
		Unit	Without	Project	With P	roject
	Unit	Price	Quant-	Value	Quant-	Value
		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost		İ		, ,		
a.Labor Cost		]	<u> </u>			
Labor	day	35	8	280	- 8	280
Bullock Labor	day	100	6	600	6	600
Sub-total		[	<u> </u>	880		880
b. Input Cost				<u>]</u>		
Seed	kg	10.50	120	1260	120	1260
Manure	kg	0.20	1800	360	1800	360
Fertilizer		]. <b></b>	].,	<b>.</b>		
N	kg	11.22	65	729	70	785
P	kg	17.39	20	348	40	696
K	kg	13.58	10	136	20	272
Agri-Chemicals	l		0	0	<b>.</b>	200
Sub-total	}			2833	<u> </u>	3573
Miscellaneous (5% of total)		[		195		234
Total Costs				3908	ļ	4687
2. Gross Income			Ī	9351	1	16427
a. Main Product	ton	6010	1.48	8895	2.60	15626
b. By-product	ton	300	1.52	456	2.67	801
B. Net Profit				5442	<u> </u>	11740

District:Mahottari Crop:Lentil & Pulses

Crop:Lentii & Pulses	т —		lue e e	D , ,	min I D		
	Unit Without Project						
	Unit	Price	Quant-	Value	Quant-		
	<u> </u>	(Rs)	ity	(Rs)	ity	(Rs)	
1.Production Cost	ļ	<u>.</u>				<b></b>	
a.Labor Cost			ļ			· • • • • • • • <u>• • • • • •</u>	
Labor	day	35	5	175	5	175	
Bullock Labor	day	100	0	0	0	0	
Sub-total				175		175	
b. Input Cost	]						
Seed	kg	18.00	35	630	35	630	
Manure	kg	0.20	1200	240	1200	240	
Fertilizer	<u> </u>						
N	kg	11.22	7	79	25	281	
P	kg	17.39	10	174	40	696	
K	kg	13.58	0	] 0	0	0	
Agri-Chemicals	kg		0	0		200	
Sub-total				1122		2046	
Miscellaneous (5% of total	)[			68		117	
Total Costs				1366	<b>.</b>	2338	
2. Gross Income				9097		16677	
a. Main Product	kg	14940	0.60	8964	1.10	16434	
b. By-product	kg	250	0.53	133	0.97	243	
3. Net Profit				7731	1	14339	

District:Mahottari Crop:Mustard(Oilcrops)

Crop:Mustard(Oilcrops)						
		Unit	Without	Project	With P	roject
·	Unit	Price	Quant-	Value	Quant-	Value
		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost						
a.Labor Cost						
Labor	day	35	8	280	8	280
Bullock Labor	day	100	5	500	5	500
Sub-total				780		780
b. Input Cost	.,	<u> </u>				
Seed	kg	22.00	20	440	20	440
Manure	kg	0.20	2500	500	2500	500
Fertilizer						
: N	kg	11.22	35	393	50	561
P	kg	17.39	10	174	30	522
K	kg	13.58	] 0	0	30	407
Agri-Chemicals			0	0		200
Sub-total	<u> </u>	l		1507	<u> </u>	2630
Miscellaneous (5% of total)		<u> </u>		120	l	179
Total Costs				2407	<b></b>	3590
2. Gross Income				12819		18990
a. Main Product	kg	23480	0.54	12679	0.80	18784
b. By-product	kg	200	0.70	140	1.03	206
3. Net Profit				10412	<u> </u>	15400

District:Mahottari Crop:Potato

Or Ob LO	acu
1	
1.	

		Unit	Without	Project	With Project		
	Unit	Price	Quant-	Value	Quant-	Value	
		(Rs)	ity	(Rs)	ity	(Rs)	
1.Production Cost							
a.Labor Cost					, , , , , , ,		
Labor	day	35	185	6475	185	6475	
Bullock Labor	day	100	12	1200	12	1200	
Sub-total				7675		7675	
b. Input Cost							
Seed	kg	8.00	990	7920	990	7920	
Manure	kg	0.20	15100	3020	15100	3020	
Fertilizer							
N	kg	11.22	300	3366	310	3478	
P	kg	17.39	100	1739	110	1913	
K	kg	13.58	50	679	50	679	
Agri-Chemicals	]		0	0		300	
Sub-total				16724		17310	
Miscellaneous (5% of total)				1284	<b>.</b>	1315	
Total Costs				25683	]	26300	
2. Gross Income				45662	]	54360	
a. Main Product	ton	4530	10.08	45662	12.00	54360	
b. By-product	ton	0	0	.0	0	0	
B. Net Profit	[			19979	l	28060	

