Table 3-24 Prevailing Vegetable Prices in the Study Area (1992/93)

Unit: NRs./kg

1	Crops	Farm-gate	Wholesale	Retail
	Potatoes	6.45	7.03	8.05
1000	Radish	2.50	3.26	4.68
	Cauliflower	12.00	12.26	16.50
	Tomato	8.50	10.07	14.62
	Brinjal	4.00	5.82	9.03
	Beans	10.00	11.72	and the second of the second o
100	Cabbage	5.50	5.92	8.53
. • •	Onion	6.00	6.24	8.27
	Ginger	14.53	_	19.06
	Green chilli	9.00	20.82	
	Pointed Gourd		12.03	12.58
	Carrot	6.00		
	Coriander	15.00	in transfer of the	make the following Lagrid
	Cress	10.00		
	Spinach	10.00		
	Lettuce	10.00		

Table 3-25 Food Balance Situation on Cereals

and the second s			the state of the s			
		87/88	88/89	89/90	90/91	91/92
Nepal	Р	17,753	18,207	18,677	18,263 *1	18,661
	C	3,006	3,418	3,550	3,619	3,373
	N	2,726	2,921	3,559	3,487	3,562
	В	280	497	-9	132	-189
Lalitpur	P	217	222	228	255	262
district	C	24	27	26	29	29
	N	45	46	46	, 51	53
	В	-21	-19	-20	-22	-24
Bhaktapur	P	189	194	199	172 *1	175 *1
district	$\mathbf{C}$	24	24	23	27	23
	N	23	25	40	34	35
	В	. 1	-1	-17	-7	-12
Kathmandu	P	482	491	501	653	684
district	$\mathbf{C}$	44	48	43	46	39
	N	96	99	101	131	137
-,	В	-52	-51	-58	-85	-98
Kathmandu	P	888	907	928	1,080	1,121
Valley	C	92	99	92	102	91
	N	164	170	187	216	225
	В	-72	-71	-95	-114	-134

Note: P = Population midterm estimate (1,000)

C = Consumptive Production (1,000 tons)

N = Necessity of food based on calories (1,000 tons)

B = Balance (surplus or deficit; 1,000 tons)

\*1: From CBS in reduced form.

Source: Consumptive Cereals of Kingdom of Nepal 1987-1992 Agriculture Marketing Development Division, DoAD.

Table 3-26 Present Organization of Agricultural Cooperative Society in the Kathmandu Valley

	Nos. of	Nos. of	Total Nos. of	Systematization	Financial Balance
Primary ACS	Villages	Members	Household in	Rate	in FY1991/92
	Covered		Village covered		NRs.1,000
Lalitpur District	41	15,574	28,951	54%	•
D. Co-op. Union	35	15,574	21,213	73%	-359
1	4	1,464	2,055	71%	-28
2	3	2,635	2,651	99%	-69
3	- 6	2,503	3,950	63%	-49
4	2	2,040	2,298	89%	-5
5	2	1,169	1,970	59%	-48
6	3	1,823	2,245	81%	-95
7	. 5	3,303	3,286	101%	-51
8	4	534	965	55%	-
9	6	103	1,793	6%	0
Bhaktapur district	22	547	22,725	2%	-
D. Co-op. Union	21	547	16,942	3%	-781
1	3	67	2,453	3%	
2	2	69	1,398	5%	-60
3	2	213	1,597	13%	-98
4	2	- 53	1,692	3%	-151
5	3	40	2,515	2%	
6	2	8	1,426	1%	-118
7	2	28	1,844	2%	-68
8	3 .	33	2,586	1%	
9	2	36	1,431	3%	-41
Kathmandu district	67	23,384	45,541	51%	
D. Co-op. Union	66	23,384	37,344	63%	
1	5	1,147	3,177	36%	-24
2	2	936	1,158	81%	-32
3	5	1,588	2,669	59%	
4	5	1,761	2,422	73%	-56
5	4	1,520	2,203	69%	-79
6	3	1,446	1,615	90%	-47
7	4	1,285	1,750	73%	-14
8	3	1,325	2,329	57%	56
9	4	2,576	2,725	95%	
10	4	1,015	2,102	48%	-38
11	- 6	1,998	3,169	63%	-29
12	2	1,370	1,413	97%	-42
13	. 4	1,025	2,039	50%	-11
14	11	2,622	5,940	44%	-43
15	4	1,770	2,633	67%	-32

Source: District Co-operative Office in Lalitpur, Bhaktapur and Kathmandu.

Table 4-1 Evaluation of Priority Schemes

·	<u> </u>	r		**	T		<u> </u>		<u> </u>	
					Eva	duation It	21118	<u> </u>	4, 41	
No.	Sub No.	Name of Schemes	ISP	Farm land condition	Water sources	Farmer's intention	Urbanization	Priority by DOI	Accessibility	Evaluation by JICA Study Team
AK-01	K-09	Balaju	O	Х	Δ	х	Х	х	0	Х
AK-02	K-20	Balambu	Х	-	-				-	ISP
AK-03		Balkhu	0	х	Δ	х	X	х	0	Х
AK-04	K-07	Biswambhara	0	. 0	0	0	0	0	0	0
AK-05	K-3	Boshan	0	0	0	0	. 0	0	Δ	0
AK-06	K-8	Budhanikantha	0	0	0	Δ	Δ	х	Δ	Δ
AK-07	K-1	Dakshinkali	0	0	0	0	0	Δ	0	0
AK-09	K-17	Dhulopuro	Х				·		_	ISP
AK-10	K-13	Gogal Indrayani Kulo	0	0	Δ	0	.0	Х	Δ	Δ
AK-12	K-6	Gokarna	0	Δ.	X	Δ	Х	0	0	X
AK-13	K-5	Ichadol	0	х	Δ	0	Δ	х	Δ	Х
AK-14	<b>K</b> -11	Indrayani	0	0	0	0	0	0	Δ	0
AK-24	K-2	Pharping Dhunge Dhara	0	Δ	Х	0	.0	X ·	Δ	X
AK-25	K-14	Shali Nadi	0	Ö	0	Ø	O,	0	0	Ο ,
AK-26	K-18	Sundarijal	0	X	0	O	0	X	Δ	. х
AK-27	K-10	Tokha	0	0	Δ	. O .	0	. 0	0	Ο
AB-01	B-05	Balakhu	0	Δ	Δ	Δ	X	X	Δ	X
AB-02	B-07	Bidol	0	0	0	0	0	Δ	Δ	0
AB-03	B-04	Chakhu Khola	0	Δ	0	0	0	X	Δ	Δ
AB-04	B-10	Dhunge Dhara	Ç	0	0	0	0	0	Δ	0
AB-07		Chatte Kulo	0	0	Δ	0	Δ	х	Δ	Δ
AB-08	B-08	Hanumante	0	0	Δ	Δ	΄ Δ	Χ.	0	Δ
AB-10	B-02	Katunje	0	0	0	· Ø	Δ	0	Δ	0
AB-12	B-09	Kutudhal	0	0	0	0	0	. 0	Δ	0
AB-13		Lapsetar	0	Δ	Δ	0	0	X	0	Δ
	B-01	Mahadev Khola	0	0	0	0	Δ	0	Δ	0
	<del> </del>	Nil Barahi	0	Δ.	0	0	0	X	Δ	Δ
ļ	B-03	Sipadol Katunje	0	0.	Δ	0	0	X	Δ	Δ
	<u> </u>	Sweety (shishaugari)	0	X	.0	Q .	0	х		. X
AL-02		Bhorle	X						2 <del>- 7</del> 2	ISP
ļ	L-09	Champi	Х	·						ISP
	L-03	Godawari	0	0	Δ	O	Δ	0	0	- Δ
	L-07	Khokana	0	0	0	Ø	0	0	Δ	0
ļ	L-04	Kotkhu	0	0	0 -	© ,	Δ	0	0	0
ļ	L-05	Lubhu	0	0	0	0	Δ .	0	Δ	0
AL-18	]	Saibu / Makal Kulo, Sara Kulo	X							ISP
·	<del> </del> -	Thika Bhairaw-I	0	0	0	0	Δ	0	. 0	0
AL-20	L-02	Thika Bhairaw-II	0	0	0	0	Δ	0	Δ	0

Unit Irrigation Water Requirement in Zone-A Table 5-1.1

Meteo. Station: Kathmandu Airport (1030)

ZONE A

Field Efficiency Paddy 85%
Distribution Efficiency 80%
Deep Percolation (mm/day) 5.0

Irrigation Water Requirement	rement		, <b>=</b>	[mm / half month]	lf monti	: : : ==									1.	.j.,	· · .							
	Tal		Feb		Mai		Apr		May	-	Jun	_	Ju	1	Aug	90	Sep	ë	ŏ	: ::	Ž	Nov	ă,	ي
2001	-	. 7	=	71	-	71	<b>'</b> –	17	-	7	-	7	7	7	=	7	1	7	1	7	1	2	-	7
Decide	8	000	8	800	900	000	900	00.0	900	319.06	238.27	130.05	71.89	000	000	10.66	66.31	120.70	000	0.00	000	0.00	000	0.00
r actual	8 0	000 000 000	8				000	000	000	000	238.28	168 49	94.62	000		103.78	79.05	128.86	131.21	43.59	13.36	0.00	0.00	0.00
Wheet	3 2	705 18 00 28 60 35.81 119.92 34.29 42.88	28.60	35.81	19.92	34.29	12.88	000	000	800	000	000	000	ı	000	0.00	0.00		0.00				18.14	34.67
Deserves	AG 74	49 7K 40 37	× 68	55 98 43 36	6.21	800	ı		800	80	000	000	000	1	0.00								44.44	50.50
Foreites	900	8			8	78 29 1		12	100.59	15.75	80	000	000	800	000	000	000	000		00'0	0.00	000	0.00	0.00
Commen	8	8		٤	800	000			27.02	89.25	69.53	000	000	1	0.0				ŀ		1		000	8
Suitance	8 8	8 6						000	000	000	000	000	000		000	000							0.00	0.00
Winter wonerships	8	8	8	1	1	000	1	8	800	8	000	000	000		0.0	0.00				1			000	000
Hinter regulation			8		000	000	000	800	000	000	000	000	000		000	000			0.00	40 4		80.86	37.55	11.13
			0	0.00	800	0.0	0.0	0.0	000	0.00	0.00	000	000		0.00	0.00		-	0.01	8.47	27.09	34.59	48.38	47.50
Mustard	42.73	1	14.4	5.47	0.00	0.00	0.00	0.00	00.0	0.00	000	0.00	0.00	0.00	0.00	0.00	0.00	8	0.00	17.19	31.88	52.53	46.13	20.00

Irrigation Water Requirement for the Project	ster Requir	ement	for the	Proje	Ħ	凸	led / mt	[mm / half month.]	, many	1				:	. 2										
	Cropned	Ian.		Feb		Mar		Apr		May		am/		P		Aug		day.		Oct		Nov		Dec	
3000	Area (%)	, -	7	-	7		7	٦,		_	71	<del></del> -	71	<b>-</b>	73	-	(1	-	4	1	7	1	7	1	7
Daddy	8062	٥	000	000	000	0.00	000	000	ı	0.00 12	127.62 19	190.62	119.41	66.61	0.00		81.12	58.15	99.82	52.48	17.44	5.34	000	000	0.00
- county	40%	000	000	000	000			_	000					28.76	000		39.61	26.53	48.28	800	0.00	0.0	0.00		80.
	40%	000	000	000			•	_				95.31	62.39	37.85	0.00	0:00	41.51	31.62	51.54	52.48	17.44	5.34	- 1	. [	8
Wheat	40%	6.82	1	l	1	1 76.74	13.72	17.15	١.	l				00.0	0.00	0.00	0.00	000	0.00	0.00	0.00	000	. 1		13.87
Potatoes	20%	9.95		11.20	8.67	1.24	00:0	000	ĺ		0.00	000	00:00	00.00	000	0.00	0.00	0.00	0:00	00:0	0.00	203	- 1	٦	10 10
Maize	10%	00:0		000	2.05	5.46		13.19	1		1.58	0.00	0.00	00:00	0.00	0.00	0.00	0.00	0.0	0.00	000	8.0	١.	-1	8
Summer	20%	000	L	000	0.00	0.00		000			8.93	6.95	0.00	000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	000	0.00		8
vecetables	10%	0.00	000	000	000	0.0		,	0.00		8.93	6.95	0.0	0.00	000	0.00	0.00	0.00	0.00	000	0.00	0.0		89	8
	%01	000	8	000	000	000	000	000			00:0	0.0	0.0	0.00	0.00	000	0.00	0.00	0.00	0.00	0.00	0.0	- 1	- 1	8
Winter vecetables	20%	1.63	000	000	000	000	00.0	00.0	i	ŀ	000	0.00	00.0	00:0	0.00	0.00	0.00	000	000	1,32	8.52	9.82	7.24		3.87
			000	000	000	000	000	_		000	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.32	5.29	3.51	9. 8.		999
	808	_	00	000	000	0.0	000	0.00			0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.0	8.0	0.00	2.67	4.52	4.02		0.73
	6.60%	163	000	000	0.00	000	000	0.0			000	0.0	0.00	0.00	00:0	0.00	0.00	0.00	0.00	0.00	0.56	1.79	2.28	3.19	~ 4
Mustard	10%	4.27	4.45	2.60	0.55	0.00	0.00	00:0	0.00	000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	3.19	5.25	4.61	8
																							Т	ı	
TOTAL	[mm/hm]	12.67	21.52	25.24	25.59	54.67	21.55	30.34	11.78 I	12.76 13	138.13	197.57	119.41	19:99	0.00	0.00	81.12	58.15	28.82	53.80	27.68	23.37	22.29	26.43	32.8
TOTAL	[1/cac/ftn]	0.17	0.16	0.10	0.23	0.42	9.16	0.23	0.00	0.10	1.00	1.52	0.92	0.51	0.00	0.0	0.59	0.45	0.77	0.42	0.20	0.18	0.17	0.20	0.24
TOTAL	(nacruar)				1		1	I	1	l														-	

