Table 6.15 COST ESTIMATION

			المعاقبة المعاقبة المراجعة المراجعة والمعارضين والمراجعة المرجعة المراجعة المرجعة المراجعة المراجعة والمراجعة			,				·									The state of the s		of Acres and Assessment	***************************************			
						Firet Stage (mmediate Pr	ogramme)	1				<u></u>	Second St	age							~	T	Stage	1
[hroni	(TIEM	F/C	L/C	1993	1994		1995	Sub -	Total	1996		1997	1998		1999	200)	Sub - Total	2001		2002	20	03	200
1	- HORF	r 1117W	1,2		F/C	L/C P/C	L/C	F/C L/C	17C	L/C	F/C	L/C F	C LX	C F/C	L/C	P/C L/C	F/C	L/C	I/C L	C F/C	L/C	F/C	L/C F/C	L/C	F/C
				A A Company of the Co			660	660	1			210		210	200	:	200	200	0 1	020	210	j	210	20	3
	(i) Reinfell Observation	Manual Raingaugo	1	Manual Osage / Foundation	İ	£ 270					1.000			200 1.960	200	1,960	200 1.96	200	9,800 1	000 1,470	330	980	200 9	80 20	3
}	}	Tipping Bucket Typo	Raingauge / Recorder / Data Logger	Manual Gauge / Poundation]	6,370		400	1		1,960				130		130 19.			650					
į		Weighing Type	Raingauge / Recorder	Manual Gauge / Foundation		192	;		192	9	192	130		130 192							o.c	0 40	02	na v	n
ļ		Spare Inst. / Parts etc.	Spare Parts	Repair / Manual Gauge		656	i .		656	0	215	130	215	130 215	130	215	130 21.	5 130	1,075	650 147	90	98	90	98 >	,
	(2) Water Level Observation	Staff Gauge	ţ	Plate / Foundation	1	•	126	234	0	360		324	1	324	288	:	88	396	0 1	620					
		Float-type	Recorder / Data Logger	Gauge Well / Gauge House / Clearing / Repairing		1,108	13	97	1,108	110	831	4,146	831 2.6	648 831	2,648	554 2,	548 55	2,270	3,601 14	360					
		1	W.L. Gauge / Data Logger	Protection Pipe / GI Pips	}	1,524	121	242	1,524	363	1,016	242	508	121 508	121	508	101	6 242	3,556	847					
		Pressure-type	THE CHARGE TO A SECOND	Ol Pipe / Poundation]	-			0										0	o.	450)	450	45)
		Peak Water Level Gauge	1	Ortibet Lomidanou	1	2,250			2,250										0	ol					
		Survey Instrument	Level / Transit	1.							1.053		.006	1,006		874	36	ς.	4,309	0 157					
	<u> </u>	Spare Inst. / Parts etc.	Spare Parts / Date Logger	<u> </u>	1	681			681		1,057		,000	1,000		617				326	1,768	₽	1,547	5,96	7
(A) Observation	(3) Discharge Measurement	Single Winch	1	Tower / Cable / Winch / Cablecar / Foundation	ļ		3,094		0	3,094		663						663		· (1,100	,	1,541	5,50	
		Double Winch	Double Winch / Suspention Wire	Operation House / Anchor Block / Wire	j	10,576	5,970		10,576	5,970	9,254	6,790 7	932 52	820 7,932	5,820	7,932 5,8	320 2,64	4 1,940	35,694 26	190					
		Propeller-type Current Meter	Body / Weight / Counter			15,490)		15,490	0	3,580								3,580	0					
		Price-type Current Meter	Body / Weight / Counter			2,580)		2,580	0	5,160								5,160	0					
	1	Spare Inst / Paris etc.	Spare Parts		1	1,807	,		1,807		874								874	o}					
		· · · · · · · · · · · · · · · · · · ·	Sampler Bottle / Tubidity Meter]	6,352			6,352	ı									0	0					
	(4) Sediment Observation	Point Integrated Sampling	••	1]	1,103			1,105	l j	1,525								1,525	o					
		Depth Integrated Sampling	Sampler Bottle / Tubicity Meter	1		-			'		-								153	al					
		Spare Inst. / Parts etc.	Spare Parts		ł	746	i		746	0	153				•			4.0			110		110	110	n
	(5) Water Quality	Field Test Kit	1		l				0	0		110	1	110	110	!	10	110	0	330					
	Observation	Sensor							0	0	828								828	0 552		552	5	52	552
	(6) Busic Station	Office		Building	<u> </u>		1,110	740	0	1,850									0	_0					
	107.55	Sub - Tota	1/4)		0	_0 51,437	11,694	0 2,373	51,437	14,067	26,645	12,945 12	644 9,6	693 12,644	9,647	2,235 9,6	47 6,94	6,281	71,115 48	213 2,326	2,958	1,630	2,607 1,6	<u> 7,01′</u>	552
<u> </u>	I	T .	Laboratory Equip.	1		1,220)		1,220	0	172			•					172	o					
(B) Analysis of Sediment		Sediment Labo.			1] `` <u> </u>				832	÷					832	0 832					
and Water quality	(2) Water quality Analysis		Laboratory Equip.		0	0 1,220	0	0 0	1,220	, i	172		832	0 0	0	0	0 () 0	1,004	0 832	0	0 0	0	0(0 0
	1:	Sub - Tota	T T T T T T T T T T T T T T T T T T T		 -	0 1,220		<u> </u>	1		556		556			Z			1,112	0					
(C) Management of	(1) Meintenance of Station	Regional Workshop	Repair Equip, and Tools	Repair Tools / Building / Furnitures	1				°	ı ı	336		330						0						
Facility	(2) Repair of Equip.	Central Workshop	Repair Equip, and Tools	Repair Tools	{	1,108	1		1,108	1	÷								0	4					
	(3) Current Meter Calibration	a Facility	Calibration Equip.	Calibration Tank	 -	21,073	3,998	2,665	21,073	6,663															0
		Sub - Tota	I(C)		0_	0 22,181	3,998	0 2,663	22,181	6,663	556	0	556	0 0	0	0	0 (0	1,112	0 0	0	0	0	0	
(D) Data Processing and	(i) Data Collection	Telemetry	Telemetry Equip.	Building / Foundation]				0	0									0	이					25,641
Management	(2) Data Processing	Data Logger System	Reader / Memory Card			4,954			4,954	0	3,328		540	540		540	540		5,488	0 540		540	5	40	540
17/2012/07/04/1	107 27 24 24 24 24 24 24 24 24 24 24 24 24 24	Sub - Tota			0	0 4,954	0	0 0	4,954	0	3,328	0	540	0 540	0	540	0 540	0	5,488	0 540	0	540	0 5	40 (26,181
	T	T				9,192		18,384	27,576	0	13,788	13	,788	9,192		9,192	9,192	!	55,152	0 11,490		11,490	8,7	91	8,791
3	(1) Staff Training	Invitation of Foreign Expert	\		<u> </u>	733		733	1,466	Į.	733		• · · · ·	733			733	i I	2,199	0 733			7	33	
Improvement and		Training in Manufacture	1						1		366		366	366		366	366		1,830	0 366		366	3	66	366
Training	<u> </u>	Attendance of International Cource	1		1	366		366	732	- 1	360		300				300	,	0						
	(2) Training Center	<u> </u>	Computer Equip./ Observation Inst./ Buildin	g Building / Femines / Land 5,000 m2	 			28,121 8,866	1	42,217										1		11,856	0 9,8	~	9,157
l		Sub - Tota	(B)		0_			47,604 8,866	ı		14,887	0 14	,154	0 10,291	0	9,558	0 10,291	0	59,181	0 12,589	<u>u</u>	11,830	<u> </u>	<u> </u>	
	(1) Design and Programming		(3,129	8,344	2,500	6,258 2,500	17,731	5,000									0	이					6,258
	(2) Computer Instrument			1		3,951		5,550	9,501	0							1,533) j	1,533	0					3,808
(F) Computer System	(3) Soft West			1	1	1,942	!	3,281	5,223	0									0	o l					2,925
1	1''	_[350		350 500	i				•						0	o					
}	(4) Furnitures and Installation		†			500		5,215	5,215										0	0					5,215
	(5) Staff Training		<u> </u>				A 500	20,654 _ 3,000	 		0	0	0	0 0		0	0 1,533	ρ	1,533	0 0	0) 0	0	0	18,206
<u> </u>		Sub - Tota			3,129																		2,607 12,0		
		Sub - Tota	I (A+B+C+D+E+I)		3,129			68,258 16,904	ı																3,621
	Administration and Engineer	ing Service			13,799	0 24,137	1,556	19,537 517	57,473	1		436 2		2,055		2,018 2			•	1	-	, ,			
	Contingency and Reserve] o	0 5,326	7,356	1,865 2,161	7,191	9,517	1,535	1,942	729 1,4	54 659	1,447	639 1,4	47 451	942	4,013 7	232 185	444	4 109			1,673
	Staff Training				<u></u>	0	1,003	. 281		1,284		307		146	132		28	75			37		22	22	
		Grand - To	nial		16,928	0 154.610	61,458	89,660 19,863	261,198	81,321	51,051	15,630 31	638 11,5	35 26,189	11,454 2	4,990 11,4	46 21,139	7,451	155,007 57	517 17,071	3,505	, 14,564	3,068 12,9	95 B,183	59,390
	P. J. 172 L. 1	Zitanin - Er				K 194	5.531	7,316 3,736	13.501	9 267	6,374	4,611 5	374 4.7	148 5,674	6,170	6,630 7,7	50 6,679	6,170	30,731 29	448 6,292	3,287	6,165	3,233 6,2	41 9,633	32,038
	Price Escalation							96,976 23,599																	
(··		Grand -	Total (With Esculation)		16,928	U 160,794	00,989	אניבנט סועטע	£14 078	מסניענ	31,720	1742 :	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		3315		40 < 10*	3/8/	15841 11	735 644	2000	6 877	2945 72	15 3 002	8.585
	O. M. R. (Operation, Mainte	nance and Replacement)				0 2,326	997	3,267 1,400	5,593	2,397]	4,122	1,767 4	,645 1,9	M1 2'198	2,213	5,/14 <u>2,4</u>	49 6,192	2,634	23,042 11	01-349 01-349		0,013			