District: Mahottari

Crop:Vegetables(Cauliflower)						
		Unit	Without	Project	With P	roject
	Unit	Price	Quant-	Value	Quant-	Value
		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost						
a.Labor Cost					[,,]	
Labor	day	35	140	4900	140	4900
Bullock Labor	day	100	5	500	5	500
Sub-total				5400		5400
b.Input Cost						
Seed	kg	300	0.5	150	0.5	150
Manure	kg	0.2	14500	2900	14500	2900
Fertilizer						
N	kg	11.22	50	561	100	1122
P	kg .	17.39	48	835	80	1391
K	kg	13.58	25	340	50	679
Agri-Chemicals	l	l <i>.</i>		300	<b>.</b>	500
Sub-total	L			5085		6742
Miscellaneous (5% of total)		l		552	<b></b>	639
Total Costs				11037	<u> </u>	12781
2. Gross Income				60000		72000
a. Main Product	ton	6000	10.00	60000	12.00	72000
b. By-product	ton	0	0.30	0	0.50	0
B. Net Profit			1	48963		59219

District:Mahottari Crop:Onion

Crop:Union						
		Unit	Without	Project	With P	roject
	Unit	Price	Quant-	Value	Quant-	Value
		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost						
a. Labor Cost						
Labor	day	35	20	700	22	770
Bullock Labor	day	100	5	500	5	500
Sub-total				1200		1270
b. Input Cost					·	
Seed	ķg	225	• · · · · · · · · · · · · · ·	1800	8.0	1800
Manure	kg	0.2	30000	6000	30000	6000
Fertilizer						
N		11.22	55	<i>{ , , , , , , , , , , .  </i>	66	741
P	<i>₹ - 7</i> ″	17.39	45		54	939
K	kg	13.58	60	815	70	951
Agri-Chemicals				500		600
Sub-total	ļ			10514		11030
Miscellaneous (5% of total)		ļ		617		647
Total Costs		<b></b>		12331		12948
2. Gross Income		<b></b>		41400		53820
a. Main Product	ton	4140	10.00	41400	13.00	53820
b. By-product	ton	0	0.00	0	0.50	0
B. Net Profit	<u> : : :                                </u>	<u> </u>	<u> </u>	29069		40872

Table 4.7.16 tost and Return of Grops (Financial) -Banke

District:Banke
Crop:Rainfed Paddy-Monsoon

Crop:Rainfed Paddy-Monsoon						· · · · · · · · · · · · · · · · · · ·
		Unit	Without	Project	With P	roject
	Unit	Price	Quant-	Value	Quant-	Value
·		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost	ļ					
a.Labor Cost *						
Labor	day	37	70	2590	70	2590
Bullock Labor	day	100	4	400	4	400
Sub-total	l			2990		2990
b.Input Cost	<b>.</b>					
Seed	kg	9.05	65	588	65	588
Manure	kg	0.20	570	114	800	160
Fertilizer	<u> </u>					
N	kg	12.17	45	548	40	487
Р	kg	18.08	10	181	20	362
K	kg	14.16	0	0	15	212
Agri-Chemicals	<u> </u>		0	0		200
Sub-total	<u> </u>	Į		1431		2009
Miscellaneous(5% of total)	L			233		263
Total Costs	<u> </u>	<u> </u>		4653		5262
2. Gross Income		<u> </u>		11300		15102
a. Main Product	ton	5270	1.95	10250	2.60	13702
b. By-product	ton	500	2.10	1050	2.80	1400
B. Net Profit	<u>  : </u>			6647		9840

Note: Hired labor

District:Banke

Crop: Irrigated Paddy (HYV) - Monsson

or op: III i gaved raday (III I) inc		II- : A	W. Lbort	Dealact	With D	an innt
	l		Without			
	Unit	Price	Quant-		Quant-	,
		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost	Ì					
a.Labor Cost *	l	Ì	1			
Labor	day	37	77	2849	77	2849
Bullock Labor	day	100	3	300	3	300
Sub-total				3149		3149
b. Input Cost						
Seed	kg	9.05	64	579	64	579
Manure	kg	0.20	400	80	400	80
Fertilizer						,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
N	kg	12.17	50	609	80	974
P	kg	18.08	15	271	40	723
K	kg	14.16	- 10	142	20	283
Agri-Chemicals			0	0		200
Sub-total				1681		2839
Miscellaneous (5% of total)				254		315
Total Costs			<u> </u>	5084	]	6303
2. Gross Income				12182		20145
a. Main Product	ton	5270	2.12	11172	3.50	18445
b. By-product	ton	500	2.02	1010	3.40	1700
B. Net Profit				7099		13842

Note:Hired labor

District:Banke

Crop: Irrigated Paddy (HYV) - Sp	Crop: Irrigated Paddy (HYV) -Spring Paddy									
		Unit	Without	Project	With P	roject				
	Unit	Price	Quant-	Value	Quant-	Value				
		(Rs)	ity	(Rs)	ity	(Rs)				
1.Production Cost										
a.Labor Cost		<i></i> .								
Labor	day	<u> </u> , <b>.</b>	<u>                                     </u>			<i></i>				
Bullock Labor	day	<b>]</b>	<u> </u>			,				
Sub-total										
b. Input Cost			l							
Seed	kg	<u> </u>	1							
Manure	kg .	]	],,	<u>]</u>						
Fertilizer										
N	kg			]						
P	kg	]		<u> </u>						
K	kg			]						
Agri-Chemicals		}								
Sub-total										
Miscellaneous (5% of total)					l					
Total Costs	[									
2. Gross Income										
a. Main Product	ton	}		l	l	j				
b. By-product	ton	<u> </u>			<b>.</b>					
B. Net Profit										