Table 5-1.2 Unit Irrigation Water Requirement in Zone-B

Particulation   Particular	5	ry Freid	% % 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	• •	[		:	-					•	1 1 2		i.							:	
Mater, Station   1,00   Mater, Station   Charge Nuryon (1969)   Mater, Station (1969)   Mater, Station (1969)   Mater, Station (1969)   Mater, Station (1969)   Mate	Distribution efficiency Deep Percolation	<b>5</b>	×		1	Ç	_			,												٠		
	Deep Percolation		}		Õ	N L	_		٠		· · · ·													
		(mm/day)	5.0											٠.			٠.						٠,	. :
The part   The part				,	Mete	o. Static	n: Chan	gu Nari	ryan (10:	6					::									
Second   S									٠.					٠.			:							
The color   The	Irrigation Water	Require	ment	-	(mm	/balf m	onth]	:	-						:	· 2								
1			Jan		Feb	Γ	Mar	¥	pr	Ĭ	ty.	nf.	_	lr.		Αū	9	Š	<u>a</u>	P	150	Ž	ž	مٌ
Color   Colo	Crops		7						7	7	7	7		**	7	-	4	1	7		'n	-	71	
10   10   10   10   10   10   10   10	Paddy		•			١.	ŀ			0.00	316.81	201.39	141.37		0.00	0.00	000	0.00	80.68				0.00	80
1,10,10,11,11,11,11,11,11,11,11,11,11,11			ı	1		_ 1:	: 1	- 1	- 1	3.0	3	201.40	179.81	1	0.00	3	00.0	83	107.24	7		- 1	800	80
Chie Sili Sili Sili Sili Sili Sili Sili Si	Wheat		- 1	- 1	- 1			36.45		0.0	000	000	99		900	000	0.0	000	000	:	- [	. 1	689	18.14
0.00   0.00	Potatoes			- 1			1	0.00	- L	0.0	0.0	000	9.0	- 1	8	000	80	0.00	000	ı		- 1	35.23	4 4
CANO   0.00	Maize		ı			1	- 1	3 142.21	<b>⊷</b> :	109.80	0.0	000	0.00	- 1	000	0.00	0.00	000	00		- 1	- 1	80	900
Characteristic   Control   Control	Summer	-						:		34.63	86.63	26.51	900		000	000	0.00	0.0	000				00:0	000
September   Condition   Cond	vegetables		ļ		- 1		- 1	- 1	- 1	0.0	0.00	90.0	000		0.00	000	000	000	000	.	-		0.00	0.00
36.05 0.000 0.00	Winter vegetables									0.00	0.00	0.00	0.00		000	0.00	0.00	0.00	0.00	1			14.25	80
36.09 0.00 0.00 0.00 0.00 0.00 0.00 0.00							1			0.00	0.00	0.00	0.00		9.00	0.00	000	0.01	000				60.86	37.55
Second Nater Requirement for the Project   Time / half month.]				-			1	ı		0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00				34.59	48.38
Second   S	Mustard		1							0.00	0.00	000	0.00		0.00	0.00	000	0.00	0.00				52.53	46.13
No.   No.																								
Cropped         Jan         Feb         May         Jun         Jul         Jul         Aug         Sep         Oct         Nov         Nov         Discoversion           Area(%)         1         2<	Irrigation Water	Require	ment for	the Pr	ject		(mm)	half mor	ith.]										e e					
Attail (%)   1   2   2		ropped	Jan		Feb		Mar	¥	Dr.	Ψ̈́	2	F	_			7	<u>ء</u>	Š	_	0	    2	Ž	   	ř
806		rea (%)	=	14	1		1 . 2	*	7	-	7	<del></del>	7	-	7		*	7	7	1	7	Τ.	**	-
4-6% 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.		塔	ı	ĺ	i.					0.00	126.72	161.12	128.47	000	0.00	0.00	0.00	27.96	82.53	1			000	0.0 0.0
40% 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0		40%	10			1				0.0	126.72	80.56	56.55	0.00	0.00	0.0	0.00	0.0	39.63				000	900
40% 1135 7.91 8.60 12.48 46.76 18.39 14.58 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0		40%	-1	- [	- 1	- I	. 1	1	- 1	000	000	80.56	71.92	000	000	000	000	27.96	42.90	- 1			000	0.00
20% 12.22 10.23 10.28 7.75 0.00 0.00 0.00 0.00 0.00 0.00 0.00			- 1	- 1	Į	1	. 1	ı		000	0.0	000	000	800	8	80	000	0.0	0.0	۱.		· [	2.75	7.26
10% 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0	s		7	٦	-	ı			ŀ	0.00	8	80	8	80	000	8	8	89	8	-	-		7.05	8.89
20% 0.00 0.00 0.00 0.00 0.00 0.00 0.014 0.00 0.346 8.66 2.65 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0	A	2		:	٠	1	- 1	- 1	- 1	10.98	80	8	8	000	8	89	000	000	000			1	000	0.00
Secretary 2.40 0.00 0.00 0.00 0.00 0.00 0.00 0.00		· ·			100				0.00	3.46	80.80	2.65	0.00	0.0	0. 0.	000	0.00	800	0.0		2		0.00	0.00
10% 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0	vegetables	300				÷	1		000	3.46	99. 80.	2.65	0.0	00	800	80	0.00	8	80	. 1	1	:	0.0	0.00
egetables 20% 2.40 0.00 0.00 0.00 0.00 0.00 0.00 0.00		10%			- 1		ı	- 1	0.00	0.0	800	0.0	90.0	0.0	0.00	000	0.0	800	0.00				0.00	0.00
6.66% 0.00 0.00 0.00 0.00 0.00 0.00 0.00		2						:	0.0	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	000	0.00				7.30	5.72
6.66% 0.00 0.00 0.00 0.00 0.00 0.00 0.00		6.66%				1	11		80	000	000	0.0	0.0	0.0	0.00	9.0	0.00	0.0	000				0.95	0.00
6.66% 2.40 0.00 0.00 0.00 0.00 0.00 0.00 0.00		6.66%		٠.					0.00	0.00	0.00	0.00	000	0.00	0.00	0.00	0.00	0.00	0.00	•	4		4.05	2.50
10% 5.41 4.63 2.14 0.09 0.00 0.00 0.00 0.00 0.00 0.00 0.0		9.99.9	- 1		Ì		Į	١	0.00	0.00	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00		1		2.30	3.22
[mm/hm] 31.38 22.77 22.02 21.91 51.92 27.39 28.94 11.21 14.44 135.38 163.77 128.47 0.00 0.00 0.00 0.00 27.96 82.53 54.05 35.69 23.45 22.35 26.48 [mm/hm] 0.24 0.15 0.17 0.20 0.40 0.20 0.20 0.11 0.98 1.25 0.39 0.00 0.00 0.00 0.00 0.00 0.00 0.00		25		ı	13				0.00	0.00	000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				5.25	4.61
[mm/hm] 3138 22:77 22:02 21:91 51.92 27:39 28:94 11.21 14.44 135.38 163:77 128.47 0.00 0.00 0.00 0.00 27:96 82.53 54.05 23.45 22.35 26.48											.:		:								-			
[J/sec/ha] 0.24 0.16 0.17 0.20 0.40 0.20 0.22 0.09 0.11 0.98 1.26 0.99 0.00 0.00 0.00 0.00 0.00 0.22 0.64 0.42 0.27 0.18 0.17	;		1				- 1	- 1		14.44	135.38	163.77	128.47	0.00	0.00	0.00	00'0	27.96	82.53	ŀ				26.48
[Neccha] 0.24 0.16 0.17 0.20 0.40 0.20 0.20 0.09 0.11 0.98 1.26 0.99 0.00 0.00 0.00 0.00 0.00 0.22 0.64 0.42 0.27 0.18 0.17															ļ									
		toc/hal							5									1						

Table 5-2 Irrigation Water Requirement for the Selected 16 Irrigation Schemes

Table 5-2  Zone-A  No. Name of Scheme Gross Unit Water Requirement (Wsec/ha)  Water Requirement (m3/sec)  AB-10 Katunje 90  AB-14 Mahadev Khola 450	Scheme Scheme It (M34)	IIT Area (ha) Gross Net	rrigal	tion	Irrigation Water Requirement fo	er Re	equir	eme	ıt for	or the Selected 16 Irrigation Schemes	Selec	ted 1	16 In	igati	on Sc	hem	es S			٠.						
One-A No. Name of the off the	Scheme Scheme It (M34 (m3/8ec)	Area (I	mgan	101	<b>*</b>	7	<u> </u>		101 11	ĺ	י זיי	3		T Par			3									
No. Name of the No. Name of the No. Name of the No. Name of the Nater Requirement (B-10 Katunje (B-14 Mahadev	Scheme lirement (Vse at (m3/sec)	Area (I																								
No. Name of the off th	scheme lirement (Vse nt (m3/sec)	Area (I									4, 4															١
nit Water Requirementater Requirementater Requirementater B-10 Katunje	irement (Vse at (m3/sec)			Jan H	<u> </u>	Feb E	A	Mar	A 1	Apr	May	E E	in in	1	E E	ı	Aug	٦	Sep	1	ы Б	ı i	Nov E	1	Э ш	้ำ
/ater Requiremer B-10 Katunje B-14 Mahadev	at (m3/sec)	Saa)	4		0.16 0.	i	1	0.42	1 0	123 0.09	9 0.10	0.1.00	0 1.52	0.92	0.51	0.00	0.00	0.59	0.45	0.77	0,42	0.20	0.18	0.17	0.20	0.24
B-10 Katunje B-14 Mahadev	(X)			٠.						1																
B-14 Mahadev		8	72 0.0	0.012 0.0	0.012 0.0	0.014 0.017		0.030 0.0	0.012 0.017	17 0.006	6 0.007	7 0.072	2 0.109	0.066	0.037	0.000	0.000	0.042	0.032	0.055	0:030	0.014 (	0.013 (	0.012 0	0.014 0	0.017
	Khola	450	360 0.061		0.058 0.0	0.068 0.0	0.083 0.1	0.151 0.0	0.058 0.083	83 0.032	2 0.036	6 0.360	0 0.547	0.331	0.184	0.000	0.000	0.212	0.162	0.277	0.151	0.072 (	0.065	0.061 0	0.072 0	0.086
AL-8 Khokana		230	200 0.034		0.032 0.0	0.038 0.0	0.046 0.0	0.084 0.0	0.032 0.046	46 0.018	8 0.020	0 0.200	0 0.304	0.184	0.102	0.000	0000	0.118	0.000	0.154	0.084	0.040	0.036	0.034	0.040	0.048
-		445	356 0.061		0.057 0.0	0.068 0.0	0.082 0.1	0.150 0.0	0.057 0.082	82 0.032	2 0.036	6 0.356	6 0.541	0.328	0.182	0.000	0.000	0.210	0.160	0.274	0.150	0.071	0.064	0.061	0.071 0	0.085
AL-13 Lubbu			132 0.022		0.021 0.0	0.025 0.0	0.030 0.0	0.055 0.0	0.021 0.030	30 0.012	2 0.013	3 0.132	2 0,201	0.121	0.067	0.000	0.000	0.078	0.059	0.102	0.055	0.026	0.024	0.022 0	0.026 0	0.032
AL-19 Thika Bhairaw-I		009	480 0.0	0.082 0.077		0.091 0.110		0.202 0.(	0.077 0.110	10 0.043	13 0.048	8 0.480	0 0.730	0.442	0.245	0.000	0.000	0.283	0.216	0.370	0.202	0.096	980.0	0.082	0.096	0.115
41.20 Thiks Bhairsw-II	iraw-II	904	320 0.054		0.051 0.0	0.061 0.0	0.074 0.1	0.134 0.0	0.051 0.0	074 0.029	9 0.032	2 0.320	0 0.486	5 0.294	0.163	0.000	0000	0.189	0.144	0.246	0.134	0.064	0.058	0.054	0.064	0.077
Zone R		4	1	1	l .				1			:	. •						:							1
No. Name of Scheme		Area (ha) Gross Net	<u> </u>	Jan	I 7	Feb E	ון	Mar	L	Apr	May L E		Jun E	E E	E E	1	Aug	اد	Sep En	1	S E	ы	Nov E	٦	35 E	ᆈ
Unit Water Requirement (I/sec/ha)	rement (1/sec/	ha)	o.	0.24 (	0.16 0.	0.17 0	0.20 0	0.40	0.20 0.	0.22 0.09	9 0.11	1 0.98	8 1.26	0.99	000	0.00	0.00	0.00	0.22	0.64	0.42	0.27	0.18	0.17	0.20	0.24
Water Requirement (m3/sec)	nt (m3/sec)													•											٠.	
AK-4 Biswambhara	hara	125	100	0.024 0.016		0.017 0.0	0.020 0.040	040	0.020 0.0	000 770	110.0 %	1 0.098	8 0.126	6600 . 9	0.000	0.000	0.000	0.000	0.022	0.064	0.042	0.027	810.0	0.017	0.020	0.024
		210	168 0.0	0.040 0.	0.027 0.0	0.029 0.0	0.034 0.0	0.067	0.034 0.0	.037 0.015	15 0.018	8 0.165	5 0.212	2 0.166	0.000	0.000	0.000	0.000	0.037	0.108	0.071	0.045	0.030	0.029	0.034	0.040
	ifs	81	80.0	0.019 0.	0.013 0.0	0.014 0.0	0.016 0.0	0.032 0.	0.016 0.0	.018 0.007	0000	9 0.078	101.0	0.079	0.000	0.000	0.000	0000	0.018	0.051	0.034	0.022	0.014	0.014 (	0.016	0.019
	2	5	112 0.0	0.027 0.	0.018 0.0	0.019 0.0	0.022 0.0	0.045	0.022 0.0	0.025 0.010	10 0.012	0.110	0 0.141	1 0.111	0.000	0.000	0.000	0.000	0.025	0.072	0.047	0.030	0.020	0.019	0.022	0.027
AK-25 Shali Nadi	#	8	240 0.0	0.058 0.	0.038 0.0	0.041 0.0	0.048 0.	0.096	0.048 0.0	053 0.022	22 0.026	26 0.235	5 0.302	2 0.238	0000	0.000	0.000	0.000	0.053	0.154	0.101	0.065	0.043	0.041	0.048	0.058
AK-27 Tokha		8	72 0.0	0.017 0.	0.012 0.0	0.012 0.0	0.014 0.	0.029 0.	0.014 0.0	0000 910	9000 90	98 0.071	1 0.091	1 0.071	0.000	0.000	0.000	0.000	0.016	0.046	0.030	0.019	0.013	0.012 (	0.014 (	0.017
AB-2 Bidol		8	48 0.0	0.012 0	0.008 0.0	0.008 0.	0.010 0.0	0.019 0.	0.010 0.0	0.011 0.004	0.005	0.047	090.0 21	0 0.048	0.000	0.000	0.00	0.000	0.011	0.031	0.020	0.013	0.009	0.008	0.010	0.012
AB-4 Dhunge Dhara	Chara	210	168 0.0	0.040	0.027 0.0	0.029 0.	0.034 0.	0.067 0.	0.034 0.0	0.037 0.015	15 0.018	18 0.165	55 0.212	2 0.166	0.000	0.000	0000	0.000	0.037	0.108	0.071	0.045	0.030	0.029	0.034	0.040
		147	118 0.0	0.028 0.	0.019 0.0	0.020 0.	0.024 0.	0.047	0.024 0.0	0.026 0.011	11 0.013	3 0.116	6 0.149	0.117	0.000	0.000	0.000	0.000	0.026	0.076	0.050	0.032	0.021	0.020	0.024	0.028