Table 6.15 COST ESTIMATION

					~~~~	Market Company													- T								<del></del>	ر _{سمسمس} ہ	Court: 17A	2/11/11/2
				First Stage (Im	mediate Pro	ogrammo)						Second	d Stage			·····		•		······································	ON THE PARTY OF THE PARTY OF THE PARTY.	Third S	31088		. <del></del>			]		-
	F/C	Lvc	1993	1994		1995	Sub - Tots	<u> </u>	1996	!	1997	19	98	1999		2000		Sub - Total	2001		2002	200	23	2001	2005	Sı	ย่า - โดเลโ	One One	no - Total	
			F/C IA	C MC	<u>uc l</u>	F/C L/C	I/C I	1C 1	17C 1./	C II	C L/C	F/C	LC	I/C	r/c	F/C	1/0	F/C L/C	F/C	LK	I/C LA	F/C	LC	F/C L/C	: PC	L/C F/A	C L/C	F/C	L/C R	F/C+L/C
Raingauge		Manual Gauge / Poundation			660	660	0	1,320		210	. 2	10	20	•	200		200	0 1,02	0	210	;	10	200	2/	900	200	0 1,0	20 0	3,360	3,360
Bucket Type	Raingauge / Recorder / Data Logger	Mantial Gauge / Poundation		6,370	600	400	6,370	1,000	1,960	200 1	,960 2	9,1 00	60 20	1,960	200	1,969	200	9,800 1,00	0 1,470	330	980 :	00 98	80 200			3,	430 73	30 19,600	2,730	22,330
g Турэ	Raingaugo / Recorder	Menual Garge / Foundation		192			192	o	192	130	192 I	30 1	92 13	192	130	192	130	960 63	0								0	0 1,152	650	1,302
it. / Parts etc.	Spare Parts	Repair / Manual Gauga		656			656	o	215	130	215 1	30 2	15 130	215	130	215	130	1,075 65	0 147	90	98	90 9	<i>3</i> 8 90	•	80	80	343 43	30 2,074	1,080	3,154
uge		Plate / Foundation			126	234	0	360		324	3	24	28	ı	288		396	0 1,62	D .					1	62	144	0 30	0 0	2,286	2,286
a	Recorder / Data Logger	Gauge Well / Gauge House / Clearing / Repairing	1	1,108	13	97	1,108	110	831 4	,146	831 2,6	348 8	31 2,64	554	2,648	554	2,270	3,601 14,36	0							1	0	0 4,709	14,470	15,179
type	W.L. Gauge / Data Logger	Protection Pipe / GI Pipe		1,524	121	242	1,524	363	1,016	242	506 1	21 5	08 12	508	121	1,016	242	3,556 84	7								0	0 5,080	1,210	6,290
ter Level Gauge		Ol Pipe / Foundation					9	0										0	o.	450		50	450	2	70	240	0 1,86	50 0	1,860	1,860
ns by toment	Level / Transit			2,250			2,250	0									-	v ·	3							Į	0	0 2,250	o	2,250
rt. / Parts etc.	  Spare Parts / Data Logger			681			681	o	1,057	1.	,006	1,00	06	874		366	Ì	4,309	157		•					ļ	157	0 5,147	0	5,147
inch		Tower / Cable / Winch / Cablecar / Foundation	]		3,094	٠	0	3,094		663							663	0 1,32	6	1,768	1,5	47	5,967	5,30	04	5,304	0 19,89	ю о	24,310	24,310
Vinch	Double Winch / Suspention Wire	Operation House / Anchor Block / Wire		10,576	5,970		1		9.254 6.		932 5.8	20 7.93	32 5,820	7,932	5,820	2,644	1,940	35,694 26,19									0	0 46,270	32,160	78,430
-type Current Meter	Body / Weight / Counter			15,490			15,490	1	3,580	,,,,			• (		••••	•		3,580	,								0	0 19,070		19,070
e Current Meter	Body / Weight / Counter		1	2,580			2,580		5,160								(	5,160	<u>.</u>								0	0 7,740	0	7,740
I. / Paris etc.	Spare Parts	}		1,807			1,807	- 1	874								- 1	874	,							- }	0	0 2,681	0	2,681
egrated Sampling	Sampler Bottle / Tubidity Meter		1	6,352			6,352	ď	017								}	n							•		0	0) 6,352		6,352
	Sampler Bottle / Tubidity Meter			1,105			1,105		1,525								ı	1,525	[]								0	0 2,630	ا	2,630
regrated Sampling	1			746			746	) i	153								1	153	1								0	0 899	Ĩ	200
t. / Parts etc.	Spare Parts		1	746		I	140	1				••			110		ارر	0 55	1	110	,	10	110		10	120	0 55	1	1.100	1.100
ı Kit							0	์ ไ		110	1.	10	110		110		130	•	552	110	E É O		110	£11	V	2,3	=	0 3,036	1,100	3.036
			}	•			U		828								ļ	828	] 332		232	33	L	552		2,4	446	]	, 250	-111
	<u> </u>	Building			1,110	740	0											0									. 0	<del></del>		1,850
Sub - Total		1	0	0 51,437	11,694	0 2,373	51,437 14			945 12,	644 9,6	93 12,64	44 9,647	12,235	9,647	6,947	6,2811	71,115 48,21	2,326	2,938	1,630 2,6	77 1,630	0 7,017	552 6,12	26 0	6,0781 6,1		6 128,690		215,756
Labo.	Laboratory Equip.			1,220			1,220	0	172									172	1								0 (	0 1,392	0	1,392
ality Labo.	Laboratory Equip.				<del></del>		0	_0			832							832 (	832			<u>.</u>					332	0 1,664		1,664
Sub - Total			<u> </u>	0 1,220	0	0 0	1,220	-0	172		020	0	0 0	0	0	0	<del></del>	1,004 (	832	0	0	0 (	0 0	0	0 0		332	0 3,056		3,056
	Repair Equip, and Tools	Repair Tools / Building / Furnitures	[				O	이	556	:	556							1,112	Ί							1	8 (	0 1,112	G.	1,112
	Repair Equip, and Tools	Repair Tools		1,108			1,108	ol									-	0 (	1								0 (	0 1,108	0	1,108
	Calibration Equip.	Calibration Tank		21,073	3,998	2,665	21,073 €							······································				0 (			<del></del>						0 (	0 21,073		27,736
Sub - Total	(C)		0	0 22,181	3,998	0 2,665	22,181	,663	556	0 :	556	0	0 0	0	0	0		1,112 (	0	0	0	0 (	00		0 0		0 (	0 23,293		
Z	Telemetry Equip.	Building / Foundation					0	0										0 (						25,641 633		25,6		1	ŀ	26,278
ger System	Reador / Memory Curd	L		4,954			4,954	-0 3	3,328	;	540	54	10	540		540		5,488 (	540	·····	540	540		540	540	2,7		13,142		13,142
Sub - Total	(D)			0 4,954	0	0 0	4,954	0 3	3,328	0 5		0 54		540	0	540		5,488 (	540	0	540	0 540		26,181 637		0 28,3		38,783	637	,
of Foreign Expert				9,192	1	8,384	27,576	0 13	3,788	13,7	788	9,19	2	9,192		9,192	j	55,152	11,490	1	1,490	8,79		8,791	8,791	49,3		132,081	į	132,081
in Manufacture	·			733		733	1,466	0	733			73	13			733	- 1	2,199	733			733			733	2,1	99 0	5,864	- 1	5,864
e of International Cource		·		366		366	732	o	366	3	366	36	6	366		366	-	1,830	366		366	366	i	366	366	1,8	30 C	4,392	0	4,392
	Computer Equip./ Observation Inst./ Building	Building / Furniture / Land 5,000 m2		20,477	33,349 2	8,121 8,866	48,598 42	217						. <u>-</u>				0 (	}	·							0 0	48,598 4	42,217	90,815
Sub - Total	(B)		0	0 30,768	33,349 4	7,604 8,866	78,372 42	217 14	1,887	0 14,1	154	0 10,29	1 0	9,558	O	10,291	o	59,181 0	12,589	0_1	1,856	0 9,890	) 0	9,157 0	0 9,890	0 53,3	82 <i>C</i>	190,935 4	42,217 2	33,152
			3,129	8,344	2,500	6,258 2,500	17,731 5	000										0 0						6,258		6,2	38 O	23,989	5,000	28,989
	,	ļ		3,951	:	5,550	9,501	0								1,533		1,533 0						3,808		3,80	08 0	14,842	0	14,842
				1,942	:	3,281	5,223	o									- 1.	0 0						2,925		2,9	25 0	8,148	0	8,148
				350		350 500	700	500									1	0 0								Ì	0 0	700	500	1,200
						5,215	5,215	_0										0 0				·	······································	5,215		5,21	15 0	10,430	0	10,430
Sub - Total	(i)		3,129	0 14,587	2,500 2	0,654 3,000	38,370 5	,500	0	0	0	0 (	0 0	0	0	1,533	0	1,533 0	0	0	0	0 0	, 0	18,206 0	0 0	0 18,20	06 0	58,109	5,500	63,609
Sub - Total	(A+B+C+D+E+F)		3,129	0 125,147	51,543 6	8,258 16,904	196,534 68	447 45	i,588 12,9	945 28,7	126 9,69	3 23,47	5 9,647	22,333	9,647	19,311	6,281 13	39,433 48,213	16,287	2,958 1	4,026 2,60	7 12,060	7,017	54,096 6,763	10,430 6,	,078 106.89	9 25,423	442,866 14	42,083 51	84,949
			13,799	0 24,137	1,556 19	9,537 517	57,473 2	.073 3	,928 4	136 2,1	184 24	3 2,05	5 228	2,018	224	1,377	153	11,562 1,285	599	67	430 4	827	7 92	3,621 402	2 596	66 6,07	12 675	75,107	4,032	79,139
			o		•	1,865 2,161		·	1,535 1,9	942 7	129 1,45	4 65	9 1,447	639	1,447	451	l l	4,013 7,232		444	109 39	109	1,053	1,673 1,014	27	912 2,10	2 3,813,	13,306 2	20,562	33,868
			-	0	1,003	281		- i -		307	14	6	132		128		75	0 787		37	2	2	22.	267	<u> </u>	5	0 353	0	2,424	2,424
Grand - To	ادا			<u> </u>									····			21,139	7,451 19		17,071	3,505 1	4,564 3,06	12,995	8,183	59,390 8,447	11,053 7,	,061 115,00	30,264	7		
Sample - 100													-												6,643 10,	,				
Chang	Total (With Escalation)		16,928										-				- 1		l .						5 17,696 17,			L	•	
	TOWN THE ESCHREDIN																								8,947 3,	1		1		
eplacement)			0	U 2,326	99/ 3	2,400 1,400	2 560'5	4 ا/ دور	1,1	.01 40	ووزا دم	3,10	4,413	2,734	<u>6,447</u>	0,172	2 PCU,3		<u> </u>	2003	<u> </u>	. 1 10 13		2017		20,10	<u> </u>			-17-71