District:Banke

		Unit	Without	Project	With Pr	roject
*	Unit	Price:	Quant-	Value	Quant-	Value
		(Rs)	ity	(Rs)	ity	(Rs)
Production Cost						
a.Labor Cost *						
Labor	day	37	6	222	6	222
Hired Labor	day	100	4	400	4	400
Sub-total		L	l	622	<b>-</b>	622
b. Input Cost	Ī		]			
Seed	kg	14.90	26	387	26	387
Manure	кg	0.20	5640	1128	5640	1128
Fertilizer	l	]	]			
N	kg	12, 17	10	122	70	852
P	κg	18.08	10	181	40	723
K	kg	14.16	0	0	20	283
Agri-Chemicals	ļ	<u> </u>		0		300
Sub-total				1818		3674
Miscellaneous (5% of total)				128		226
Total Costs			<u> </u>	2568		4522
. Gross Income	<b>]</b>		ļ	9450		15257
a. Main Product	ton	5570	1.61	8968	2.60	14482
b. By-product	ton	250	1.93	483	3.10	775
. Net Profit			1	6882	<u> </u>	1073

Nte:Hired labor

District:Banke Crop:Wheat

				<u> </u>	· · · · · · · · · · · · · · · · · · ·
	Unit	Without	Project	With P	roject
Unit	Price	Quant-	Value	Quant-	Value
	(Rs)	ity	(Rs)	ity	(Rs)
day	37	5	185	5	185
day	100	10	1000	10	1000
			1185		1185
[					!
kg	11.65	125	1456	125	1456
kg	0.20	975	195	975	195
}					
kg	12.17	30	365	50	609
	18.08	15	271	40	723
1	14.16	0	0	20	283
1		0	0	1.	200
1	1		2288		3466
			183		245
			3655		4896
	[		9192		13789
ton	6310	1.40	8834	2.10	13251
ton	250	1.43	358	2.15	538
			5536		8893
	day day kg kg kg kg	day 37 day 100 kg 11.65 kg 0.20 kg 12.17 kg 18.08 kg 14.16	UnitPrice Quant- (Rs) ity  day 37 5 day 100 10  kg 11.65 125 kg 0.20 975  kg 12.17 30 kg 18.08 15 kg 14.16 0  ton 6310 1.40	UnitPrice (Rs) ity (Rs)  day 37 5 185 day 100 10 1000 1185  kg 11.65 125 1456 kg 0.20 975 195  kg 12.17 30 365 kg 18.08 15 271 kg 14.16 0 0 0 0 2288 183 3655 19192 ton 6310 1.40 8834 ton 250 1.43 358	Unit Price (Rs)   Quant- (Rs)   Value (ty)

Note:Hired labor

District:Banke

Crop:Lentil & Pulses

		Unit	Without	Project	With P	roject
	Unit	Price	Quant-	Value	Quant-	Value
		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost						
a.Labor Cost *						
Labor	day	37	0	0	0	0
Bullock Labor	day	100	0	0	0	0
Sub-total				0	0	0
b.Input Cost						
Seed	kg	18.50	23	426	23	426
Manure	kg	0.20	450	90	450	90
Fertilizer	<b>.</b>	l <i>.</i>	<u> </u>			
N	kg	12.17	10	122	25	304
Р	kg	18.08	0	<u> </u>	40	723
K	kg	14.16	0	0	0	0
Agri-Chemicals	<b>.</b>	<u>[                                    </u>	0	0		200
Sub-total		<u>.</u>		637		1743
Miscellaneous (5% of total)	l			34		92
Total Costs	[			. 671		1835
2. Gross Income	J	ļ		14838		21825
a. Main Product	ton	21600	0.68	14688	1.00	21600
b. By-product	ton	250	0.60	150	0.90	225
B. Net Profit				14167		19990

Note:Hired labor

District:Banke Crop:Mustard(Oilcrops)

Crop:Mustard(Oilcrops)		,				
	Ì	Unit	Without	Project	With P	roject
	Unit	Price	Quant-	Value	Quant-	Value
		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost						
a.Labor Cost *						*********
Labor	day	37	0	0	0	0
Bullock Labor	day	100	0	0	0	0
Sub-total		1		0		0
b.Input Cost	Ī				~ <b>~ ~ ~ ~</b> ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	
Seed	kg	30.00	20	600	20	600
Manure	kg	0.20	3600	720	3600	720
Fertilizer						
N	kg	12.17	10	122	50	609
p	1 · - · ·	18.08	0	0	40	723
K	<b>(</b>	14.16	0	0	30	425
Agri-Chemicals	[. <del></del>		0	0	:	200
Sub-total				1442		3277
Miscellaneous (5% of total)			ļ · · · · · · · · · · · · · · · · · · ·	76		172
Total Costs		<u> </u>	·	1518		3449
2. Gross Income			}	11324		16434
a. Main Product	ton	20330	0.55	11182	0.80	16264
	ton	200	0.71	142	0.85	170
B. Net Profit		} <del></del> -		9806		12985
Note: Hired Jahor		<del></del>	<del>'                                    </del>	0000		* 5000