Table 5-3 Available Water at Intake Point

(1) Me	(1) Mean Discharge														
Code No.	Name of Scheme	River & Tributary	Catchinent	4	Available Water at Intake Point (Mean Discharge, Unit : m3/sec)	er at Intake I	oint (Mean l	Necharge, U	nit: m3/sec)						
			Area (km2)	Jan.	Feb.	Mar.	Apr.	May	Jup.	Jul	Aug.	Sep.	Oct.	Nov.	Dec.
AK-04	Biswambhara	Manchara River*	5.84	0.100	920.0	0.058	0.055	0.052	0.357	0.756	1.316	0.752	0.481	0.333	0.155
AK-05	Boshan	Boshan Khola	6.80	0.119	6800	0.071	0.065	0.062	0.422	0.895	1.339	0.891	0.570	0.395	0.185
AK-07	Dakshinkali	Kharpa & Hundu Khola	10.00	0.202	0.142	0.107	0.103	0.082	0.672	1.560	2.710	1.528	0.972	0.683	0.311
AK-14	Indrayani	Ghatte/Manamatta Khola	5.20	0.100	0.074	0.058	0.054	0.047	0.348	0.763	1.330	0.755	0.482	0.335	0.156
AK-25	Sali Nadi	Sali Nadi Khola	12.00	0.239	0.179	0.138	0.129	0.116	0.834	1.800	3.140	1.794	1.145	0.799	0.368
AK-27	Tokha	Tokha Khola	0:30	0.005	0.004	0.003	0.003	0.003	0.018	0.039	0.068	0.039	0.025	0.017	9000
AB-02	Bidol	Saraswisti/Tholo Khola	3.60	0.050	0.037	0:030	0.028	0.026	0.178	0.377	0.675	0.375	0.240	0.166	0.078
AB-04	Dhunge Dhara	Ghatte Khola	96.90	0.052	0.026	0.011	9000	0.005	0.311	0.717	1.286	0.714	0.438	0.288	0.108
AB-10	Katunje	Budhi Ganga/Ghatte Khola	2.40	0.026	0.017	0.011	0.013	600'0	0.059	0.204	0.363	0.186	0.123	0.091	0.040
AB-12	Kutudhal	Hanumante/Ghatte Khola	7.30	0.069	0.024	0.015	0.009	6000	0.200	0.761	1.363	0.707	0.425	0.286	0.091
AB-14	Mahadev Khola	Mahadev Khola	4.40	0.057	0.041	0.031	0.030	0.027	0.169	0.442	0.775	0.428	0.276	0.196	680.0
AL-08	Khokana	Nakhu Khola	49.00	0.537	0.326	0.202	0.332	960'0	0.710	5.417	7.907	5.865	2.532	1.248	0.737
AL-10	Kotkhu	Karmanasia/Kotkhu Khola	16.00	0.178	0.135	0.110	0.129	0.142	0.403	1.449	2.094	1.615	0.712	0.368	0.245
AL-13	Lubhu	Sineri(Lubbu) Khola	5.20	0.070	0.052	0.041	0.038	0.036	0.242	0.530	0.925	0.526	0.337	0.234	0.108
AL-19	Thika Bhairaw-I	Lele & Nakhu Khola	39.00	0.508	0.385	0:330	0.349	0.406	1.313	4.345	6.300	4.916	2.147	1.068	0.705
AL-20	Thika Bhairaw-II	Nakhu Khola	47.00	0.546	0.355	0.250	0.350	0.195	0.916	5.247	7.646	5.748	2.485	1.229	0.748
			:							: ;	:				

(E)	(2) 80% Reliable Discharge										***************************************					
Scheme	Scheme Name of Scheme	River & Tributary	Catch	Catchment	Ψ.	vailable Wak	er at Intake	Available Water at Intake Point (80% Reliable Discharge, Unit : m3/sec)	cliable Discl	large, Unit: 1	m3/sec)					.:
Code No.			Area	Area (km2)	Jan.	Feb.	Mar.	vbr.	May	Jun.	Jul.	Aug.	Sep.	Oct	Nov.	Dec.
AK-04	Biswambhara	Manohara River*		5.84	0.086	0.062	0.048	0.041	0.034	0.079	0.443	0.773	0.471	0.247	0.148	0.093
AK-05	Boshan	Boshan Khola		6.80	0.102	0.075	0.058	0.048	0.040	0.094	0.525	0.918	0.556	0.294	0.173	0.114
AK-07	Dakshinkali	Kharpa & Hundu Khola		10.00	0.169	0.123	0.087	0.077	0.031	0.106	0.914	1.597	0.946	0.494	0.294	0.189
AK-14	AK-14 Indrayani	Ghatte/Manamatta Khola		5.20	0.085	0.062	0.046	0.039	0.028	0.068	0.448	0.783	0.470	0.247	0.146	0.095
AK-25	Sali Nach	Sali Nadi Khola		12.00	0.205	0.150	0.114	960'0	0.078	0.174	1.060	1.852	1.116	685.0	0.348	0.227
AK 27	Tokha	Tokha Khola		0.30	0.004	0.003	0.003	0.002	0.002	0.004	0.023	0.040	0.024	0.013	0.008	0.005
AB-02	Bidol	Saraswisti/Tholo Khola		3.60	0.043	0.032	0.024	0.020	0.017	0.040	0.221	0.387	0.234	0.124	0.073	0.048
AB-04	Dhunge Dhara	Ghatte Khola		6.90	0.037	0.014	0.005	0.004	0.004	0.031	0.400	0.737	0.427	0.202	860.0	0.047
AB-10	AB-10 Katunje	Budhi Ganga/Ghatte Khola		2.40	0.025	0.010	0.008	0.007	9000	0.013	0.115	0.208	0.105	0.056	0.038	0.022
AB-12	Kutudhal	Hanumante/Ghatte Khola		7.30	9000	0.003	0.002	0.002	0.003	0.005	0.424	0.773	0.389	0.159	9200	0.015
AB-14	Mahadev Khola	Mahadev Khola		4.40	0.048	0.034	0.024	0.021	0.018	0.021	0.256	0.453	0.259	0.137	0.084	0.053
AL-08	Khokana	Nakhu Khola		49.00	0.317	0.156	0.030	0.122	0.038	0.065	3.377	5.137	4.405	1.972	0.918	0.507
AL-10	Kotkhu	Karmanasia/Kotkhu Khola		16.00	0.120	990.0	0.065	0.071	0.080	0.164	0.919	1.379	1.233	0.553	7270	0.174
AL-13	Lubhu	Sineri(Lubbu) Khola		5.20	0.059	0.043	0.033	0.028	0.023	0.054	0.313	0.546	0.328	0.173	0.102	9900
AL-19	Thika Bhairaw-I	Lele & Nakhu Khola		39.00	0.338	0.235	0.180	0.189	0.208	0.483	2.765	4.150	3.786	1.677	0.808	0.505
AL-20	Thika Bhairaw-II	Nakhu Khola		47.00	0.336	0.185	090'0	0.150	0.069	0.146	3.287	4.986	4,348	1.955	0.919	0.528

Note \*: in interior report, Intake of Biswambhara was considered on the Godagare Khoja which is a tributary of the Manohara River, with a catchment area of 1.7 km2. Available water in this table will be reviewed in Phase-Il Study for model schemes based on the monthly discharge to be estimated.

Table 5-4 Rehabilitation and Improvement Plan for 16 Schemes

### (1) Kathmandu District (6 Schemes)

Name of Scheme	Weir	Apron	Gate	Canal
Biswambhara (AK-04) (A=125ha) (30% of c	L=20 m Improvement onstruction cost)	Replacement by concrete and gravel work(100%) (Up/Downstream)	0.8 x 0.8 m. Replacement by steel gate.	L=3.5 km. Replacement by concrete canal (80%)
Boshan (AK-05) (A=210ha)	L=20 m. Replacement (100%)	Replacement by concret and gravel work(100%) (Up/Downstream)	0.8 x 0.9 m. Installation of steel gate.	L=2.0 km. Replacement by concrete canal (100%)
Dakshinkali (AK-07) (A=100ha)	L=6 m.(Temp.) Replacement (100%)	Upper Scheme Replacement by concrete and gravel work(100%) (Up/Downstream)	0.45 x 0.9 m. Replacement by steel gate.	No additional work.
	L=12 m No additional work.	Lower Scheme Replacement by concrete and gravel work(100%) (Up/Downstream)	No additional work.	L=2.4 km. Replacement by concrete canal (100%)
Indrayani (AK-14) (A=140ha)	L=16 m.(Temp.) Replacement (100%)	Replacement by concrete and work(100%) (Up/Downstream)	0.7 x 0.7 m. Replacement by steel gate	L=3.5km. Replacement by concrete canal (100%)
Shali Nadi (AK-25) (A=300ha)	L=15 m.(Temp.) Replacement (100%)	Replacement by concrete and gravel work(100%) (Up/Downstream)	0.6 x 0.7 m. Replacement by steel gate.	L=4.0km. Replacement by concrete canal (100%)
Tokha (AK-27) (A=90ha)*	L=3.4m. Replacement (100%)	Replacement by concrete and gravel work(100%) (Up/Downstream)	0.9 x 0.6 m. Replacement by steel gate.	L=2.2km. Replacement by concrete canal (100%)

Sub-total (965/ha)

Note \*: Command area of Tokha (AK-27) is changed for 90ha (maximum irrigable area) by the reason of available water discharge, though ordinary requested 150ha.

# (2) Bhaktapur District (5 Schemes)

Name of Scheme	Weir	Apron	Gate	Canal
Bidol (AB-02) (A=60ha)	L=3.5m Replacement (100%)	Provision of concrete and gravel apron (Up/Downstream)	0.45 x 0.70 m (2 Nos.) Replacement by steel gate	L=3.2km. Replacement by concrete canal (100%)
Dhunge Dhara (AB-04) (A=210ha)	L=20m. Replacement (100%)	Provision of concrete and gravel apron ((Up/Downstream)	0.4 x 0.4 m Replacement by steel gate	L=4.1km, Replacement by concrete canal (100%)
Katunje(AB-10) (A=90ha)	Construction of a weir(L'=5.0n	Provision of n)concrete and gravel apron (Up/Downstream)	Provision of steel gate. (0.5 x 0.6 m)	L=2.0km. Replacement by concrete canal (100%)
Kutudhal (AB-12) (A=147ha)	L=12m Replacement (100%)	Provision of concrete and gravel apron (Up/Downstream)	Replacement of gate(0.4 x 0.4 m)	L=2.0km. Replacement by concrete canal (70%)
	)L=16m Improvement onstruction cost)	Provision of concrete and gravel apron (Up/downstream)	Replacement of gate(1.7 x 0.65 m)	L=6.5km. Replacement by concrete canal (100%)

Sub-total (957ha)

# (3) Lalitpur (5 Schemes)

Name of Scheme	Weir	Apron	Gate	Canal
Khokana (AL-08) (A=250ha)	L=80m.(Temp) Construction of a weir (L'=50m.)	Provision of concrete and gravel apron (Up/Downstream)	Installation of steel gate (0.6 x 0.8 m)	L=4.5km. Replacement by concrete canal (100%)
Kotkhu (AL-10) (A=445ha) (50% of	L =9m. Improvement construction cost)	Provision of concrete and gravel apron (Up/Downstream)	Replacement by steel gate (0.9 x 1.2 m)	L=7.0km. Replacement by concrete canal (100%)
Lubhu (AL-13) (A=165ha)	Construction of a weir (L'=10m.)	Provision of concrete and gravel apron (Up/Downstream)	Installation of steel gate (0.9 x 0.85 m.)	L=4.0km. Replacement by concrete canal (100%)
Thika Bhairaw (1) (AL-19) (A=600ha) (50% of	L=10.6m. Improvement construction cost)	Provision of concrete and gravel apron (Up/Downstream)	Replacement by steel gate (1.75 x 0.95 m.)	L=14.5km. Replacement by concrete canal (100%)
Thika Bhairaw (2) (AL-20) (A=400ha)	Construction of a weir (L'=25m.)	Provision of concrete and gravel apron (Up/Downstream)	Installation of steel gate (0.7 x 1.4 m)	L=7.4km. Replacement by concrete canal (100%)
Sub-total Total	(1,860ha) (3,782ha)			