Table 7.1 GENERAL ITEMS OF FIELD TRAINING

Person to be trained	Item to be trained	Content
Field technician	1. Precipitation Observation	Installation, observation method, operation of instrument
	2. Water level observation	• ditto
	Data processing	
	3. Discharge measurement	ditto     (including flood measurement)
	4. Sediment observation	Observation method, operation o instrument
	5. Inspection of the station	Method, reporting
	6. Maintenance of instruments and facilities (including simple adjustment/ calibration of instrument)	Method     (including minor repair)
	7. Civil construction works	Construction/Repair of facilities
	related observation system	<ul> <li>Planning and Cost estimation</li> </ul>
		Design, drawing
	8. Survey	Field practice such as levelling, cross section, theodlite survey etc.
		Mapping and drawing, Survey method
Part time Observer	Precipitation observation	Observation method, Operation of instrument
	2. Water level observation	• ditto
	3. Sediment Sampling	ditto
	4. Daily inspection of the Station	method     (including minor repair)
	5. Maintenance of instruments and facilities	• method

Table 7.2 TRAINING ITEM FOR IMMEDIATE PROGRAMME (1/2)

		Training Item		Tr	aining H	our	,
<u> </u>		Training Item	N	F	J	S	Е
1.	Introduc	tion					
	1.1 Ou	ıtline of DHM	1	1			
	1.2 Ot	oservation of DHM	1	1			
	1.3 Da	nta Processing in DHM	1.14		1		
1		nta Checking in DHM	1		ļ ·	1	
ļ	1.5 Ar						1
		Sub-Total	4	1	1	1	1 -
2.	Observa	ition					
	2.1 Pro	ecipitation		1			
	2.2	2.1 General	1	1			
	2.2	2.2 Observation Network		<b>l</b> .			3
	2.2	2.3 Manual Gauge		1	1		
	2.2	2.4 Recording Gauge (Weighting Type)		5	1		5
	2.2	2.5 Recording Gauge (Other Type)					
	2.2 Sn	owfall				i	1
	2.3 Ra	infall					
	2.3	3.1 Radar			[		5
	2.3	3.2 Satellite					1
	2.4 Sn	ow cover			1		
	2.5 Ev	aluation			1		
	2.6 Wa	ater Level					
	2.6	5.1 General	1	1	1		
	2.6	5.2 Observation Network					3
	2.6	5.3 Manual Gauge		1	1		:
	2.6	5.4 Recording Gauge (Float Type)		5	1		
	2.6	5.5 Recording Gauge (Other Type)					5
	2.7 Di	scharge Measurement					
	2.7	7.1 General	1	1	1		
	2.7	7.2 Current Meter		5	5		
	2.7	7.3 Float					5
	2.7	7.4 Other Way					5
	2.8 Sec	diment					:
	2.8	3.1 General	1				
	2.8	3.2 Selection of site					2
	2.8	3.3 Suspended-Sediment					
		2.8.3.1 Sampling		1	1		
		2.8.3.2 Sediment Concentration				5	·
		2.8.3.3 Suspended-Sediment Discharge		ta			2
		Sub-Total	4	21	14	5	37

Table 7.2 TRAINING ITEM FOR IMMEDIATE PROGRAMME (2/2)