Note:Hired labor

District:Banke Crop:Potato

		Unit	Without	Project	With P	roject
	Unit	Price	Quant-	Value	Quant-	Value
		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost	J	<u> </u>				
a.Labor Cost *						
Labor	day	37	250	9250	250	9250
Bullock Labor	day	100	5	500	5	500
Sub-total	]	[		9750		9750
b. Input Cost		1				
Seed	kg	8.00	560	4480	560	4480
Manure	kg	0.20	8000	1600	8000	1600
Fertilizer	1				* * * * * * * * * * * * * * * * * * * *	*******
N	kg	12.17	40	487	45	548
P	kg	18.08	20	362	22	398
K	kg	14.16	0	0	0	0
Agri-Chemicals	1		0	0		300
Sub-total		1		6928		7325
Miscellaneous (5% of total)				878		899
Total Costs		1		17556		17974
2. Gross Income	1	1		43128		50400
a. Main Product	ton	3600	11.98	43128	14.00	50400
***************************************	ton	0	0	0	0	0
3. Net Profit				25572		32426

Note:Hired labor

District:Banke

Crop: Vegetables (Cauliflower)						
		Unit	Without	Project	With P	roject
	Unit	Price	Quant-	Value	Quant-	Value
		(Rs)	ity	(Rs)	ity	(Rs)
1.Production Cost		,				
a.Labor Cost *			<u> </u>	. ,		
Labor	day	37	140	5180	140	5180
Bullock Labor	day	100	5	500	5	500
Sub-total		L		5680		5680
b. Input Cost	],.,	<u>.</u>				
Seed	kg	550	0.5	275	0.5	275
Manure	kg	0.20	15000	3000	15000	3000
Fertilizer				0		
N	kg	12.17	50	609	80	974
P	kg	18.08	48	868	70	1266
K	kg	14.16	25	354	40	566
Agri-Chemicals				500		300
Sub-total				5605		6381
Miscellaneous (5% of total)				594		635
Total Costs	[			11879		12695
2. Gross Income	[	[		62020		77000
a. Main Product	ton	7000	8.86	62020	11.00	77000
b. By-product	ton	0	0.50	0	0.80	0
B. Net Profit				50141		64305

Note: Hired labor

Table 4.7.17 Financial Analysis for Typical Farm-Jhapa

4332

1473

Farm Model-Without Project Jhapa (farm size 1.41ha)

<ol> <li>Crop Product</li> </ol>	ion										,	
		Yield	(ton/ha)	Product	ion (ton)	Price	(Rs/ton)	Value of	Product	ion (Rs)	Produ-	Net
* *	Area	Main	By-	Main	By-	Main	By-	Main	By-		ction	Income
	(ha)	Product	Product	Product	Product	Product	Product	Product	Product	Total	Cost (Rs)	(Rs)
M. Paddy-raifed	1.27	2.33	2.15	2.96	2.73	4790	400	14163	1091	15254	6635	8619
Maize	0.14	1.31	1.57	0.18	0.22	4590	200	848	44	892	289	603
Mieat	0.37	1.59	1.63	0.58	0.60	4250	250	2477	149	2627	1429	1198
	1.78							17488	1285	18773	8353	10420
2. Income from	Livestor	k (Rs)										2084
3. Off-farm Inc												521
o, ori tuta me	CINC (THO)	- J										12025

Income from Livestock(Rs)
 Off-farm Income (Rs/year)
 Total Income (Rs)
 Living Expence (Rs/year) - Family size 5.36 person/family Food (Rs)

 Non-food (Rs)

 Disposable Income (Rs/year)

Farm Model-With Project Jhapa(farm size 1.41ha)

1. Crop Producti	อถ											
		Yield(	ton/ha)	Product	ion (ton)	Price	Rs/ton)	Value of	Product	ion (Rs)	Produ-	Net
·	Агеа	Main	Ву-	Main	By-	Main	By-	Main	By-		ction	Income
	(ha)	Product	Product	Product	Product	Product	Product	Product	Product	Total	Cost (Rs)	(Rs)
M. Paddy-irrigated	1,41	4.00	4.80	5.64	6.77	4790	400	27016	2707	29723	9141	20582
S. Paddy-irrigated		3,80	4.40	2.14	2.48	4790	400	10266	993	11259	3080	8179
Maize	0.21	2.70	3.23	0.57	0.68	4590	200	2621	137	2758	792	1966
Wheat	0.42	2.70	2,77	1.14	1.17	4250	250	4854	293	5147	2014	3133
Miscellaneous	0.21	0.80	1.03	0.17	0.22	23110	200	3910	5034	8945	5449	3496
Total	2.82	1					· · · · · · · · · · · · · · · · · · ·	48667	9164	57831	20476	37354
	ivoetoc	A (Re)	<del></del>	<del></del>								7471

Wheat	0.42	2.70	2,77	1.14	1.17	4250	250	4854	293	5147	2014	3133
Miscellaneous	0.21	0.80	1.03	0.17	0.22	23110	200	3910	5034	8945	5449	3496
Total	2.82		,.,					48667	9164	57831	20476	37354
2. Income from I	ivestoc	k (Rs)										7471
3, Off-farm Inco						•						1868
4. Total Income						•						46693
5. Living Expend		ar) -Fami	lv size	5.36 per	son/fami	l y						44013
Food (Rs)		,	1, 5,00		,							27508
Non-food (Rs)												16505
6. Disposable Ir	icome (Rs	/year}										2680