Preliminary Cost Estimation for 16 Schemes Table 5-5

Net Construction Cost A	Canal Works Div Pren Total	onstruction Cost Div Pren Total	onstruction Cost  Div Pren Total	onstruction Cost  Div Pren Total	onstruction Cost  Div Pren Total	Div Pren Total	Pren.   Total	Total	<del></del>	A လို	iii w	Price Esc.	Eng.	ing. GRAND	Unit Cost	
Canal Works Div. Prep.	Canal Works Div. Prep.	Canal Works Div. Prep.	Canal Works Div. Prep.	Div. Prep.	Div. Prep.	Div. Prep.	Prep.		_	lora	 S S	ESC.	<u>မ</u>	101AL	/IId.	
Area Main Seco- Tertiary Other Total Work work	Main Seco- Tertiary Other Total Work	Seco- Tertiary Other Total Work	Tertiary Other Total Work	Other Total Work	Total Work	Work		work							Ę	É
(ha) Canal -ndary Structures 15%	Canal -ndary Structures	-ndary Structures	Structures			15%	15%	15%			15%	15%	7.0%		2	(000)
1,243 9,532	4,246 2,177 1,866 1,243 9,532 1,476	2,177 1,866 1,243 9,532 1,476	1,866 1,243 9,532 1,476	1,243 9,532 1,476	9,532 1,476	1,476	:	1,651		12,659	1,898	1,898	886	17,341	173.41 3	3,468
168 3,912 3,657 3,134 1,605	3,912 3,657 3,134 1,605 12,308 4,884	3,657 3,134 1,605 12,308 4,884	3,134 1,605 12,308 4,884	1,605 12,308 4,884	12,308 4,884	4,884		2,578		19,770	2,965	2,965	1,383	27,083		2,
nkali 80 4,541 1,741 1,492 1,166 8,940 3,621	4,541 1,741 1,492 1,166 8,940 3,621	1,741 1,492 1,166 8,940 3,621	1,492 1,166 8,940 3,621	1,166 8,940 3,621	8,940 3,621	3,621		1,884		14,445	2,166	2,166	1,011	19,788		4,947
Indrayani 112 6,865 2,438 2,089 1,709 13,101 3,904	6,865 2,438 2,089 1,709 13,101 3,904	2,438 2,089 1,709 13,101 3,904	2,089 1,709 13,101 3,904	1,709 13,101 3,904	13,101 3,904	3,904		2,550		19,555	2,933	2,933	1,368	26,789		78
ii 240 11,010 5,224 4,478	11,010 5,224 4,478 3,107 23,819 3,712	5,224 4,478 3,107 23,819 3,712	5,224 4,478 3,107 23,819 3,712	3,107 23,819 3,712	23,819 3,712	3,712		4,129		31,660	4,749	4,749	2,216	43,374		3,615
72 2,920 1,743 1,494 923 7,080	2,920 1,743 1,494 923 7,080 840	1,743 1,494 923 7,080 840	1,743 1,494 923 7,080 840	4 923 7,080 840	7,080 840	840		1,188	- 1	9,108	1,366	1,366	637	12,477	173.29	3,466
Sub-Total 772 33,494 16,980 14,553 9,753 74,780 18,437 13,980	33,494 16,980 14,553 9,753 74,780 18,437	16,980 14,553 9,753 74,780 18,437	14,553 9,753 74,780 18,437	9,753 74,780 18,437	74,780 18,437	18,437		13,980		107,197	16,077	16,077	7,501	146,852	190.22	3,804
Bidol 48 4,248 1,044 895 928 7,115 864 1,196	4,248 1,044 895 928 7,115 864	1,044 895 928 7,115 864	895 928 7,115 864	928 7,115 864	7,115 864	864		1,196		9,175	1,376	1,376	642	12,569		5,237
e Dhara 168 9,681 3,657 3,134 2,471 18,943 4,884	9,681 3,657 3,134 2,471 18,943 4,884	3,657 3,134 2,471 18,943 4,884	3,134 2,471 18,943 4,884	2,471 18,943 4,884	18,943 4,884	4,884		3,57	₹	27,401	4,110	4,110	1,918	37,539		4,469
72 3,759 1,567 1,343	3,759 1,567 1,343 1,000 7,669 1,231	1,567 1,343 1,000 7,669 1,231	1,343 1,000 7,669 1,231	1,000 7,669 1,231	7,669 1,231	1,231		1,33	3	10,235	1,535	1,535	716	14,021		3,895
al 118 2,868 2,560 2,194 1,143	2,868 2,560 2,194 1,143 8,765 2,145	2,560 2,194 1,143 8,765 2,145	2,194 1,143 8,765 2,145	1,143 8,765 2,145	8,765 2,145	2,145		1,63	9	12,546	1,881	1,881	878	17,186		2,923
Khola 360 12,878 7,837	12,878 7,837 6,717 4,115 31,547 2,883	7,837 6,717 4,115 31,547 2,883	6,717 4,115 31,547 2,883	4,115 31,547 2,883	31,547 2,883	2,883		5,1(	4	39,594	5,939	5,939	2,771	54,243	150.68	3,014
766 33,434 1	33,434 16,665 14,283 9,657 74,039 12,007	16,665 14,283 9,657 74,039 12,007	14,283 9,657 74,039 12,007	9,657 74,039 12,007	74,039 12,007	12,007		12,9	35	98,951	14,841	14,841	6,925	135,558	177.06	3,541
200 10.686 4.354	10.686 4.354 3.732 2.816 21.588 19,768	4.354 3.732 2.816 21,588 19,768	4.354 3.732 2.816 21,588 19,768	2,816 21,588 19,768	21,588 19,768	19,768	: -	6,2	83	47,559	7,133	7,133	3,329	65,154	325.77 (	6,515
Kotkhu 356 13.419 7.750 6.642 4.172 31,983 1,112	13.419 7.750 6,642 4,172 31,983 1,112	7,750 6,642 4,172 31,983 1,112	7,750 6,642 4,172 31,983 1,112	4,172 31,983 1,112	31,983 1,112	1,112		4,9	4	38,059	5,708	5,708	2,664	52,139		2,929
132 5,938 2,873 2,463 1,691 12,965 2,451	5,938 2,873 2,463 1,691 12,965 2,451	2,873 2,463 1,691 12,965 2,451	2,463 1,691 12,965 2,451	1,691 12,965 2,451	12,965 2,451	2,451		2,31	7	17,728	2,659	2,659	1,240	24,286		3,680
Thika Bhairaw (1) 480 26,467 10,449 8,956 6,881 52,753	26,467 10,449 8,956 6,881 52,753 1,292	10,449 8,956 6,881 52,753 1,292	8,956 6,881 52,753 1,292	6,881 52,753 1,292	52,753 1,292	1,292		8,10	9	62,151	9,322	9,322	4,350	85,145	177.39	3,548
Thika Bhairaw (2) 320 15,062 6,966 5,971 4,200 32,199 6,153	15,062 6,966 5,971 4,200 32,199 6,153	6,966 5,971 4,200 32,199 6,153	5,971 4,200 32,199 6,153	4,200 32,199 6,153	32,199 6,153	6,153		5,75	2	44,104	6,615	6,615	3,087	60,421	188.82	3,776
Sub-Total 1,488 71,572 32,392 2	71,572 32,392 27,764 19,760 151,488 30,776	32,392 27,764 19,760 151,488 30,776	32,392 27,764 19,760 151,488 30,776	54 19,760 151,488 30,776	151,488 30,776	30,776		27,33	7	209,601	31,437	31,437	14,670	287,145	192.97	3,859
									Н							
TOTAL 3,026 138,500 66,037 56,600 39,170 300,307 61,220 54,222	138,500 66,037 56,600 39,170 300,307 61,220	66,037 56,600 39,170 300,307 61,220	66,037 56,600 39,170 300,307 61,220	39,170 300,307 61,220	300,307 61,220	61,220		54,22		415,749	62,355	62,355	29,096	569,555	188.25	3,765

Table 5-6 (1/2) Economic Cost and Return under With/Without Project Condition (1.00 ha Farm)

Description	ı											δ	Dry Scason Crop	g										
Crop (ha)			Wheat (0.520)	į		Maize (0.015)	۶		Willer (0.08	/Ellet (0.085)		Potato (0.04	Otato (0.045)		<b>~</b>	Mustard (0.020)			Legumes (0.015)		Vegeta	Vegetable (Radish) (0.030)		Total (0.730)
	Unit	άδ.	Price (NRs.)	Value (NRs.)	(No.	Price (NRs.)	Value (NRs.)	8	ry Price (NRs.)	. Value		Ory Price (NRs.	Price Value (NRs.) (NRs.)	g (*	D AO	Price V (NRa.) ()	Value (NRa.)	æ	Price (NRs.)	Value (NRs.)	ê	Price (NRs.)	Value (NRs.)	Value (NRs.)
	25	88	7.50	6,630	33			. 0			\$	200	6.45 3	3,220	7	30.00	420	6	12.00	100	1.043		2,610	
	2	834	0.25		33	0.20		01	65	0.30	S 8	0		0		0.50	0	**	0.20	:		00.00		
c) Grosd Income B) Input	2			or o			√i	2		•	<b>2</b>			3,420			3		:	<b>3</b>			2,610	13.680
d	, M	29	12.10	027	0	14.80		2	2	11.05	ន	¥	11.05	005	0	45.00	2	•	100:00	23		0 100.00	8.	
	Χg	33	10.20					10			8		10.20	8	4	10.20	9	0	_	0		7 10.20		
	X, 7	621	5.73	740	e, k	5.72		ឧឧ	0 5	5.72	۽ ۾	នៈ	5.72	011	4 5	5,73	오 ( )	0 4	5.72	0		4.5		
c) Pesticides	× ×	595'5	Ş		5			2			3	Į	3	3	97	C70	<b>R</b>			>	•	0	27	
Sub-total (a to c)				2,640			•	8		_	8		:	820			8						220	3.850
d) Labour Requirement Family Labour								,			•				A					•				
	MAD	:	75.00	98		75.00		9	2 75	75.00	140	7	75.00	170	0	75.00	96 9	0.	75.00	30		2 75.00	110	
-Female Hired Labour	S.	<del>9</del>	38.00	1.500	-	38.0		Q			ନ	<b>.</b>	38.00	980	<b>64</b>	38.00	8	-	38.00	8				
	Q S	च	75.00		0 4	, - ,		ន ន		75.00	•	- 0	75.00	<b>\$</b> (	0	75.00	0	0	75.00	•	-	0 75.00	Ċ	
-Fermite Sub-tetal (d)	Q	ي م دو	38.69	3 6	9 6	38.00		• 6	9 D =		- ş	 7 E		3 <b>§</b>	۰ ۳	38.00	0 5	o -	38.00	<b>-</b> \$		38.00		
to d)	Š	}		5,610	•		: ≌	98	,	4	450	1	-	1,350	•		210			8		0	8	8,280
C) Return (A - B)	NR.	:		1,230			30	0		я	40			1.870			210	-	: .	40			2,010	2.400
	:			٠					1.							٠			٠.	1				
With Project Condition	dition													.										
Description	J	,	A. C.			, ,						200		Š	Dry Selson Crop						47.	6		i
(m)	. '	•	(0.40)			(0.10)	€			: -		9.	(0.10)			(0.20)					W HOLE	water veg. (Kadish) (0.20)	<del>e</del>	(1.00)
Description	Umi	ŝ	Price (NRs.)	Value	È	Price	Vajue (NRs.)	I			8	Æ 6	te.) (NRa.)	! !	E €	Price Va	Value				8	Proc	Value	Value
A) Output			1										1			1								1
	٠ چو	<b>8</b>	7.50		5,50	08.9		0 4				1.300	6.45	8.390	<u>8</u>	30.00	4,800				6,950	2.50	17.380	: . 
b) hy-product.	9 K	8	67.0	<u> </u>	200		2 2	5 6						9 001	₹	or or						000	17.380	39 630
								. :			· :		٠.	}				· .					10000	000
s) Seed	×	\$	12.10	550	C1	14.80	8					102	1.05	1,120	7	42.00	911	 				100.00	901	
	Kg.	R	10.20	260	φ.		٠.							200	\$	10.20	410		. :		112	Н	- <del></del> - 	
Urea	8 7 8 7	8 5	5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5	0.5 3	₽ <b>§</b>	5.72	2 20 2		1			4 8	2, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5,	ន្ត	8 8	2, 5 2, 5	110				72 5		8 8	
	2 Z	7007	9	OC G	3									27	3	9 .	OC.				37.	C70		
				3,030			330						<b>–</b>	048			930						1.490	6,620
d) Labour Requirement							•		٠								,							, Pa
	QW.	ò	75.00	999		:	·						٠.	380	4	75.00	300	· * .			*	75.00	770	
	MA MA	8	38.00	1,160	01	38.00	380					13		570	8	38.00	910				\$		7	
Hired Labour	Q.W	m	75.00	210	. 41		140	_			٠.		75.00	8	,0	75.00						2 75.00	=	
·	N O		38.00	95	7	38.00				,		4		9		38.00						38.00		
Sub-total (d)	ė	49		2,290	17		<b>8</b>			• •		ผ	- 6	1,180	**		1,210				*		ei ·	8,100
	2 2			1.870			9						n •	020,0			2680			:			4,070	5,75
	3			200			3							2	-					i			Olefel	Dry season
Incremental Benefit	#			640			250			ą	G		έį	3,500			2,470			-40	<i>i</i> .		11,300	18.110

Table 5-6 (2/2) Economic Cost and Return under With/Without Project Condition (1.00 ha Farm)

100   100	Description Dry	Dry season							Rauny	Rainy Season Crops	R							Annual	. •
10   10   10   10   10   10   10   10	Cop (her)	Total	Pad	4y 58.5)		M. O	96 8		Potate (0.0	20		Legume (0.020	* ~	Summe	r Veg. (Tor (0.015)	Ĉ	Total (1.000)	Total (1.730)	
Kg   1580   1514   1515   1516   15	: *** :-	Value One-	1:	c Valux	1 ]	" `			1	Value	È		Value (NRa.)	€		Value (NRs.)	Value (NRs.)	Value (NRL)	:
Fig.   154		(tewar)				1	١,			١.									٠
Kg   1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,			- 1200 - 1216		3 8	8 %		3 5	- 1	•						1		,	
Kg   1, 10	pus Income	13,680	1		120	ļ		8			_						27,080	40,760	
Kg   Kg   Kg   Kg   Kg   Kg   Kg   Kg	3				\$20	90		120				0.000			0 . 70.00	0			
Kg   1859   18	1				·													٠	٠.
Kg   Kg   Kg   Kg   Kg   Kg   Kg   Kg					9			98			•	0 10.2			10.20	•			
K   1   1   1   1   1   1   1   1   1					926	5 8		£ 55				9 20		×				٠	
Mathematical bloom   Mathema					3			;, ;,											
Mathematical National Nation		3,850		ર્ભ	086		1	200		<b>3</b> 8			ଛ.			<b>3</b>	4 650	8,500	
Mail	d) Labour Requirement																		
Mathematical Part   Math		٠			CAS.	-		920	. 1		_	0 750			1 75.00				
March   Marc	<u>.</u>				980			88	38			1 38.0			4. 38.00				
Math															,			•	
Mail					010			<u>\$</u>	0 ·			0 25 0							
No.					P (			017	₹ - •			9					016.01	14 640	
Condition   Cond		4.430	<b>₹</b>	o c	96 E	8	र्भ च	2 5	'n	\$ 8		-	8 8		•	2 62	14,860	2 2	-
Condition   Note   According	() ()	20 1			2 5		•			Š			: \$			1 760	50.00	063.61	
Condition   Cond		2.400		٥				200		8			3			3	, e-	2201.1	
Total   Tota	ith Project Candition																. •		
Total   Tota	Description	1							Rainy	Season Cro	2							Annual	
Maintenance		Total	Pad	4		١.			3			:		Summe	r Veg. (Tor	· (other	Total	Total	Remarks
Chief	(pg)	(00'1)	)	0.80)	-										(0.20)		(1.00)	(2.00)	
Kg   4,000   6,25   2,000   1,912   0,75   1,430   1,912   0,75   1,430   1,912   0,75   1,430   1,912   0,75   1,430   1,912   0,75   1,430   1,912   0,75   1,430   1,912   0,75   1,430   1,912		Value												ŝ	Price	Value	Value	Value	
Kg         4500         6.25         25,000         6.25         27,200         53,500         70,000         7		(NRs.)	E	- 1											(NKS)	NKS.	(NK3.)	(RKS.)	
Kg         1512         0.55         1490         0.00         0					8					•				4.2					-
Kg         42         16.80         710         33.630         33.770         33.770         33.770         33.770         33.770         33.770         33.770         33.770         33.770         33.770         33.770         33.770         33.770         33.770         33.770         33.770         33.770         33.770         33.770				•	5.5					-				•					
Kg         42         16.80         710         40           Kg         81         10.20         820         40           Kg         218         5.72         1.250         70         5.00           Kg         5.175         0.25         1.250         70         5.040           kg         6.620         2.175         0.25         1.250         70         5.040           intercent         MD         2.170         2.100         2.100         2.100         2.100         2.040           m         MD         8.100         4.160         4.160         4.160         4.160         4.160         5.040           m         MD         8.100         4.160         4.160         4.160         4.160         5.040           m         MD         8.100         4.160         4.160         4.160         4.160         4.160         5.040           m         MD         8.100         1.180         4.160         1.200         5.040         1.200           m         8.100         1.20         1.200         2.100         2.100         2.100         2.100         2.100         2.100         2.100         2.100         2.		38.530			430												53,630	92,160	
Kg         42         16.80         710         40           Kg         81         10.20         820         71         50         10.20         510							-												
Kg         81         10.20         820         510 <td></td> <td></td> <td></td> <td></td> <td>710</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>70.00</td> <td></td> <td></td> <td></td> <td></td>					710										70.00				
Kg         18 10.20         820         10.20         820         10.														•	,				
Kg   1,400   0.25   3.90     Kg   1,200   0.25   1,200     Kg   1,200   0.25   1,200     Kg   1,200   0.25   1,200     MD   110   38,00   2,100     MD   1,300   1,300     MD   1,300     MD   1,300   1,300     MD   1,300	٠				0.50														
Kg   Kg   Kg   Kg   Kg   Kg   Kg   Kg					3 8									14.					
Mathematical   Math					3														
Mathematical Nation   110   245   7500   2100   1300   1	5	0293		4	070											970	5,040	11,660	
MID   18,100   180   1	1) Labour Requirement																		
MID   28   75.00   2.100   650   1.00   650   1.0	Family Labour														. ;				
MID   110 38.00 4.160   47 38.00 1.300   47 38.00 1.300   48 38.00 1.300   47 38.00 1.300   48 38.00 1.300   49 38.00 1.300   41 38.00 1.350   41 38.00 1.350   42 38.00 1.300   42 38.00 1.300   43 38.00   43 38.00   43 38.00   43 38.00   43 38.00   43 38.00					8										35.00				
MATO   18 75.00 1,380   18 75.00   1,380   1					8			-						d.	38.00				
Marco   1,500   1,50					380														
1, 1, 1, 1, 2, 3, 1, 3, 1, 3, 1, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3,					3 \$														
NRs					§ 5									•			11,900	20,000	
NRs 23,810 13,170 23,520 36,690  Dry scason * Rainy scason A		14,720	;	, E	86.											3,680	16,940	31,660	
ANA	٠	010 64		-	5											23.520	36.690	90.500	
Let and the second seco		V1010			2/17												Rainy season		
	\$	Lis semons					,												