	Training Itam		Tr	aining Ho	our	
	Training Item	N	F	J	S	Е
3.	Data Processing					
	3.1 Computer					İ
	3.1.1 General Knowledge on Computer			1	1	
	3.1.2 General Knowledge on Software			1	1	
	3.1.3 Data Base Software				15	
	3.1.4 Application Software				30	30
	3.2 Procedure	,				
	3.2.1 General				1	
	3.2.2 Preliminary Data Checking				1	1
•	3.2.3 Data Entry				1	
	3.2.4 Determination of Rating Curve				5	5
	3.2.5 Estimation of Discharge				1	1
	3.2.6 Data Processing Checking	- {				5
	3.2.7 Overall Checking					15
	3.2.8 Final Checking					1
	3.2.9 Deal with Error					1
	3.2.10 Emergency Case		1		1.	1
	Sub-Total	0	1	3	57	60
4.	Basic Knowledge		_			
••	4.1 Meteorology				5	
	4.2 Statistics in Hydrology Analysis				5	
	4.3 Precipitation				5	
	4.4 Hydrograph				5	
	4.5 Hydrologic Losses				5	
	4.6 Stream Flow				5	
	Sub-Total				30	
5.	Analysis					
٥.	5.1 General					1
	5.2 Precipitation			1	,	_
	5.2.1 Mean Area Precipitation					5
	5.2.2 Depth-Area-Duration Analysis					5
	5.2.3 Probable Maximum Precipitation				į	5
						5
	5.2.4 Rainfall Frequency 5.2.5 Rainfall Intensities					5
						3
	5.3 Stream Flow					15
	5.3.1 Low Flow Analysis					
	5.3.2 Flood Frequency					15
	5.3.3 Runoff Relations with Rainfall				<del> </del>	15
	Sub-Total					71
5.	Management		_	_		
	6.1 General		1	1	1	1
. *	6.2 How to Instruct Observer				1	_
	6.3 Management on System		-			5
	Sub-Total		1	1	2	7
	Grand Total	8	24	19	95	176

N : Newly employed staff Note

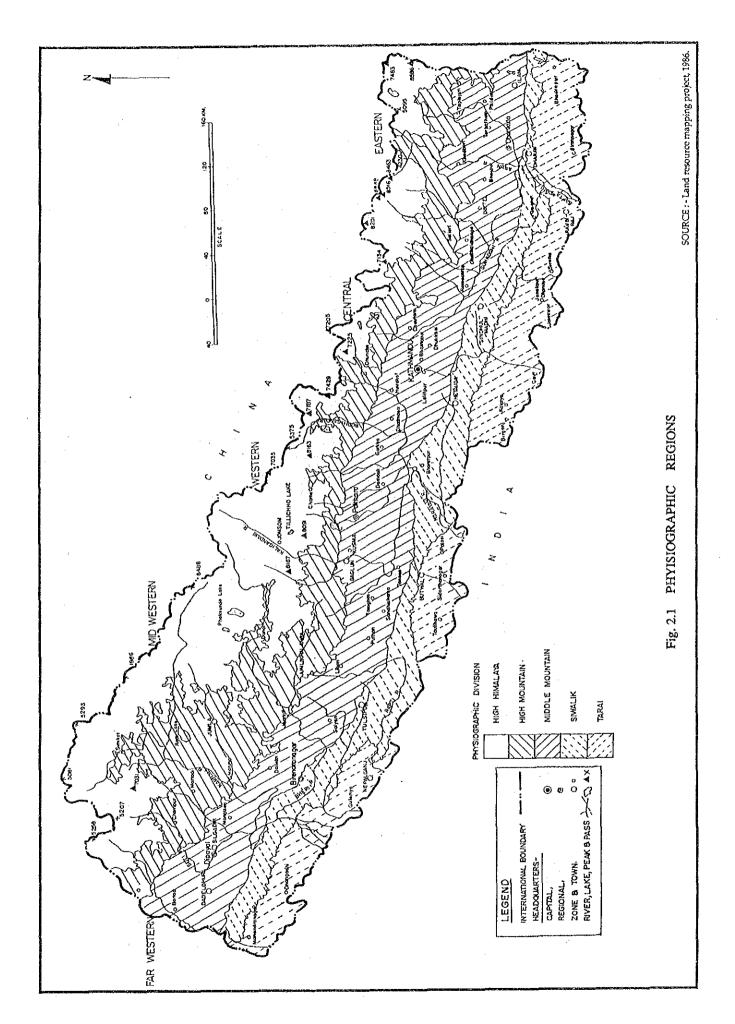
J : Junior hydro-meteorological assistant
 S : Senior hydro-meteorological assistant
 E : Engineer

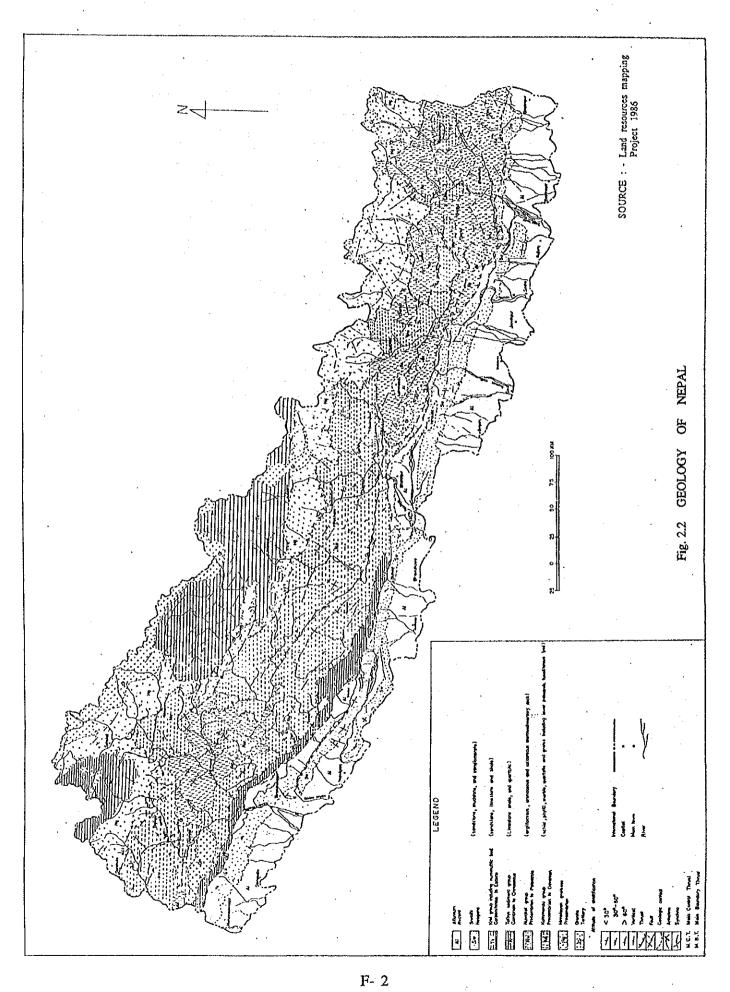
F : Field assistant

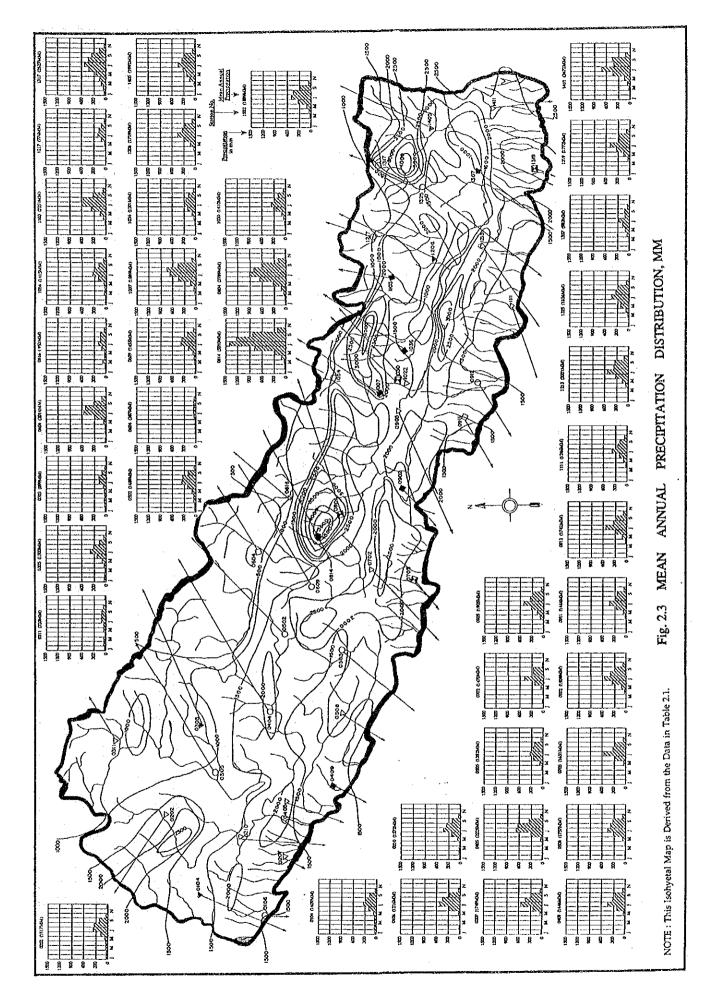
Table 7.3 COST ESTIMATION FOR IMMEDIATE PROGRAMME