Table 4.7.18 Financial Analysis for Typical Farm-Mahottari

6769

Farm Model-Without Project Mahottari (farm size 1.09ha)

**			
Crop:	1 MY	110	LION

		Yield	ton/ha)	Product	ion (ton)	Price	Rs/ton)	Value of	Product	ion (Rs)	Produ-	Net
	Area	Main	By-	Main	By-	Main	By-	Main	Ву-		ction	Income
	(ha)	Product	Product	Product	Product	Product	Product	Product	Product	Total	Cost (Rs)	(Rs)
d. Paddy-rai fed	0.98	2.29	2.30	2.25	2.26	6070	500	13636	1128	14764	4797	9967
Meat	0.22	1.48	1.52	0.32	0.33	6010	300	1939	99	2038	860	1179
Pulses	0.22	0.60	0.53	0.13	0.12	14940	250	1954	29	1983	301	1683
Others	0.11	0.54	0.70	0.06	0.08	23480	200	1382	15	1397	265	1133
Total	1.53							18911	1272	20183	6222	13961
2. Income from !	ivestoc	k (Rs)										1955
3. Off-farm Inco	me(Rs/y	ear)										838
4. Total Income!	(Rs)											16753
5. Living Expend	e (Rs/ye	ar)-Fami	ly size	5.48 per	son/fami	ly.						9984
Food (Rs)												6240
Non-food (Rs)												3744
0 714 11 7	200											

Farm Model-With Project Mahottari(farm size 1.09ha)

6. Disposable Income (Rs/year)

#### . I. Crop Production

1. Grop Producti	OH											
		Yield	ton/ba)	Product	ion (ton)	Price(	Rs/ton)	Value of	Product	ion (Rs)	Produ-	Net
	Area	Main	By-	Main	Ву-	Main	By-	Main	By-		ction	Income
	(ha)	Product	Product	Product	Product	Product	Product	Product	Product	Total	Cost (Rs)	(Rs)
M. Paddy-irrigated	1.09	3.40	3.50	3.71	3.82	6070	500	22495	1908	24403	6987	17416
S. Paddy~irrigated	0.11	3,60	3.66	0.39	0.40	6070	500	2382	199	2581	607	1975
Wheat	0.53	2.60	2.67	1.39	1.43	6010	300	8346	428	8774	2484	6290
Daion	0.21	13.00	0.50	2.69	0.10	4140	0	11146	0	11146	2719	8427
Potato	0.24	12.00	0.00	2.88	0.00	4530	0	13036	0	13036	6312	6724
Total	2.18				{			57405	2535	59940	19109	40831
<ol><li>Income from L</li></ol>	ivestoc	k (Rs)										5716
<ol><li>Off-farm Inco</li></ol>	me (Rs/y	ear}										2450
4. Total Income(	Rs)											48997
<ol><li>Living Expend</li></ol>	e (Rs/ye	ar)-Fami	ly size	5.48 per	son∕fami	1y						40416
Food (Rs)												23774
Non-food (Rs)												16642
6. Disposable In	cone (Rs	/year)										8581

#### Table 4.7.19 Financial Analysis for Typical Farm-Banke

Farm Model-Without Project Banke (farm size 1.37ha)

1. Crop Production

		Yield	ton/ha)	Product	ion (ton)	Price	Rs/ton)	Value of	Product	ion (Rs)	Produ-	Net
	Area	Main	Ву-	Main	By-	Main	By-	Main	By-		ction	Income
	(ha)	Product	Product	Product	Product	Product	Product	Product	Product	Total	Cost (Rs)	(Rs)
d. Paddy-rai fed	1.22	1.95	2.10	2.38	2.56	5270	500	12537	1281	13818	5118	8700
Maize	0.14	1.61	1.93	0.22	0.26	5570	250	1229	66	1295	257	1038
Mustard	0.14	0.55	0.71	0.08	0.10	20330	200	1532	19	1551	213	1339
theat	0.30	1.40	1.43	0.42	0.43	6310	250	2650	107	2757	2010	747
hlses	0.13	0.68	0.60	0.09	0.08	21600	250	1909	20	1929	94	1835
Total	1.92							19857	1493	21351	7692	13659
<ol><li>Income from !</li></ol>	ivestoc	k (ks)	·			•						2185
3. Off-farm Inco	me (Rs∕y	rear)										273
4. Total Income	(Rs)											16118

5. Living Expence (Rs/year) - Family size 5.9 person/family Food (Rs) Non-food (Rs)

7080 4248

6. Disposable Income (Rs/year)

4790

Farm Model-With Project Banke (farm size 1.37ha)