Table 5-7 Summary of EIRR for Selected 16 Schemes

			Construction	n Cost	Incremental		
	Irrigation Area in ha		Initial Cost	NRs.1,000	Benefit	E	EIRR
-	Gross	Net	Total	/ha(Net)	NRs.1,000/yr		
Kathmandu District					:		
AK-04 Biswambhara	125	100	17,341	173.41	3,498	16	16.1%
AK-05 Boshan	210	168	27,083	161.21	7,209	22	2.1%
AK-07 Dakshinkali	100	<b>8</b>	19,788	247.35	3,433	13	3.4%
AK-14 Indrayani	140	1.12	26,789	239.19	4,806		13.9%
AK-25 Shali Nadi	300	240	43,374	180.73	10,298	18	8.1%
	06	72	12,477	173.29	1,946	=	1.6%
Sub-total	965	772	146,852	190.22			
Bhaktapur District							
AB-02 Bidol	09	48	12,569	261.85	2,060	13	12.4%
AB-04 Dhunge Dhara	210	168	37,539	223.45	4,480		7.6%
AB-10 Katunje	06	72	14,021	194.74	2,463	2	13.6%
AB-12 Kutudhal	147	118	17,186	146.14	3,781	17	17.8%
AB-14 Mahadev Khola	450	360	54,243	150.68	12,737	<b>1</b>	17.9%
Sub-total	957	99/	135,558	177.06			
Lalitpur District							
AL-08 Khokana	250	200	65,154	325.77	8,582		9.0%
AL-10 Kotkhu	445	356	52,139	146.46	15,276	22	22.6%
AL-13 Lubhu	165	132	24,286	183.98	5,664	11	19.1%
AL-19 Thika Bhairaw (1)	009	480	85,145	177.39	20,597	18	8.5%
AL-20 Thika Bhairaw (2)	400	320	60,421	188.82	13,731	1,	17.3%
Sub-total	1,860	1,488	287,145	192.97			
Total	3,782	3,026	569,555	188.25			:

Table 5-8 Selection of Priority Schemes

									٠			
Code Scheme	Less	Farmland Conditions	Availability of Irrigation	Accessibility	Economic Viability	Over-all Judgment	Selected Area (ha) as 1st priority	ea (ha) iority	Selected Area (ha) as 2nd priority	vrea (ha)	Selected Area (ha for Further Study	rea (ha) Study
No.	*1	*1	Water *1	*1,	(EIRR) *1	*2	Gross	Net	Gross	Net	Gross	Net
tK-04 Biswambhara	0	0	4	0	◁	0	PR. 7-74		125	90	125	8
K-05 Boshan	0	0	©	4	0	0	210	168			210	168
kali	0	4	0	0	4	0			100	80	100	08
.K-14 Indrayani	0	0	0	4	4	Ο.	-		140	112	140	112
AK-25 Shali Nadi	0	0	0	O O	0	0	300	240			300	240
XK-27 Tokha	0	٥	X	0	4	X				·	-	
Sub-total							510	408	365	292	875	700
Shaktapur District AB-02 Bidol	0	⊲	0	4	∢	0			9	84	99	48
æ		0	×	4	×	×			•		- <del></del>	- 4
.B-10 Katunje	4	◁	4	4	◁	0			06	72	8	72
_		0	◁	4	0	0	147	118			147	118
Khola	4	0	٥	٥	0	0	450	360			450	360
Sub-total							597	478	150	120	747	298
alitpur District							•••					
M08 Khokana	0	0	0	4	×	×						
J10. Kotkhu		0	0	0	0	0	445	356			445	356
Section 1	◁	0	0	4	0	0	165	132			165	132
L.19 Thika Bhairaw-1		0	0	0	0	0	009	480			909	480
AL-20 Thika Bhairaw-II	◁	0	0	٥	٥	0			400	320	400	320
Sub-total							1,210	896	400	320	1,610	1.288
Total							2,317	1,854	915	732	3,232	2.586

Note \*1 : Judged with the following criteria.

Availability of Water: © in dry season, 100% of area can be irrigated with 80% dependable discharge : A about 40-50% of area can be irrigated in dry season X irrigable area in dry season is less than 20% for proposed cropping pattern. △ 100-40 ha X less than 40 ha of net command area. X less than 10% X bad △ between 10 - 18% : C relatively good  $\triangle$  poor : C over 18%  $\triangle$  between O 300-100 ha Urbanization : almost nil Parmland Conditions : over 300ha Economic viability Accessibility

: If there are any X in EIRR or Water Availability, scheme was judged as the lowest priority and first priority was given for scheme which has EIRR over 18%.

selected schemes as model areas for feasibility study.

# Figures

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그리다 마다 불인하고 말았는 사고를 관심하다 살아가고 말하다. 반		

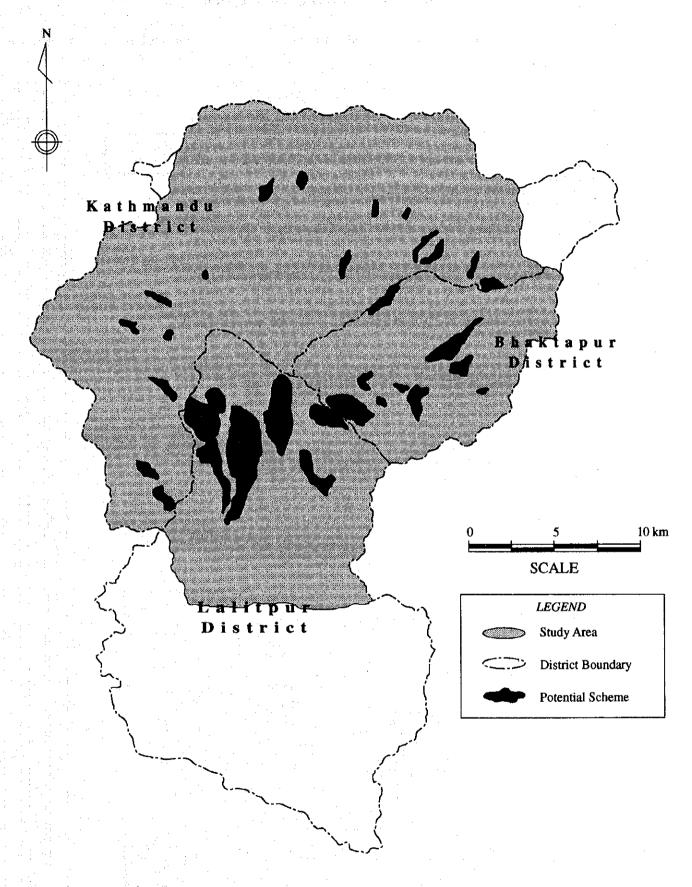


Figure 1-1 Study Area

Figure 1-2 Work Flow of the Study (1/2)

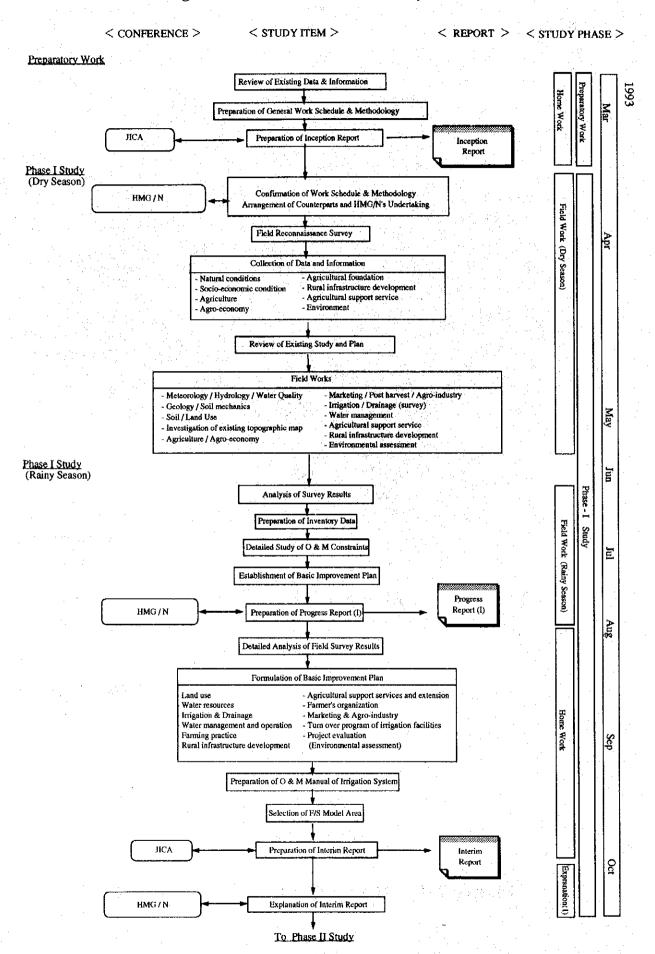


Figure 1-2 Work Flow of the Study (2/2)

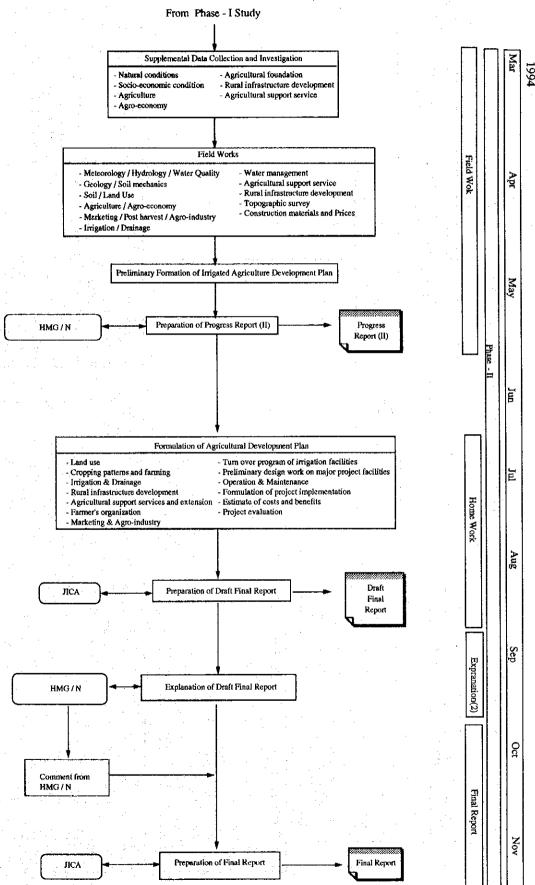
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#### Phase II Study



Organization of the Phase-I Study Figure 1-3

in : Mr.	Member : Mr. Masakazu ISHIKAWA													Mr. Takao KAWAKATSU		Tateumi TANARE	Kunita OKUWA	Yuki MATSUO	iki ITO		ONOHS if	NAGATA		
Coordinator: Mr. Akira SHIMIZU		JICA Nepal Office											Study I cam		Co-Team Leader cum	Imagation & Dramage Engineer	Mr.	d Land Use . Mr.	Agronomist : Mr. Kazuyuki ITO	Agro-Economist cum Farmers' Organization	and Project Economist Mr. Masashi SHONO	agineer		
	JICA Expert for Dol	Mr. Nobuharu SASANO				CANA CHILL	MI. ITEM CHIIKANAN	RYAL	VAIDYA		asad SHRESTHA			Δ	SDE,	DIE, DIO, Lautpur DIE, DIO, Bhaktapur	·	Agricultural Engineer, CRID	Agro-Economist, CRID	Agronomist Soil Expert DoAD	Overseer, CRID			Overseer, CKID
f Irrigation (DOI) : Mr. Y. L. VAIDYA	: Mr. C. P. RAUNIYAR : Mr. M. M. SHRESTHA	: Mr. Binod ARYAL : Dr. Bhupendra ARYAL	: Mr. S. P. SHARMA : Mr. M. S. POUDYAL	on Directorate (CRID) : Mr. M. N. ARYAL	and Coordination Committee			: Mr. M. N. ARYAL	Nepal Mr Nanda R VAIDYA		Regional Director : Mr. Ram Prasad SHRESTHA				≤	Mr. D. R. POKHAREL	Ą		THA	Mr. M. LIWAKY	A.R.		RMA	Mr. U. BAKAL
Department of General	Deputy Director General	Deputy Director General Deputy Director General	Senior Divisional Engineer Senior Divisional Engineer	Central Regional Irrigation Regional Director	Regional Appraisal and	Department of Agricultural Development,	Central Region, Regional Director Department of Irrigation,	CRID, Regional Director	Agricultural Development Bank, Nepal Controller (Reginal Manager)		Central Regional Office, Reg			Chief Counterpart/Project Manager Mr. Keshav SHARMA		Counterpart Staff (Pert time) Counterpart Staff (Pert time)	Staff			Counterpart Staff	-	Asst.	Asst.	Counterpart Asst. Start
			:1					F-	4	<u> </u>		. <b>L</b>		<u></u>	<u> </u>	<u>,                                    </u>	<u>.                                    </u>		<u> </u>	<u> </u>	<u>, 0</u>	<u>o</u>	<u> </u>	의