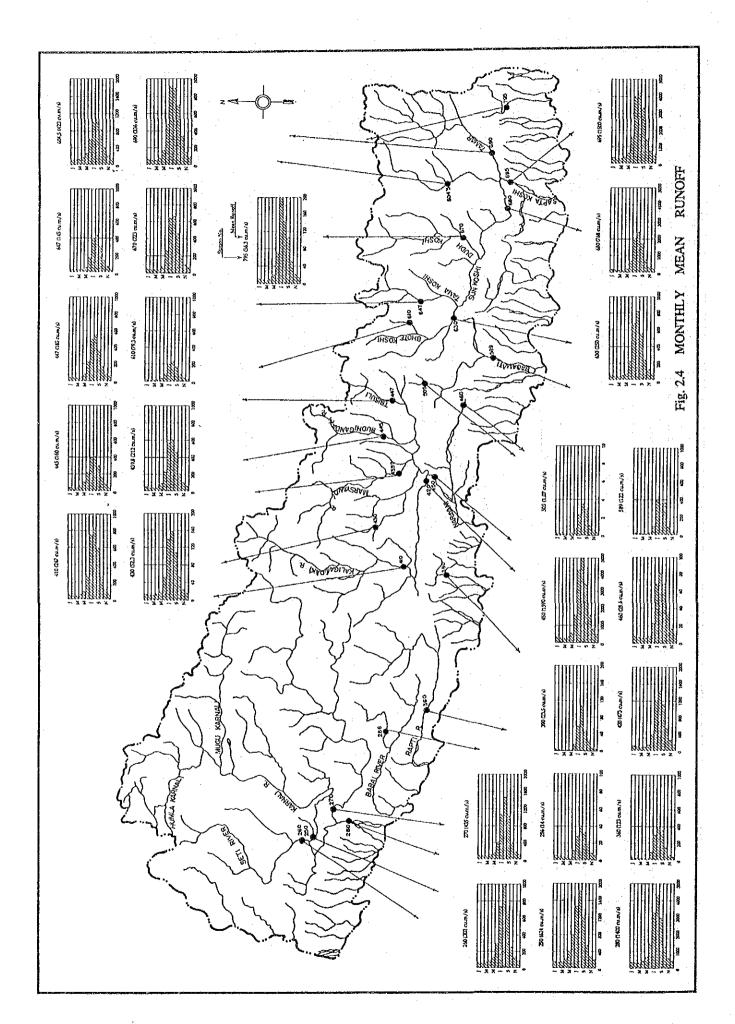
	T			T	<del></del>					~		
	WORK	пем	P/C	L/C	1993		1994		1595		Tat	
					PÆ	t/C	V/C	_uc_l	P/C	uc	F/C	UC_
	(1) Rainfall Observation	Montel Rangargs	D	Manual Garge / Poundation			,	660		660	1	1,330
ļ		Tuping Bucket Type	Raingroge / Recorder / Data Logger	Manual Gauge / Poundation			6,370	600		400	6,370	1,000
		Wrighing Type	Raingruge / Racordor	Manual Gauge / Poundation	ł		197				197	
		Spens last. / Paris esc.	Spero Parte	Roper / Manual Grage	ſ		635				655	
	(2) Water Level Observation	_		Plate / Poundation	l			126		234	0	360
		Float-type	Recorder / Data Logger	Gauge Well / Osugo Hours / Clearing / Repairing	ĺ		1,108	13		97	1,104	110
		Римско турс	W.J., Graugo / Data Logger	Protection Pipe / GI Pipe	ĺ		1,524	121		242		363
		Prok Water Level Gauge		Gl Pipe / Poundation	1						٥	¢
	]	-	Level / Transit	·			2,250				2.253	0
	<del></del>	Spare Inn. / Paris est.	Space Parts / Data Logger		l		641			- 1	581	c
(A) Observation	(3) Discharge Messarement	Single Winch		Towar / Cable / Winch / Cables se / Postdation	į.			3,094		ļ	0	3,094
			Double Wirch / Suspension Wire	Operation House / Ambor Block / Wist	l		10,576	5,910			10,576	5,970
	i I		Body / Weight / Counter		l		15,490				15,490	0
			Body / Weight / Country		ĺ		2,590				3,560	0
	ļ		Spece Parts		1		1,867			ļ	1,807	0
	1 '	Point Leaguest Sampling	Sampler Boule / Tubidity Meser				6,357				6,352	. 0
		Dupth Integrated Sampling	Sampler Boule / Tubidity Mour	•	ĺ		1,105				1,105	0
	} <del>-</del>	Space last. / Parts ptc.	Spare Parts		l		746			- 1	746	0
	(3) Water Quality	Field Test Kit									0	٥
	Obscryption	Sensor			1				r		0	0
	(6) Park Station	Office		Building	<b> </b> -			1,110		740		1,850
		3ub - Total	(A).			0	51,437	11,694	0	2,373	51,437	14,067
(B) Analysis of Sofianast	(1) Sodinesz Lestysia	Sectional Labo.	Laboratory Equip.		i		1,220			1	1,720	0
and West quelty	(2) Water quality Analysis	Water quality Larso.	Laboratory Equip.		ļ					∤	0_	0
		Sub - Total	(B)	<u></u>	0	0	1,220	0	0		1,220	0
(C) Management of	(1) Meiramance of Station	Kegiaral Wastahap	Repair Equip. and Tools	Repair Tools / Building / Fundames	İ						0	0
Facility	(7) Repair of Equip.	Central Workshop	Repair Poulp and Tools	Repair Tools	1		1,108			1	1,104	0
ļ	(3) Correct Meter Calibration		Calibration Equip.	Californian Tank	<b>-</b>		21,073	3,991		2,665	21,073	6663
	T	Sub-Total			<u>°</u>		ZZ,131	3,994	0	2,665	22,181	6,663
(D) Data Processing and			Telanosy Equip.	Building / Foundation	l					ŀ	0	0
Management	(1) Data Processing	Date Logger System	Reader / Memory Card	]	<b> </b>		4,954				4,954	0
	<del> </del>	Sub-Total	(D)	1	<u></u>		4,954	0		9	4,954	9
(E) Does Quality	(1) Staff Transitz	Invitation of Farrign Expent					9,192		11,314		27,516	. 0
Improvement and	Į i	Training in Manufacture		·	l		733		733	- (	1,466	0
Training		Anaders of International Course			ĺ		356		366	i	732	0
	(7) Tuining Contr		Computer Bruip / Contraction for / Building	Building / Panisant / Land 5,000 m2	<del> </del>			33,349	28,171	8,866	48,591	42,217
		Sub - Total	(E)				30,764	33,349	47,601	1,166		42,217
	(1) Design and Programming				3,129		1,341	2,500	6,258	2,500	17,731	\$,000
	(2) Сопрыят Івжчення				1		3,551		5,530		9,501	. 0
(F) Computer System	(3) 3oft W ⇔r						1,947		3,281		5,223	0
i	(4) Parameter and Installation						350		350	500	700	500
	(5) Staff Tracing			L	·		<del></del>	·	3,215		5,21.5	
		Sub - Total			3,129	0	14,587	2,500	20,654	3,000	38,370	5,500
			(A+B+C+D+E+F)		3,129			51,543	64.251		196,534	(8,447
	Administracion and Engineeris	ne Service			13,759	o	24,137	1,556	19,537	517	57,473	2,013
	Continguocy and Reserve				٥	٥	5,376	2,355	1,865	Z,161	7,191	9,517
	Steff Training			<del></del>		0		1,003		281	e	1,284
		Grand - To	M L		16,928	0	151,610	61,454	19,660	19,863	261,198	61,321
<u> </u>	Price Escalation				<u> </u>		6,184	5,531	7,316	3,736	13,501	9,267
		Oracid -	Total (With Escalation)	<u> </u>	16,924	0_	160,794	66,519	96,976	23,599	274,691	50,514