L. Cron Production

T. CLOD LEGRINGEE	VII											
		Yield(	ton/ha}	Product	ion (ton)	Price(	Rs/ton)	Value of	Product	Produ-	Net	
	Area	Main	By-	Main	By-	Main	Ву-	Main	By-		ction	Income
	(ha)	Product	Product	Product	Product	Product	Product	Product	Product	Total	Cost (Rs)	(Rs)
M. Paddy-irrigated	1.19	3.50	3.40	4.17	4.05	5270	500	21950	2023	23973	7501	16472
Mustard	0.18	0.80	0.85	0.14	0.15	20330	200	2897	30	2927	621	2306
theat	0.69	2.10	2.15	1.45	1.48	6310	250	9143	371	9514	3378	6136
Pulses	0.23	1.00	0.90	0.23	0.21	21600	250	5031	52	5083	422	4661
Maize	0.21	2.60	3.10	0.53	0.64	5570	250	2976	159	3135	950	2186
<sup>o</sup> otato	0.21	14.00	0.00	2.88	0.00	3600	0	10357	0	10357	539	9818
Others	0.04	11.00	0.80	0.45	0,00	7000	0	3165	0	3165	508	2657
Total	2.74							55518	2636	58154	13918	44235

2.	Income	from	Livestock (Rs)	

7078

3. Off-farm Income (Rs/year)

885

4. Total Income (Rs) 5. Living Expence (Rs/year)-Family size 5.9 person/family Food (Rs)

Non-food (Rs) 6. Disposable Income (Rs/year)

9038

### APPENDIX - FIVE SCORE OF WORK

#### APPENDIX FIVE: SCOPE OF WORK

SCOPE OF WORK

FOR

THE MASTER PLAN STUDY

- 0N

THE TERAL GROUNDWATER RESOURCES EVALUATION

AND

DEVELOPMENT PROJECT FOR IRRIGATION

IN

THE KINGDOW OF NEPAL

AGREED UPON BETWEEN

DEPARTMENT OF IRRIGATION

MINISTRY OF WATER RESOURCES

AND

JAPAN INTERNATIONAL COOPERATION AGENCY

KATHMANDU, MARCH 26, 1991

Mr. M. D. Karki

Director General.

Department of Irrigation,

Ministry of Water Resources.

His Majesty's Government

of Nepal

Mr. Yasunobu MATOBA

Leader.

Preliminary Survey Team,

Japan International

Cooperation Agency

#### I. INTRODUCTION

In response to the request of His Majesty's Government of Nepal (hereinafter referred to as "HMGN"), the Government of Japan has decided to implement the Master Plan Study for the Terai Groundwater Resources Evaluation and Development Project for Irrigation (hereinafter referred to as "the Study"), in accordance with the relevant laws and regulations in force in Japan.

The Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation programs of the Government of Japan, will undertake the Study, in close cooperation with the authorities concerned of HMGN.

The Department of Irrigation, Ministry of Water Resources (hereinafter referred to as "DOI") shall act as counterpart agency to the JICA Study Team and also as coordinating body in relation with other governmental and non-governmental organization concerned for the smooth implementation of the Study.

The present document sets forth the Scope of Work with regard to the Study.

#### II. OBJECTIVES OF THE STUDY

- To formulate a groundwater development master plan under the Groundwater Resources Evaluation and Development Project for Irrigation in a selected District in the Terai plain, and
- 2. To carry out technology transfer to the Nepalese counterpart personnel in the course of the Study.

#### III. OUTLINE OF THE STUDY

1. Study Area

The Study covers following three (3) Districts in the Terai plain.

1) Banke District including a part of the Bardia District on the left bank of the Babai River.

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- 2) Mahottari District, and
- 3) Jhapa District excluding the Kankai Irrigation Project area.
- 2. Scope of the Study

In order to achieve the above objectives, the Study will consist of two phases and will cover the following:

#### 1) Phase I

- 1)-1 To collect and review existing data and information and to carry out field survey and investigation in the three Districts in view of topography, meteorology, hydrology, geology, soil, hydrogeology, groundwater resources, agriculture, irrigation system (surface water and groundwater), and existing irrigation projects and water resources development plans,
- 1)-2 To evaluate groundwater resources for irrigation,
- 1)-3 To identify the groundwater irrigation potential and to formulate technical and management concepts for groundwater irrigation, and
- 1)-4 To select a most prospective District with the highest potential for deep tubewell development for irrigation.

#### 2) Phase II

- 2)-1 To carry out hydrogeological survey, geophysical investigations, construction of observation wells, monitoring of groundwater resources, and assessment and evaluation of groundwater resources in a representative area in the selected District,
- 2)-2 To formulate a groundwater monitoring network plan in the

- 2)-3 To formulate a groundwater development and management plan in the representative area,
- 2)-4 To formulate a groundwater development master plan under the Groundwater Resources Evaluation and Development Project for Irrigation in the selected District. The Master Plan will include substancial items, such as
  - -Comprehensive evaluation of the groundwater resources,
  - -Guidelines for developing groundwater resources for irrigation,
  - -Data base of hydrogeologic and hydrometeorological information, and
  - -Guidelines for operating groundwater monitoring network.

#### IV. WORK SCHEDULE

The Study will be executed in accordance with the attached tentative work schedule.

#### V. REPORTS

JICA shall prepare and submit following reports in English to HMGN.

(1) Inception Report

Twenty (20) copies at the commencement of the Study.