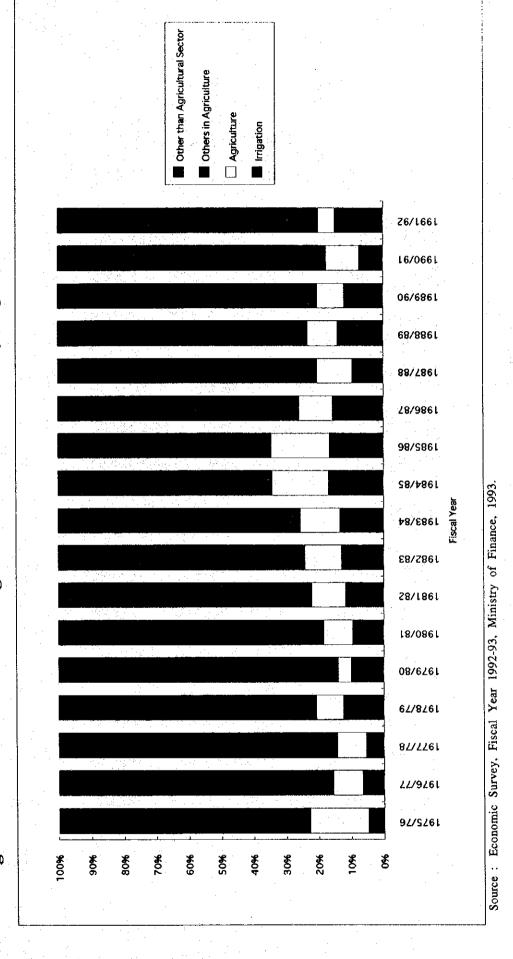
Figure 1-4 Assignment Schedule of the Study Team

							P. P.	Phase-I			F	Tonographic Manning	ranhi	Na Par	oning			q eqd	Phase-II			
	Position	Name of Expert					16	1993			1		_		a			1994				
			Jan	Feb Mar	lar A	pr May	y Jun	Jul	Aug	Sep	Oct 1	Nov D	Dec Ja	Jan Feb	b Mar		Apr May	Jun	Jul   Aug		Sep   Oct   Nov	ò
	Team Leader	T. Kawakatsu			· • [6	(35)	4	(20)	22	(40)	14 14 (10) 23		: '			23	(34)	U	(30)	23 (10)	©□ 3	
	Co-Team Leader cum Irrigation & Drainage Eng. Operation & Maintenance	T. Tanabe			o   €   a   e	(0)	42	(99)	23	(45)	14 T T T T T T T T T T T T T T T T T T T				<u> </u>	31 (5	(57)		8	23 (10)	© <b>□</b>	
	Hydrologist	K. Okuwa			-92 <del></del>	30)	<b>4 =</b>	(9)	22	(45)										***********		
	Pedologist cum Land Use	Y. Matsuo			-91	(30)		(98)		- [ <u>@</u>					16	_	(57)		(30)			
<del></del>	Agronomist	K. Itoh			9	•	24	(09)	22	(45)					en .	31 (5	(57)		(45)			
	Agro-Economist cum Farmers organization & Project Economist	М. Shono			_2, _2, _3, _3,	(40)	24	(09)	22	(45)	14 (10) 23				31	1 (57)	26		(09)	23	©  3 	
	Planning and Design Engineer	H. Nagata						(30)	(S)						18		(57)	_∏ <sub>©</sub>	<b>(</b> )			
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	Inception Report				4																	
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			Remarks	rks			ig i	old W	ork in	Field Work in Nepal Home Office Work in Japan	l in Tar	nac						!				
									3	410	20	Į į	l				l					7

Social Development and Other Development Other Economic Development Regular Expenditure Expenditure Agriculture Irrigation Annual Allocation of Government Budget for Agricultural Development 1992/93 Z6/1661 16/0661 06/6861 68/886 f 88/7861 Irrigation and 1984/82 ₽8/E86L 1982/83 2-1 Z8/1861 18/0861 Figure 08/6/61 100% 80% 20% 60% 20% 40% 20% 30% 906 30% 8

Economic Survey Fiscal Year 1992-93, Ministry of Finance, 1993 for 1991/92 and Annual Budget in FY2049/50B.S. (1992/93) Source: Statistic Year Book of Nepal, 1989 for 1979/80, 1991 for 1980/81 & 1982/83, and 1993 for 1983/84 to 1990/91,

Share of Foreign Aid Disbursement by Agricultural Sector 2-2 Figure

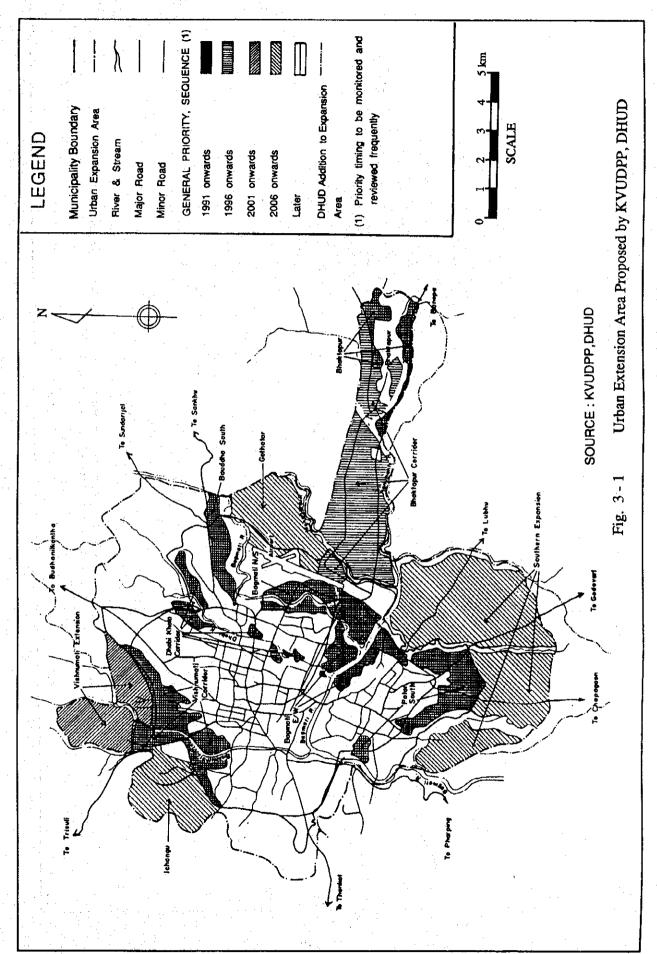


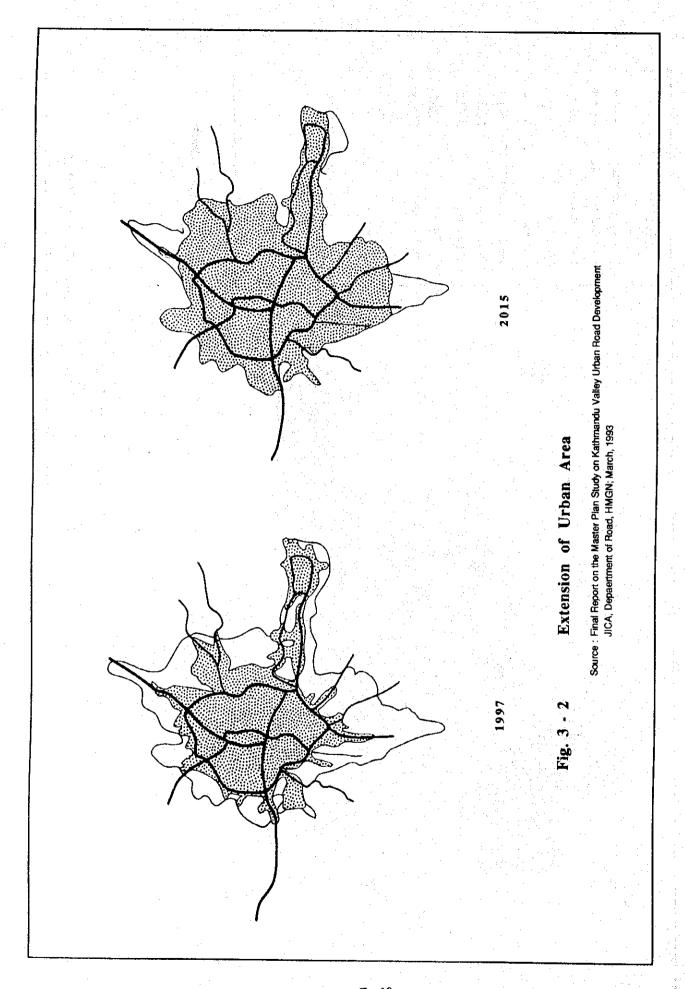
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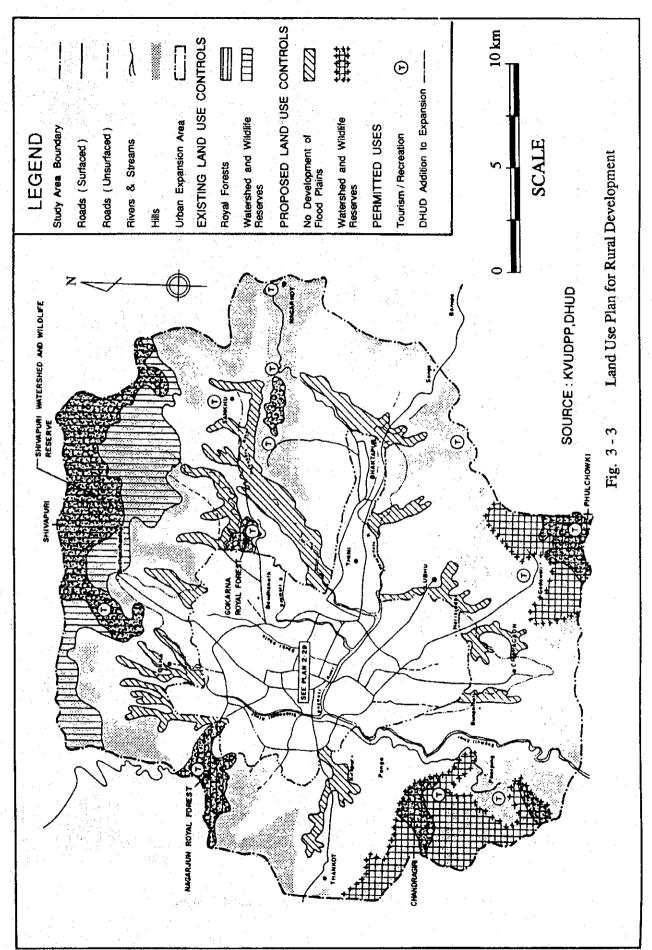
Other Multilateral **2** OPEC Countries Other Bilateral IDA/IBRD ☐ Germany Japan M UNDP **Ⅲ** ADB Sources 1661 Share of Foreign Aid Disbursement by 0661 686 L 886 l **4861** 986 L 1982 **≯**861 1983 786 l 2-3 1861 Figure 086 l 626 l 80% %09 90% 40% 100% 20% 8 -20%

Sources: Geographical Distribution of Financial Flows to Developing Countries, OECD Paris, 1984,1987,1990 & 1993

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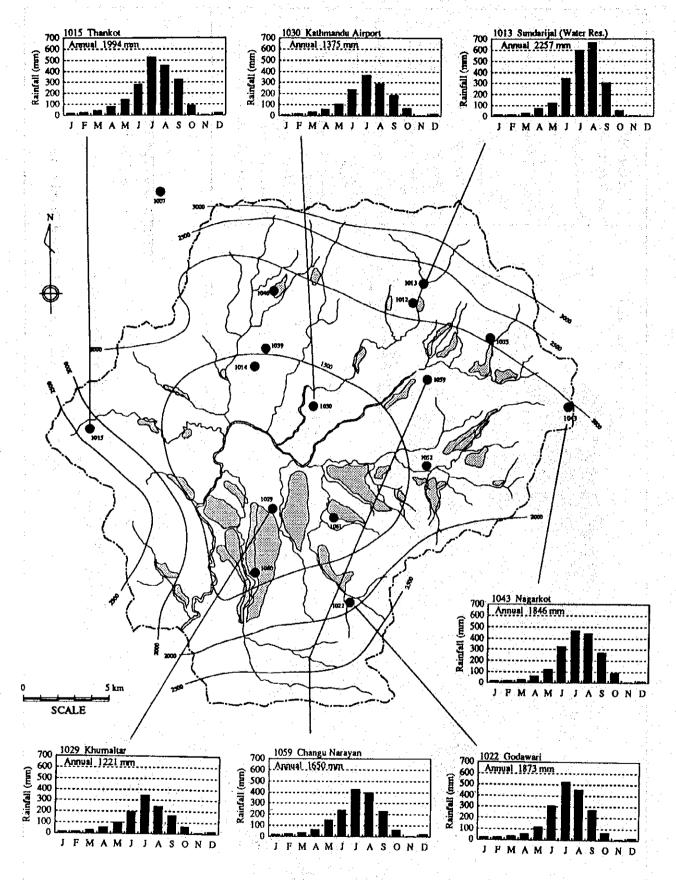
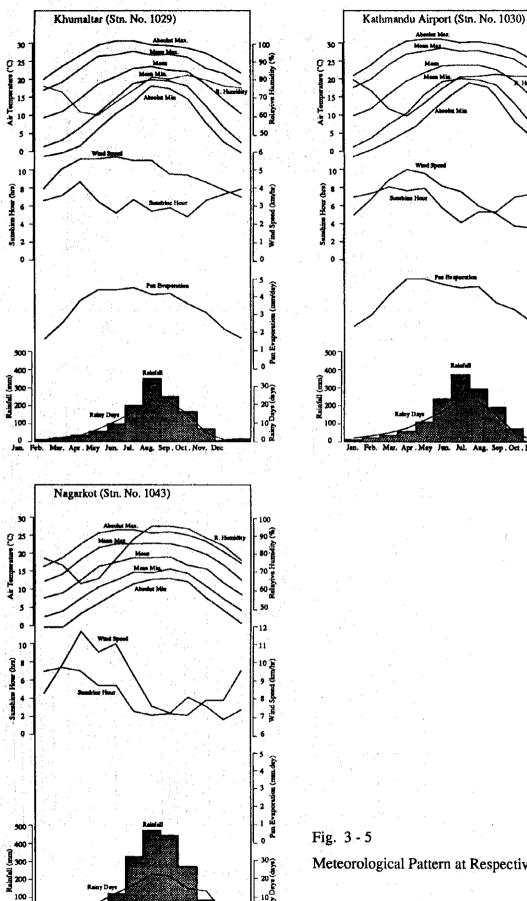