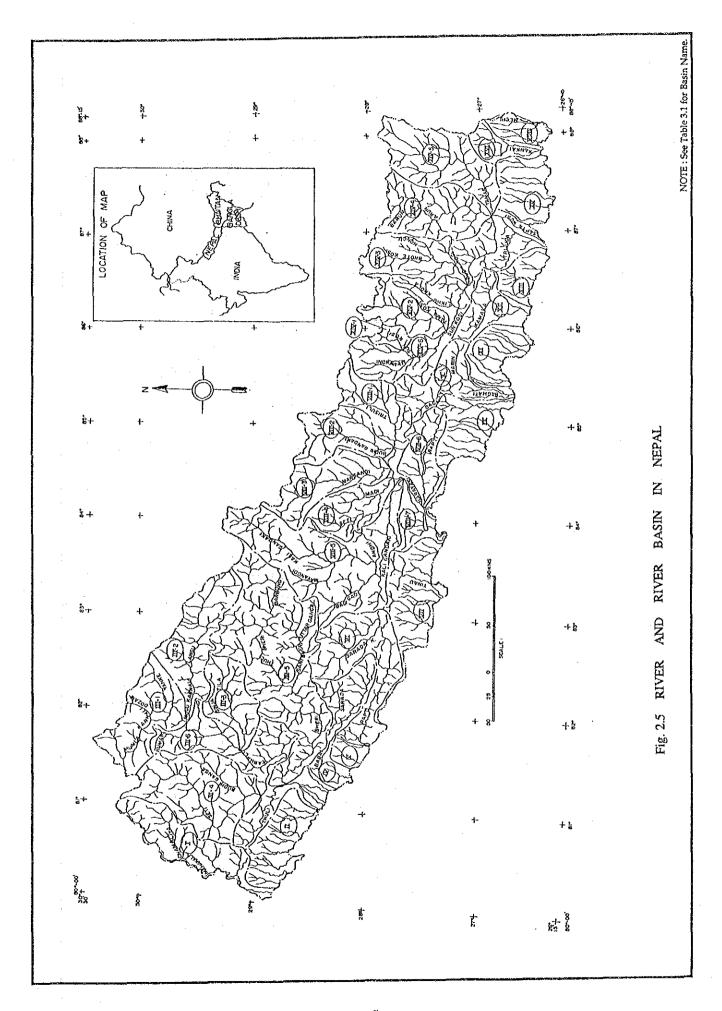
## **FIGURES**

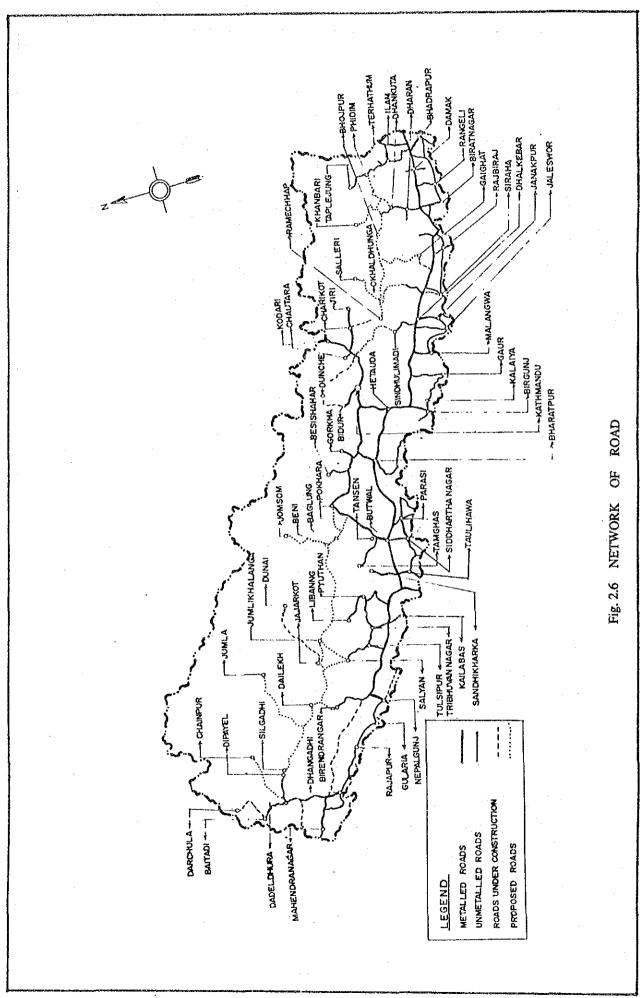




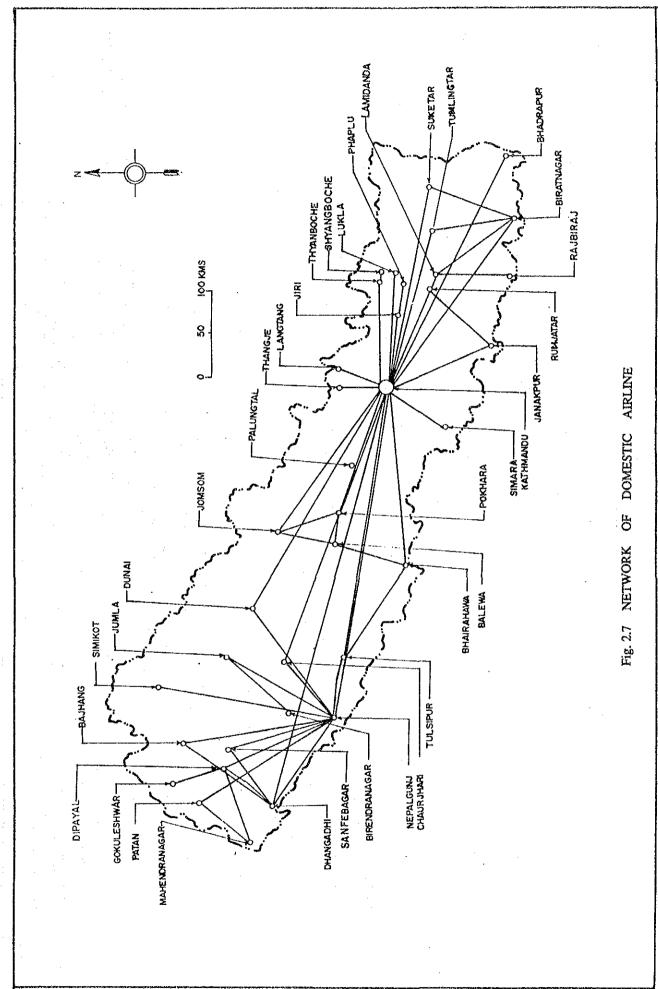




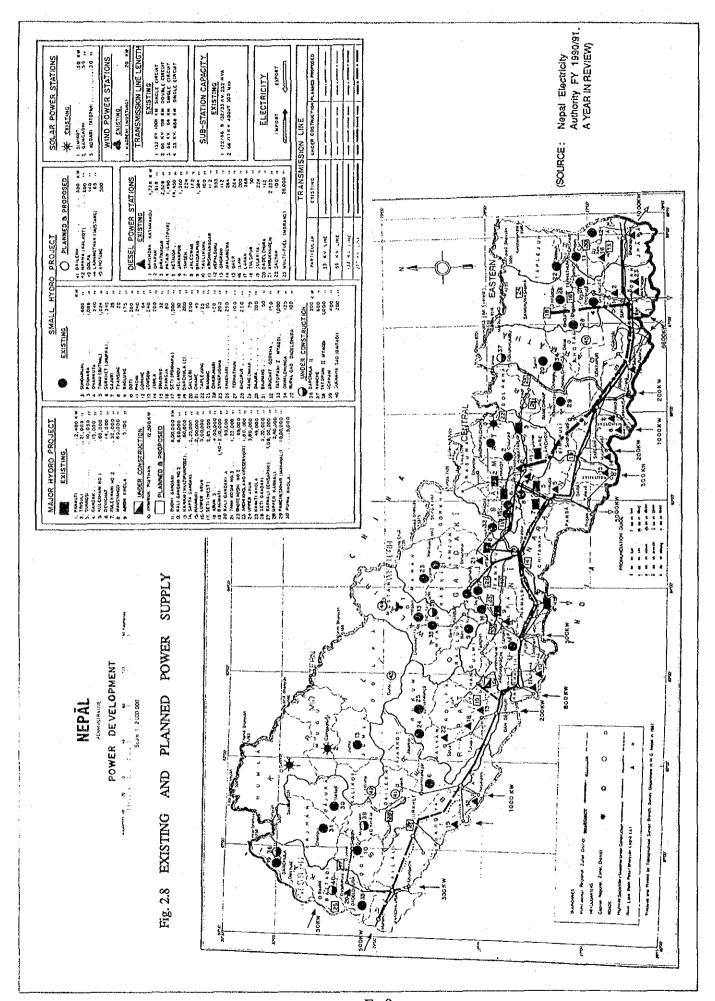