- (2) Progress Report (I)
  - Twenty (20) copies at the end of the field work in the Phase I study.
- (3) Interim Report

Twenty (20) copies at the end of the Phase I study.



- (4) Progress Report (II)

  Twenty (20) copies at the end of the second field work in the Phase II study.
- (5) Progress Report (III)
  Twenty (20) copies at the end of the fourth field work in the
  Phase II study.
- (6) Draft Final Report

  Twenty (20) copies at the end of the Phase II study.

  HMGN provides JICA with its comments on the Draft Final Report within one (1) month after receipt of the Draft Final Report.
- (7) Final Report

  Fifty (50) copies within two (2) months after receiving HMGN's comments on the Draft Final Report.

#### VI. UNDERTAKING OF HMGN

- To facilitate smooth conduct of the Study, HMGN shall take necessary measures;
  - (1) to secure the safety of the Japanese study team,
  - (2) to permit the members of the Japanese study team to enter, leave and sojourn in the Kingdom of Nepal for the duration of their assignment therein, and exempt them from alien registration requirements and consular fees,
  - (3) to exempt the members of the Japanese study team from taxes, duties, fees and any other charges on equipment, machinery and other materials brought into the Kingdom of Nepal for the conduct of the

Study.

- (4) to exempt the members of the Japanese study team from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the Japanese study team for their services in connection with the implementation of the Study,
- (5) to provide necessary facilities to the Japanese study team for the remittance as well as utilization of the funds introduced into the Kingdom of Nepal from Japan in connection with the implementation of the Study,
- (6) to secure permission for entry into private properties or restricted areas for the conduct of the Study as and when necessity arises,
- (7) to secure permission for the Japanese study team to take all data and documents related to the Study including photographs and maps out of the Kingdom of Nepal to Japan,
- (8) to provide medical services as needed. Its expense will be chargeable on the members of the Japanese study team.
- 2. HMGN shall bear claims, if any arises, against the members of the Japanese study team, resulting from, occurring in the course of, or otherwise connected with the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or wilful misconduct on the part of the members of the Japanese study team.
- DOI shall, at its own expense, provide the Japanese study team with the followings, in cooperation with other authorities concerned:
  - 1) Available data and information related to the Study,

- 2) Counterpart personnel,
- 3) Suitable office with necessary furniture in Kathmandu and project sites,
- 4) Credentials or identification cards,
- 5) Permission for use of radio communication (Walkie Talkie), and
- 6) Arrangement for procuring fuel for vehicles and boring machines.

#### VII. UNDERTAKING OF JICA

For the conduct of the Study, JICA shall take the following measures;

- To dispatch study teams, at its own expense, to the Kingdom of Nepal, and
- 2. To conduct technology transfer to the Nepalese counterpart personnel in the course of the Study.
- YM. JICA and DOI will consult with each other in respect of any other matter that is not agreed upon in this document and may arise from or in connection with the Study.

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#### TENTATIVE SCHEDULE

Item Month	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
Field Work															ā		置	
in Nepal																		·
Home office				<del>,-</del>									· į		<del></del>			-
Work in JAPAN			<b>.</b>										<u> </u>					
	7	Δ.								7					Δ	e.	Δ	Δ
Reports IC/	R P/	R(I	)						P/R	(II)				P/R	(III)		DF/R	F/R
			∆ T∕R															
				4								·					<del>-</del>	
Remarks	Ph	ase	I							Pi	iase 1	<u> </u>						

(Remarks)

IC/R: Inception Report

P/R : Progress Report

IT/R : Interim Report ·

DF/R : Draft Final Report

F/R : Final Report

: Field Work

: Home Office Work

Wy/

MINUTES OF MEETING

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SCOPE OF WORK

FOR

THE MASTER PLAN STUDY

NO

THE TERAL GROUNDWATER RESOURCES EVALUATION

AND

DEVELOPMENT PROJECT FOR IRRIGATION

IN

THE KINGDOM OF NEPAL

The Preliminary Survey Team (hereinafter referred to as "the Team") organized by Japan International Cooperation Agency (hereinafter referred to as "JICA"), and headed by Mr. Yasunobu MATOBA, visited the Kingdom of Nepal from March 18 to March 27, 1991 for the purpose of discussing and confirming the Scope of Work for the Master Plan Study on The Terai Groundwater Resources Evaluation and Development Project for Irrigation in the Kingdom of Nepal (hereinafter referred to as "the Study").

The Team had a series of discussions with the officials concerned of the Department of Irrigation, Ministry of Water Resources of His Majesty's Government of Nepal (hereinafter referred to as "DOI") on the Scope of Work for the Study. The list of participants in a series of meetings is shown in the attached paper.

As a result of the discussions, the Team and the DOI agreed on the Scope of Work for the Study.

The following are the main issues discussed and agreed upon by both sides in relation to the Scope of Work for the Study.

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- 1. The office for the Japanese study team should be equipped with electricity, city water, and telephone.
- 2. The DOI shall, at its own expense, prepare vehicles for the Nepalese counterpart personnel.
- 3. The DOI requested that the following equipment necessary for the Study be procured by JICA and be donated to the DOI after the termination of the Study. The Team promised to convey its request to the Government of Japan.
  - a. Vehicles,
  - b. Bore hole electric loggers,
  - c. Groundwater level indicaters,
  - d. Photocopy machines,
  - e. Personal computers, and
  - f. Portable kits for chemical analysis.