Fig. 3 - 4 Monthly Rainfall and Annual Isohyet



Meteorological Pattern at Respective Stations

Jas. Peb. Mar. Apr. May Jun. Jul. Ang. Sep. Oct. Nov. Doc

Year	Stn. No. 5 Sunderlje! (C.A = 17		Stn. No. 5 Mahankai (C.A = 13		Str. No. 5 Shyamdac (C.A = 3.3	do .	Stn. No. 5 Geerl Che (C.A = 67	d.	Stn. No. 5 Cobbar (C.A = 56	
	Discharge (m3/sec)		Discharge (m3/sec)	Date	Discharge (m3/mc)	Date	Discharge (m3/sec)	Dete	Discharge (m3/sec)	Dute
1962			"					·	247	ANG.
1963		Aug. 31	16.3	Aug. 18	4.19	Aug. 31			206	Sep.
1964		ANG. 30	9.5	Ane. 15	4.19	Jul. 29			251	Sep.
1965		Jul. 26	17.5	Jul. 26	9.97	Jul. 26	119.0	Ang. 19	395	Jal.
1966		Sep. 4	52.0	Aug. 24	10.00	Sep. 4	214.0	Aug. 24	634	Aug. 2
1967		Jul 10	19.2	Jul 10	19.50	Jul. 10	236.0	Jul. 10	680	Jul 1
1968		Jun. 27		Jun. 27	6.73	Aug. 16	73.8	Aug. 15	497	Oct.
1969		Jul. 27		Jul. 22	3.73	Aug. 3	51.3	Aug. 11	431	Aug.
1970		Jul. 19	19.6	Jal. 28	13.20	Jun. 1	125.0	Jul. 20	582	Jal. 1
1971		Jul. 14	10.0	Jun. 10	. 7.54	Aug. 15	90.4	Jun. 12	617	Jun. 1
1972		Jul. 28			* * * ·				876	lar t
1973					4 1 5	1			335	Jul. 2
1974		Scp. 2							350	Aug.
1975		Sep. 2	1.5				-	100	. 591	Aug.
1976		Jun. 8							245	Jun. 3
1977		Jul. 9		C 4	4000				299	Jun. :
1978		Aug. 25	1.5						407	Jul. 1
1979		Aug. 23							416	Aug. 2
1960		Aug. 22							254	Jul. 3
1961		Sep. 2				1				
1982		Aug. 28						· · · · ·		
1963		Aug. 1							100	
1984		Aug. 26			200					
1985		Jun. 26						100		
1986		<u> </u>			<u> </u>		<u> </u>			
ER.	53.20		32.0		1930		236.0		<b>876</b>	
	e Flood									
year	38.54	7.0	43.5		18.10		261.2		729	
D year	58.62 : DoHM =		65.6		26.75		383,4		1005	

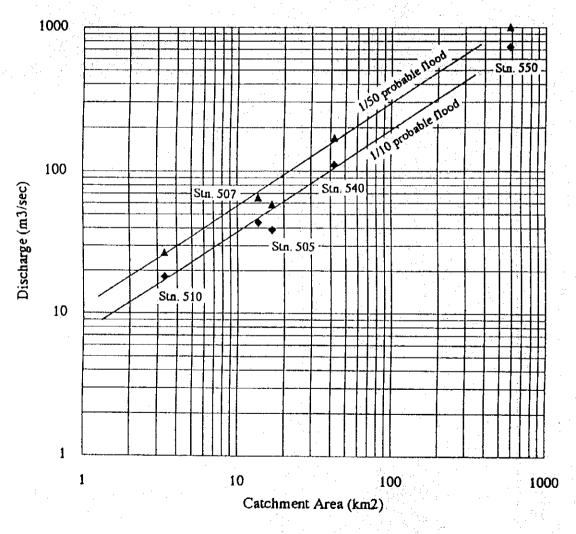


Fig. 3 - 6 Annual Maximum Flood and Probable Flood

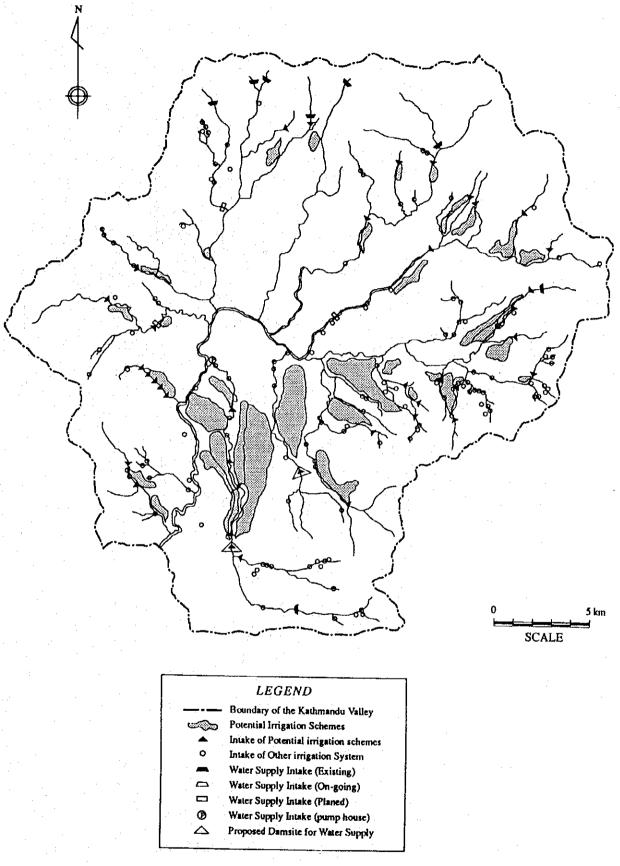


Fig. 3-7 Water Use in the Kathmandu Valley

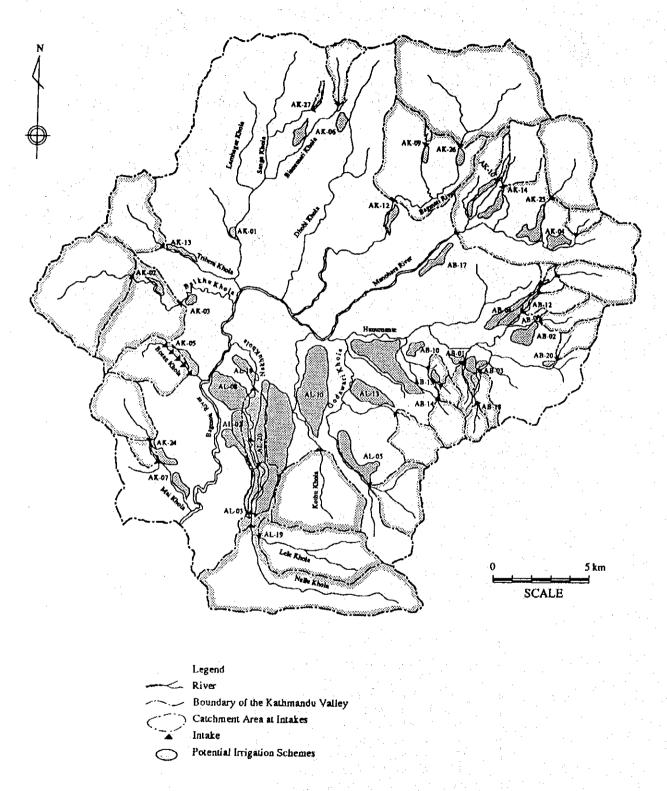
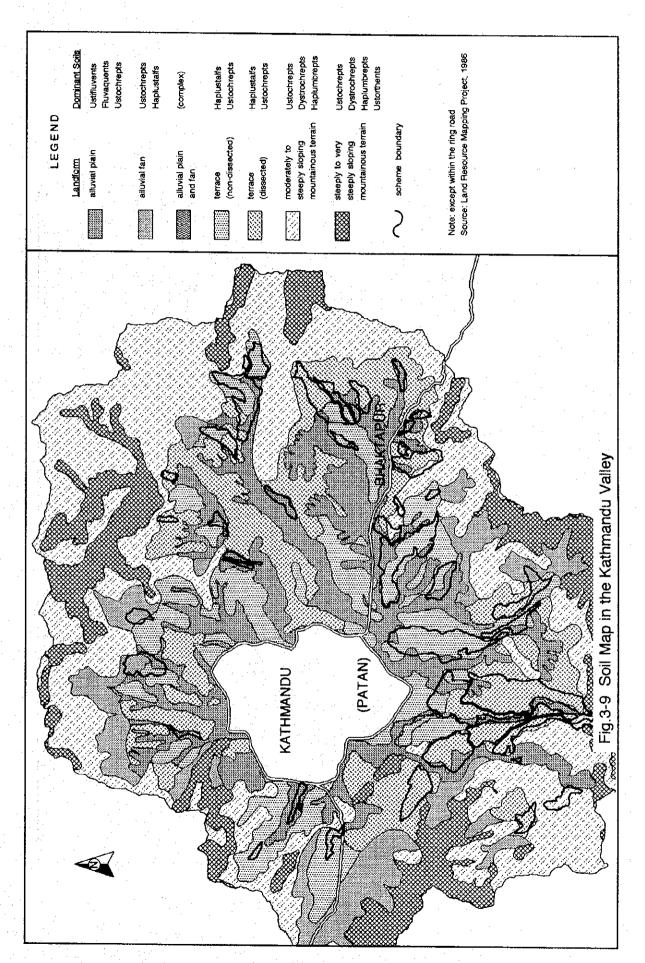
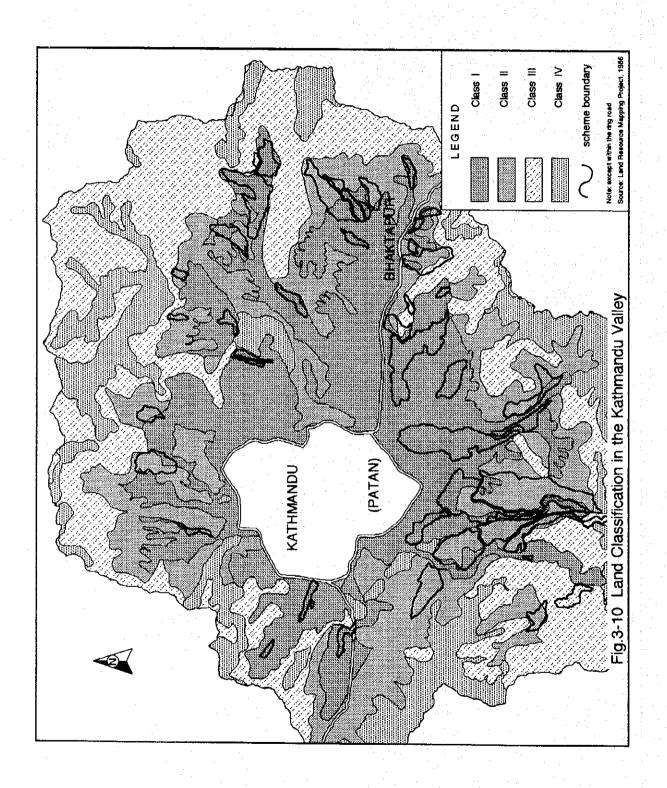
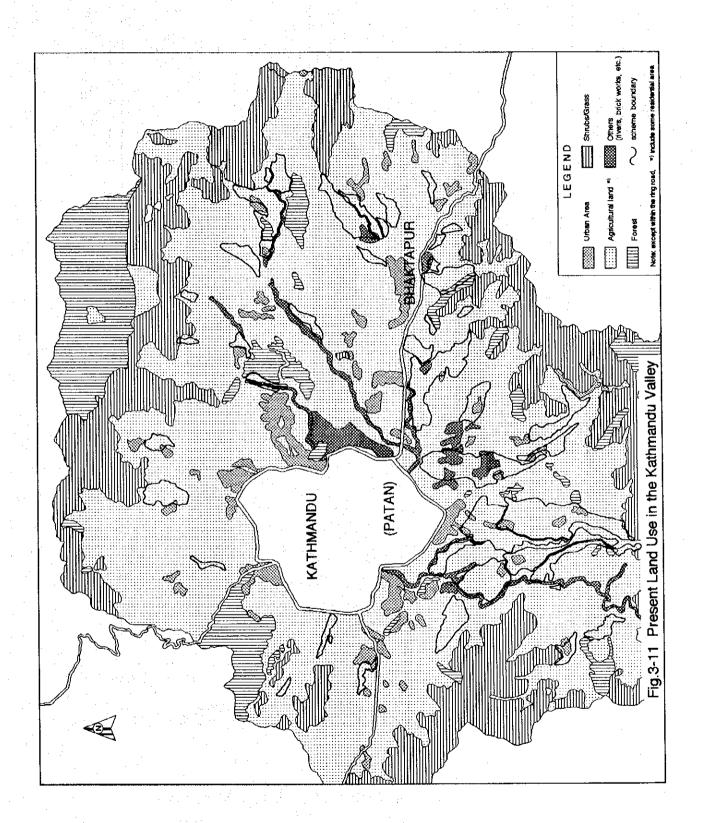