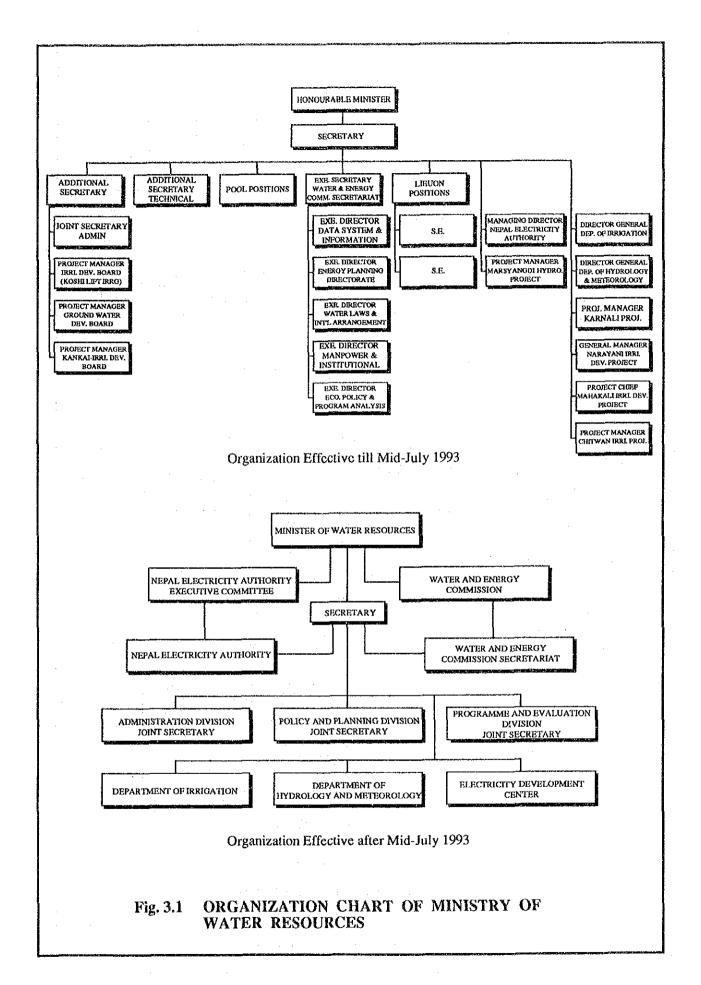
F- 6

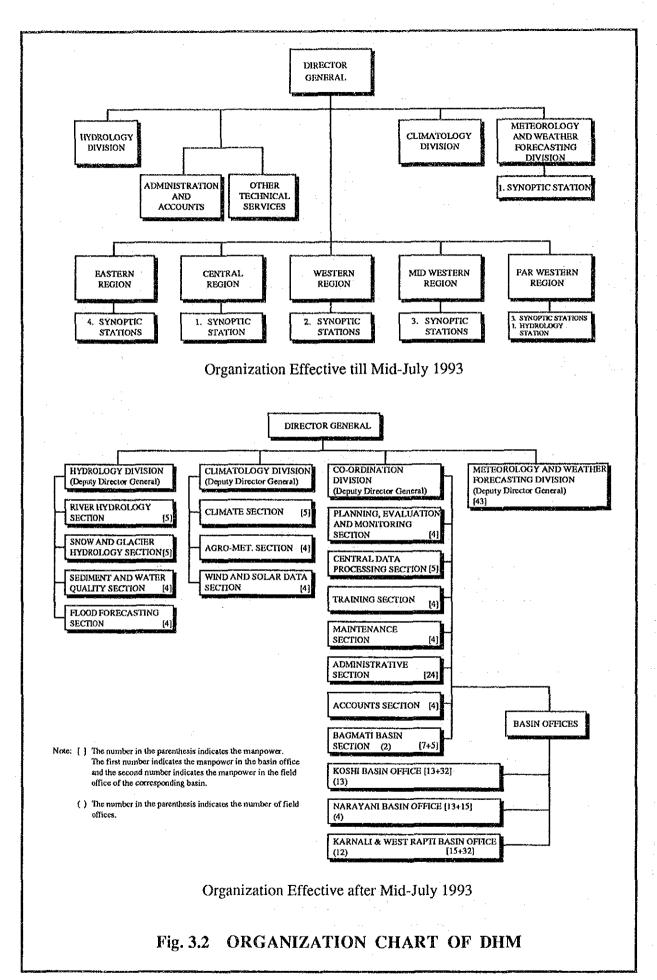


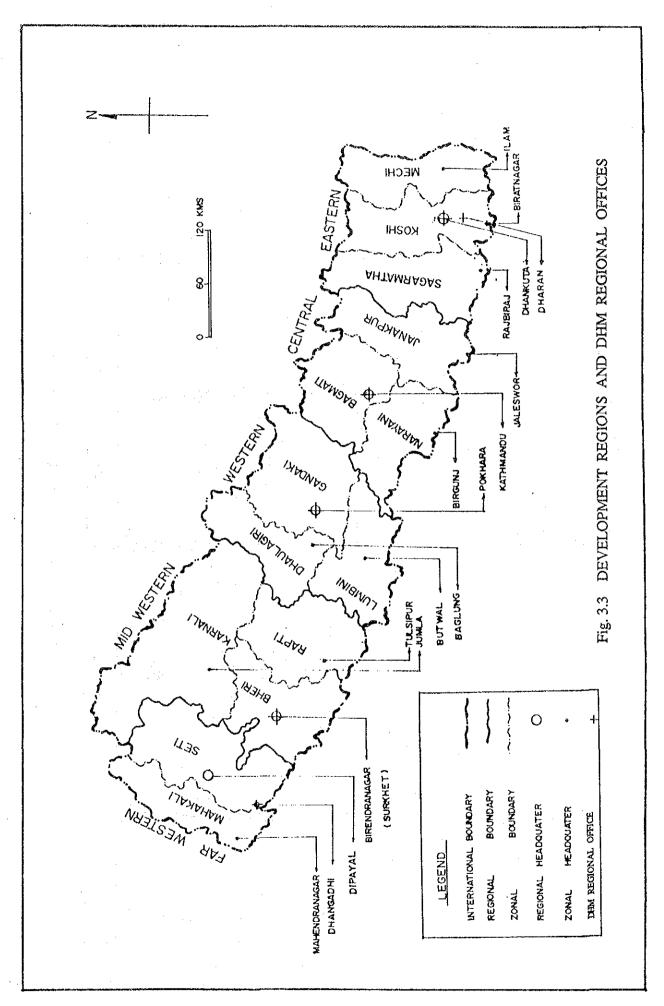
F- 7



F- 8







F- 11

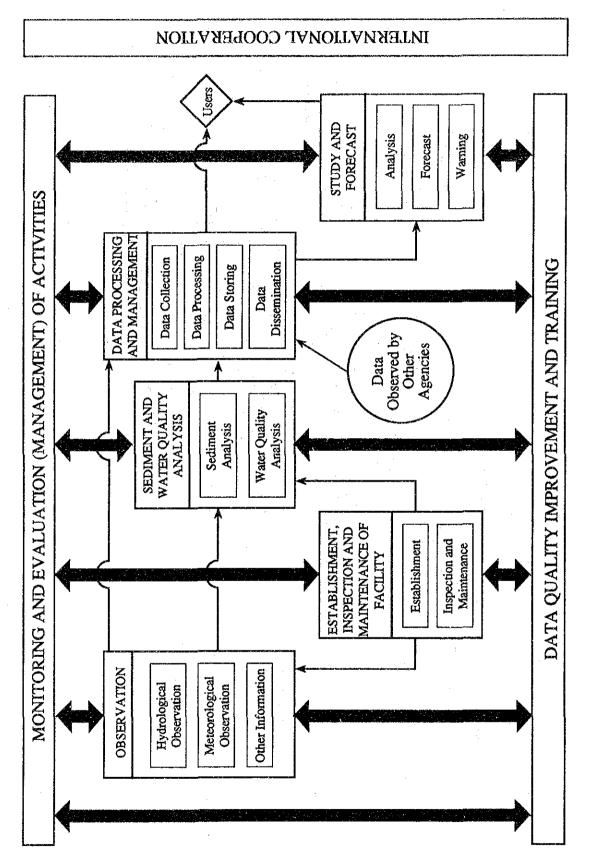