Kathmandu, March 26, 1991

Mr. M. D. Karki

Director General,

Department of Irrigation,

Ministry of Water Resources,

His Majesty's Government

of Nepal

Mr. Yasunobu MATOBA

Leader,

Preliminary Survey Team.

Japan International

Cooperation Agency

#### LIST OF PARTICIPANTS

#### I. Nepalese Side

#### Ministry of Water Resources

Mr. M. D. Karki Director General, Department of Irrigation (DOI)

Mr. Y. L. Vaidya Deputy Director General, DOI

Mr. A. B. Thapa Superintending Engineer, DOI -

Mr. G. P. Chaturvedi Project Manager, Groundwater Resources

Development Project

Mr. S. R. Uprety Divisional Geologist, DOI

#### II. Japanese Side

#### Preliminary Survey Team

Mr. Yasunobu Matoba Leader

Mr. Takashige Veta Member

Mr. Akio Yamamoto Member

Mr. Norio Matsuda Member

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# APPENDIX - SIX LIST OF MEMBERS RELATED TO THE STUDY

#### APPENDIX SIX: LIST OF MEMBERS RELATED TO THE STUDY

A. Team Members

Mitsuru YOSHIKAWA Team Leader

Hisao ANDO Deputy Team Leader/

Senior Hydrogeologist

Kosei HASHIGUCHI Meteo-Hydrologist

Masahiro YAMADA Irrigation Engineer (Phase I)
Ikuzo IWAMOTO Irrigation Engineer (Phase II)

Kensuke IRIYA Agro-economist

Ryoichi KAWASAKI Groundwater Development Specialist

Mitsuyoshi SAITO Hydrogeologist

Kenji MATSUZAKI Drilling Superintendent

B. Counterpart Personnel

Mr. S.B.S. KANSAKAR Senior Divisional Geologist, DOI

Dr. P. ADHIKARI Acting Senior Divisional Geologist, DOI

Mr. N.R. SHRESTHA Divisional Geologist, DOI Mr. M.S. HADA Divisional Geologist, DOI

Mr. B.B. RAWAL Agro-economist, DOI
Mr. M.P. BARAL Assistant Engineer, DOI
Mr. S.B. BISHT Assistant Engineer, DOI

Mr. N. SHAKYA Geologist, DOI
Mr. N.R. TIMILSINA Driller, DOI

C. Advisory Committee

Chairman

Dr. Masayuki WADA Ministry of Agriculture, Forestry and Fisheries
Dr. Toshio SUGAWARA Ministry of Agriculture, Forestry and Fisheries
Mr. Yoshio MIYAJIMA Ministry of Agriculture, Forestry and Fisheries

**MEMBER** 

Mr. Takasi TACHIBANA
Water Resources Development Public Corporation
Mr. Kiyoshi SAWADA
Ministry of Agriculture, Forestry and Fisheries
Mr. Shinsuke YUASA
Ministry of Agriculture, Forestry and Fisheries
Mr. Akira NAGATA
Ministry of Agriculture, Forestry and Fisheries
Ms. Kuniko ISHIKAWA
Ministry of Agriculture, Forestry and Fisheries

## APPENDIX - SEVEN BIBLIOGRAPHY

#### APPENDIX SEVEN: BIBLIOGRAPHY

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#### **MAPS**

#### <General>

NEPAL, 1:2,000,000.-, Administrative Map

NEPAL, 1:750,000.-

NEPAL, 1:500,000.-, LANDSAT IMAGERY MAP

#### <District Map>

JHAPA, 1:125,000.-

MAHOTTARI, 1:125,000.-

BANKE, 1:125,000.-

BARDIYA, 1:125,000.-

DAN DEUKHURI, 1:125,000,-

#### <Topo-Sheet>

Jhapa area- 1:50,000.-

78B/1, 78B/2, 72N/10, 72N/11, 72N/14, 72N/15

Mahottari area- 1:50,000.-

72E/12, 72E/16, 72F/9, 72F/13, 72F/14

Banke, Bardiya area- 1:50,000.-

62H/7, 62H/8, 62H/11, 62H/12, 62H/16, 63E/9, 63E/13

#### <Geological Map>

GEOLOGICAL MAP OF NEPAL, 1:1,000,000.-, (1985)

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GEOLOGICAL MAP OF EASTERN NEPAL, 1:250,000.- (1984)

1:125,000.- GEOLOGICAL MAP around Jhapa area

1:125,000.- GEOLOGICAL MAP around Mahottari area

1:125,000.- GEOLOGICAL MAP around Banke/Bardiya areas

#### <Others>

LAND UTILIZATION MAP, 1:50,000.-

around Jhapa, Mahottari, Banke/Bardiya areas

LAND CAPABILITY MAP, 1:50,000.-

around Jhapa, Mahottari, Banke/Bardiya areas

LAND CLASSIFICATION MAP, 1:50,000.-

around Jhapa, Mahottari, Banke/Bardiya areas