Fig. 3 - 8 Catchment Areas at Intakes of Potential Schemes







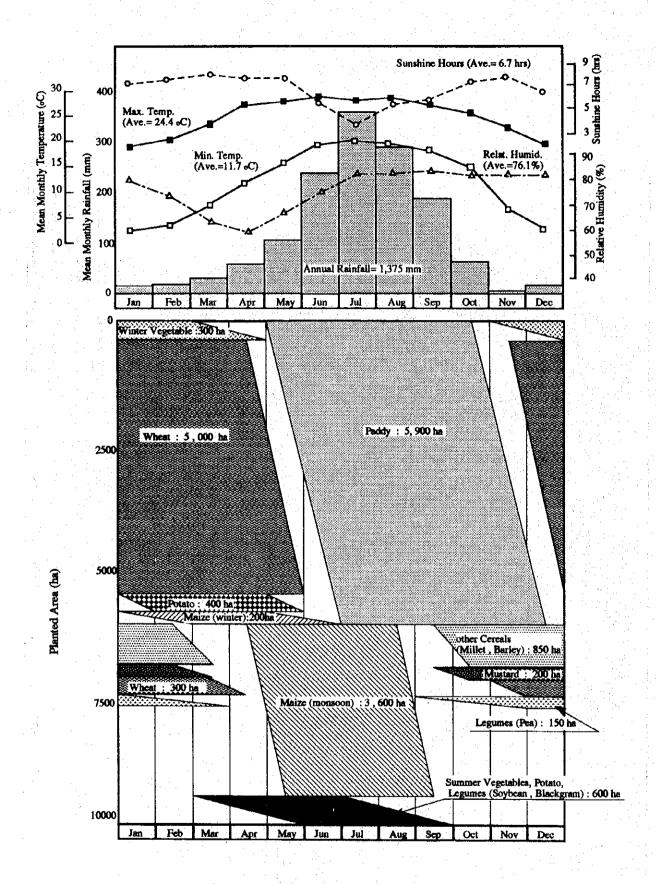
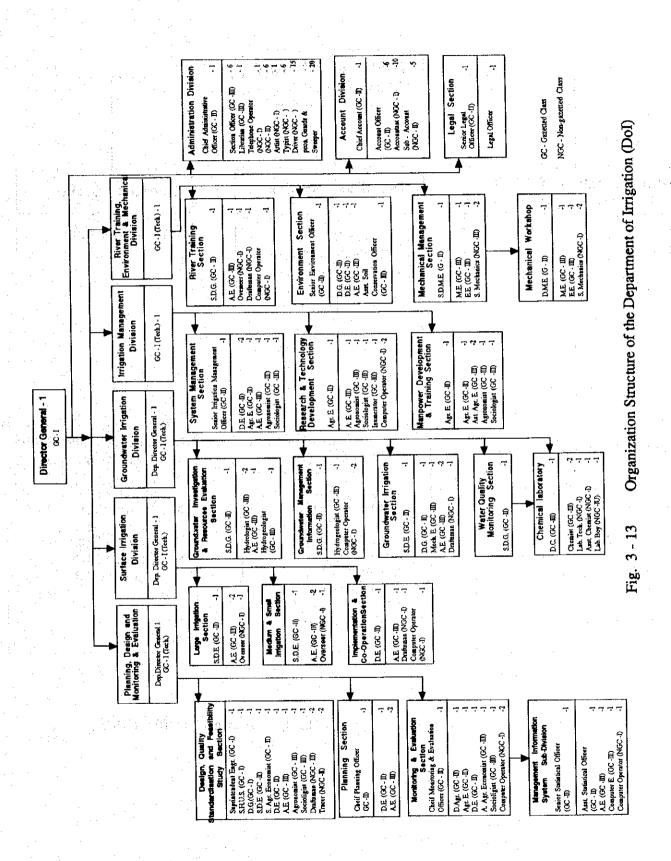


Fig. 3 - 12 Present Cropping Pattern in the Study Area



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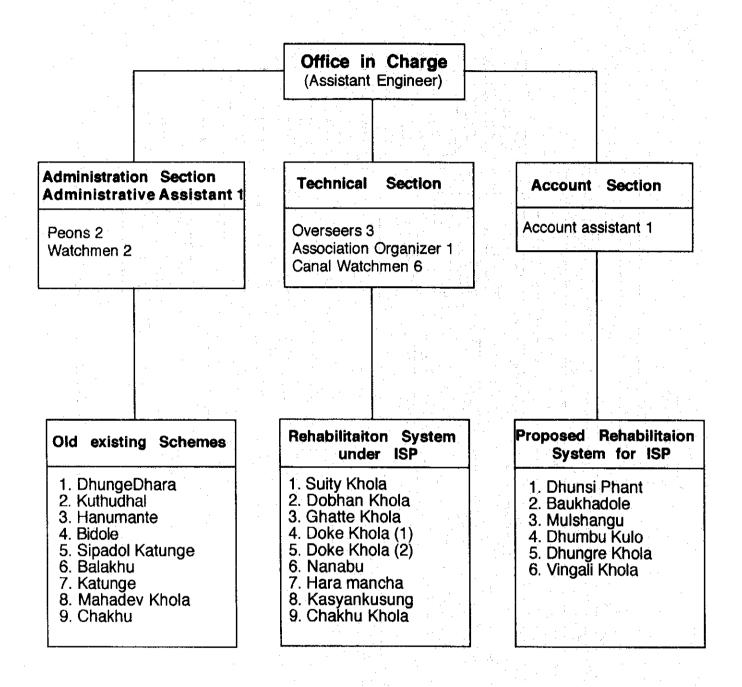
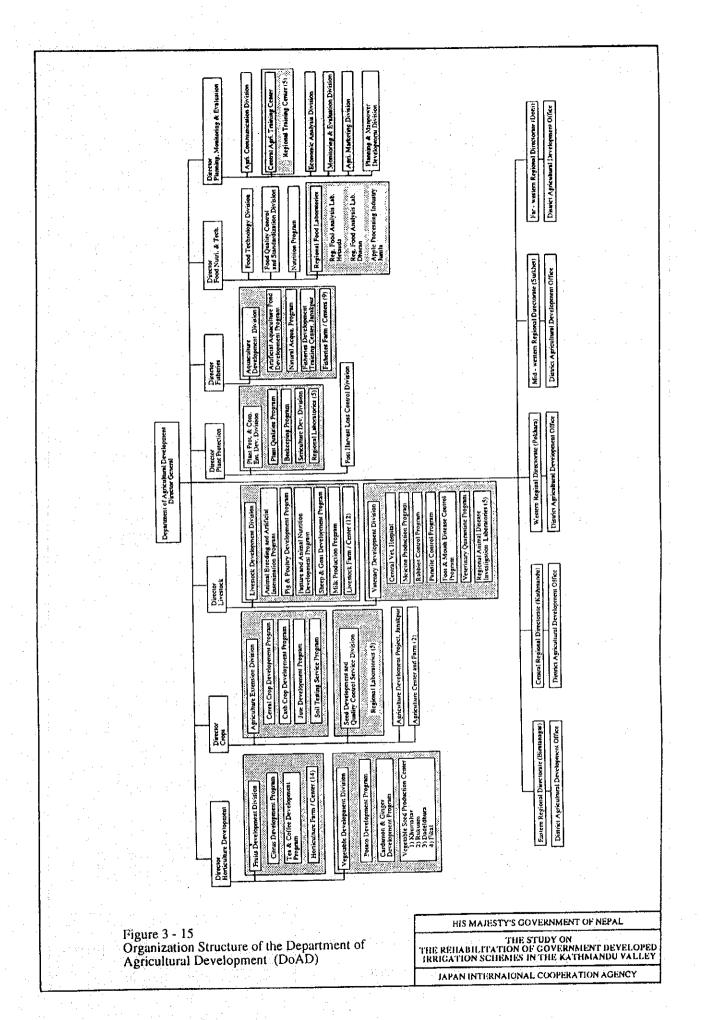


Fig. 3 - 14 Organization Structure of the District Irrigation Office (DIO)



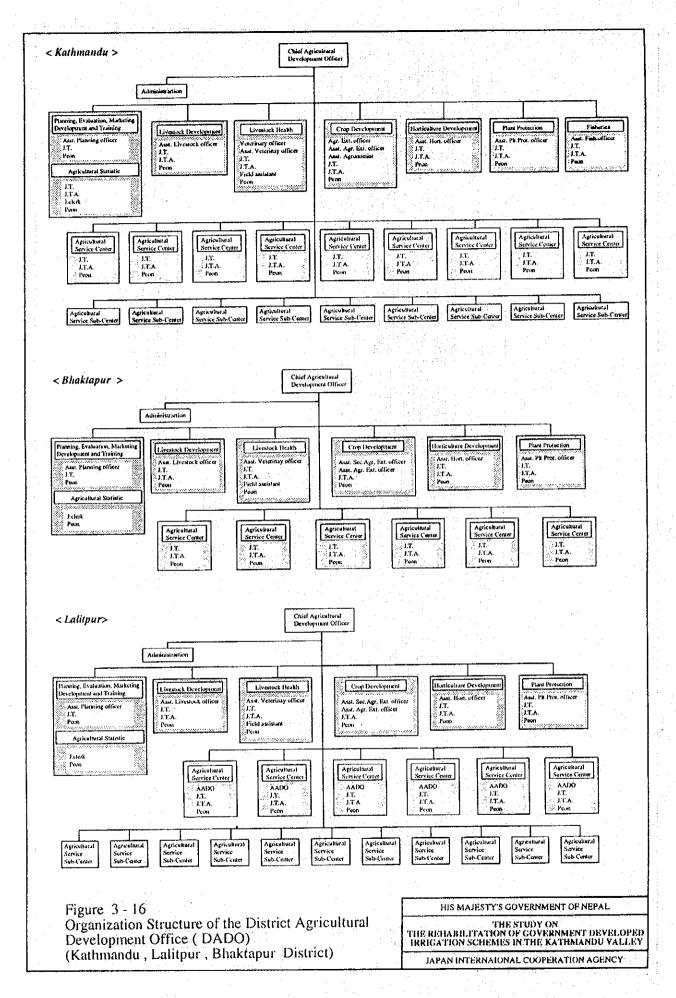
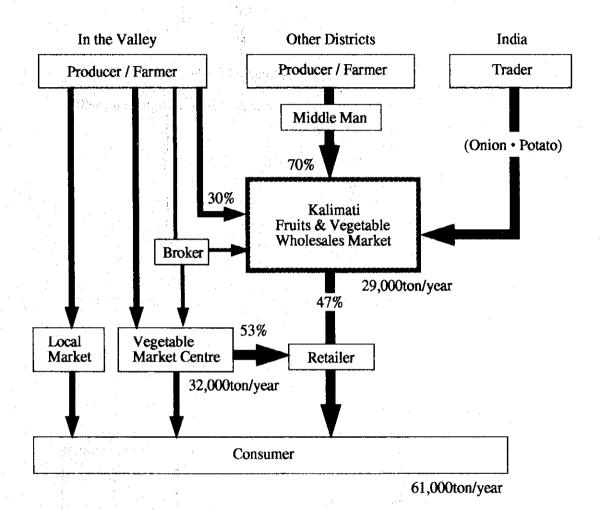


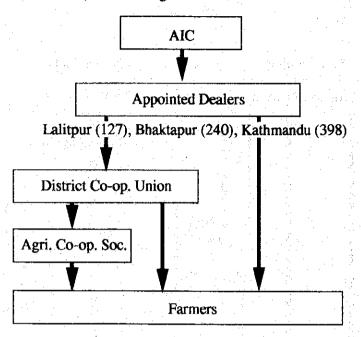
Fig. 3 - 17 Marketing Channels for Vegetables



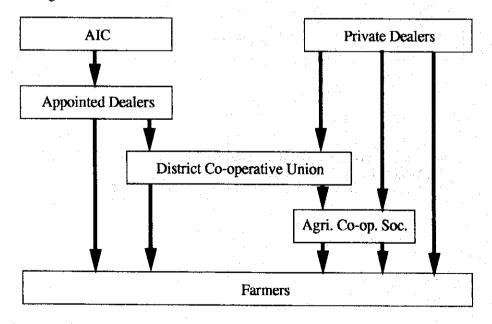
Note: other Districts are Dhading, Nuwakot, Makwanpur, and Kavre Districts in hilly region, Dhanukha, Sarlahi and Bara Districts in Terai region.
India is mainly Motihari, Ranchi, Sitamadi and Siligudi Districts.

Fig. 3-18 Major Supply Channels for Agricultural Input

# A: For Chemical Fertilizer, Seed and Agricultural Tools



# B: For Agro Chemicals



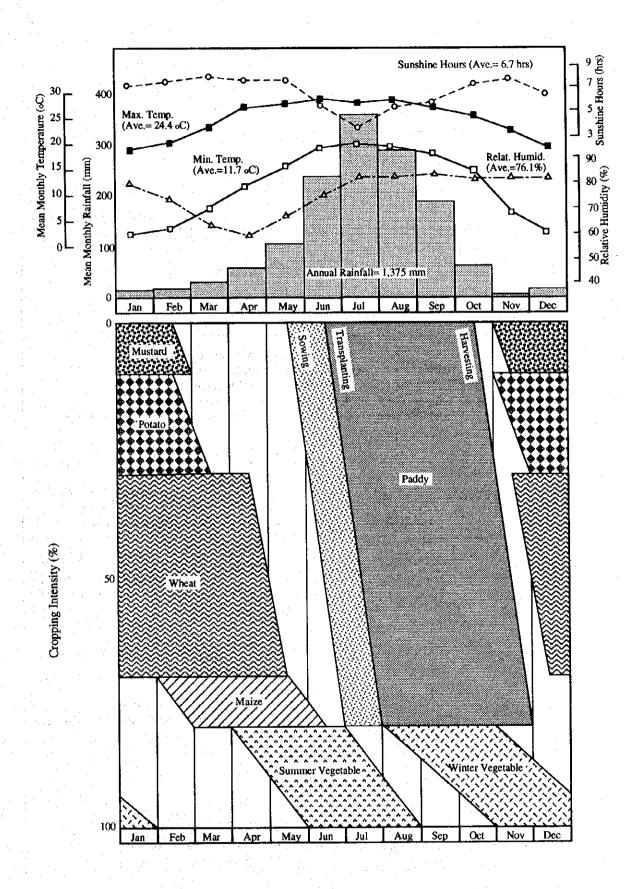


Fig. 5 - 1 Proposed Cropping Pattern

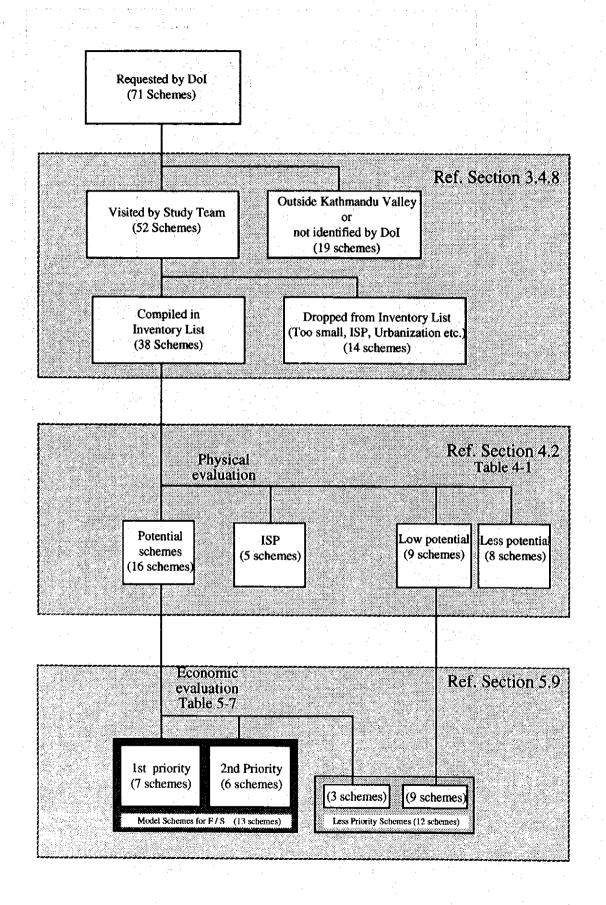


Fig. 5 - 2 Selection Procedure for Priority Projects