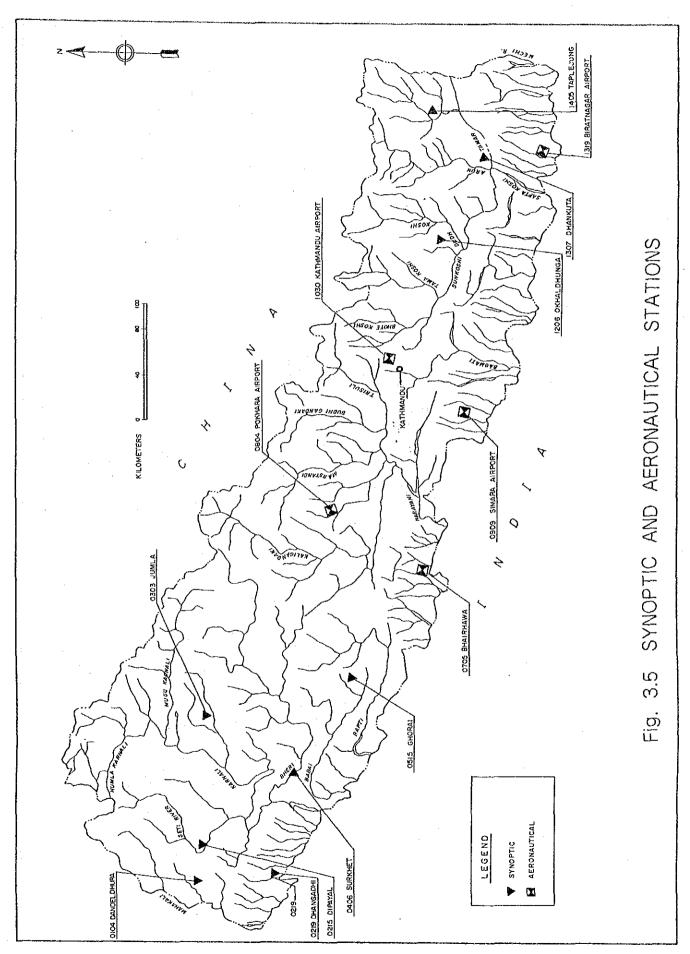
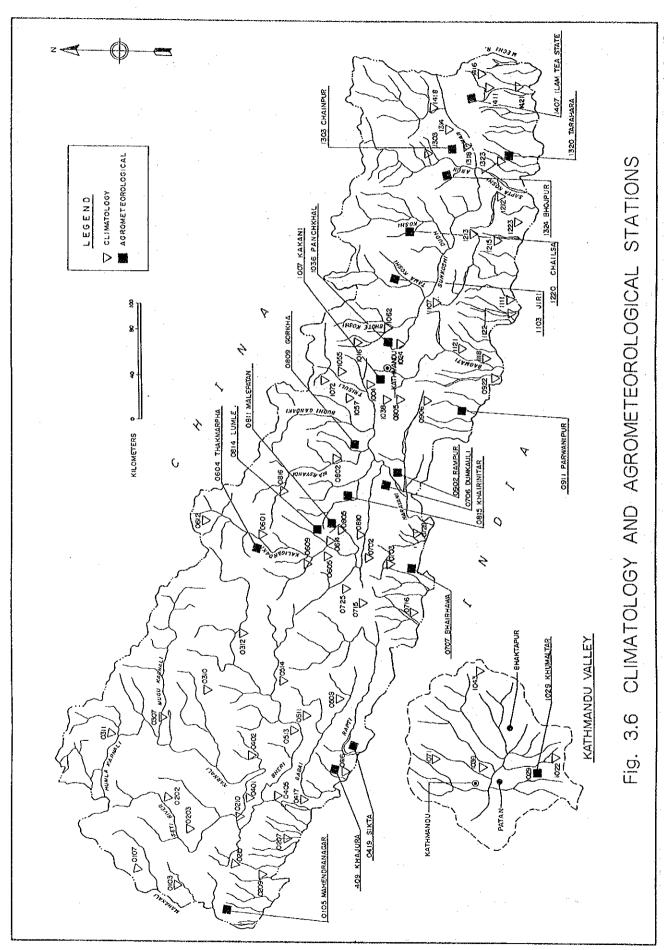


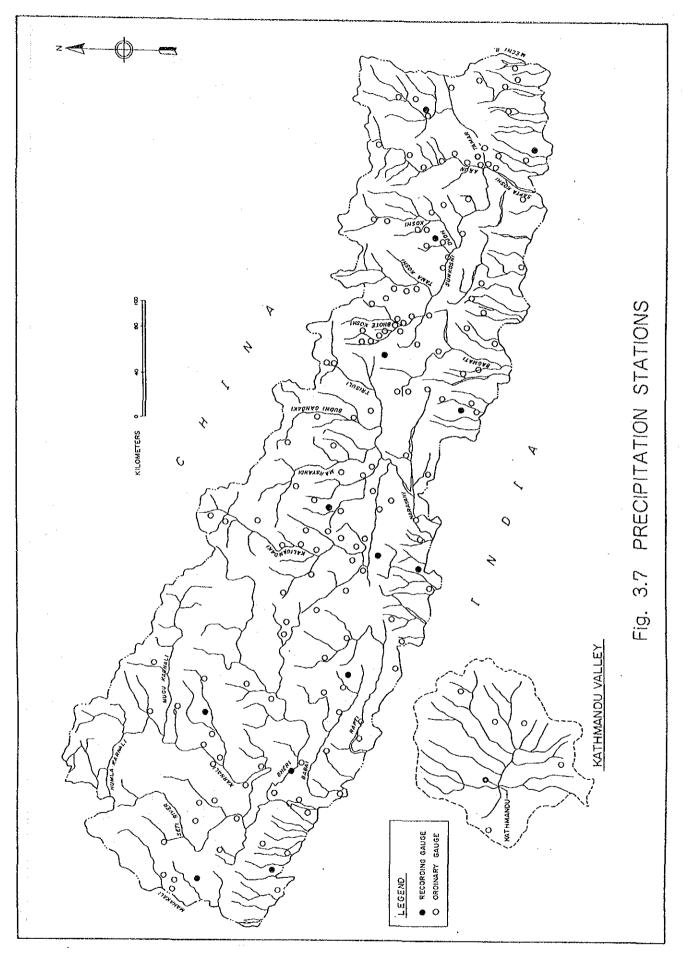
Fig. 3.4 PRESENT WORK FLOW IN DHM



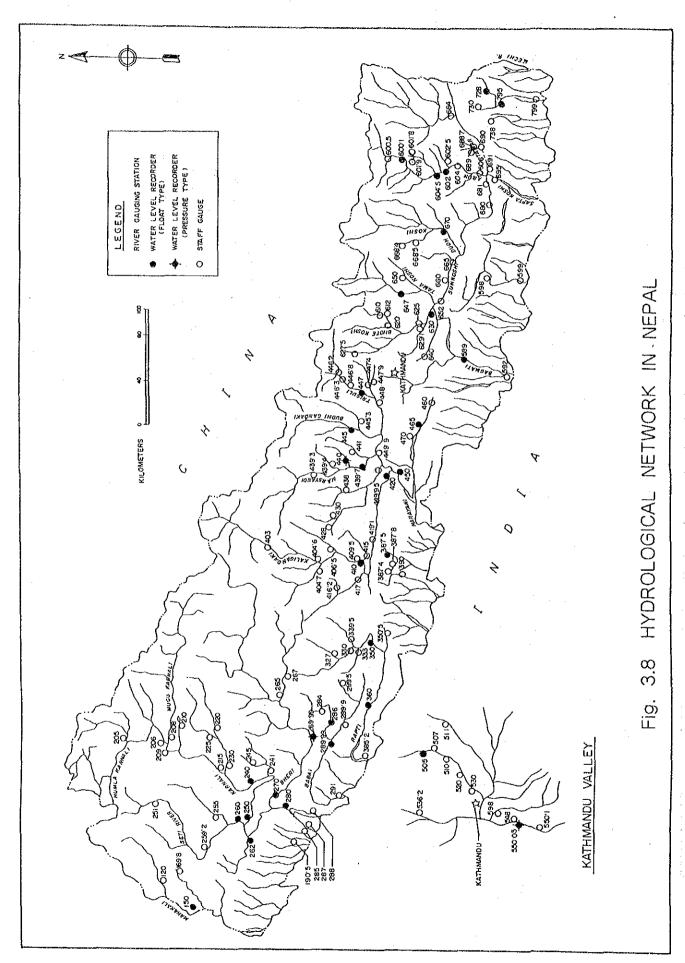
F- 13



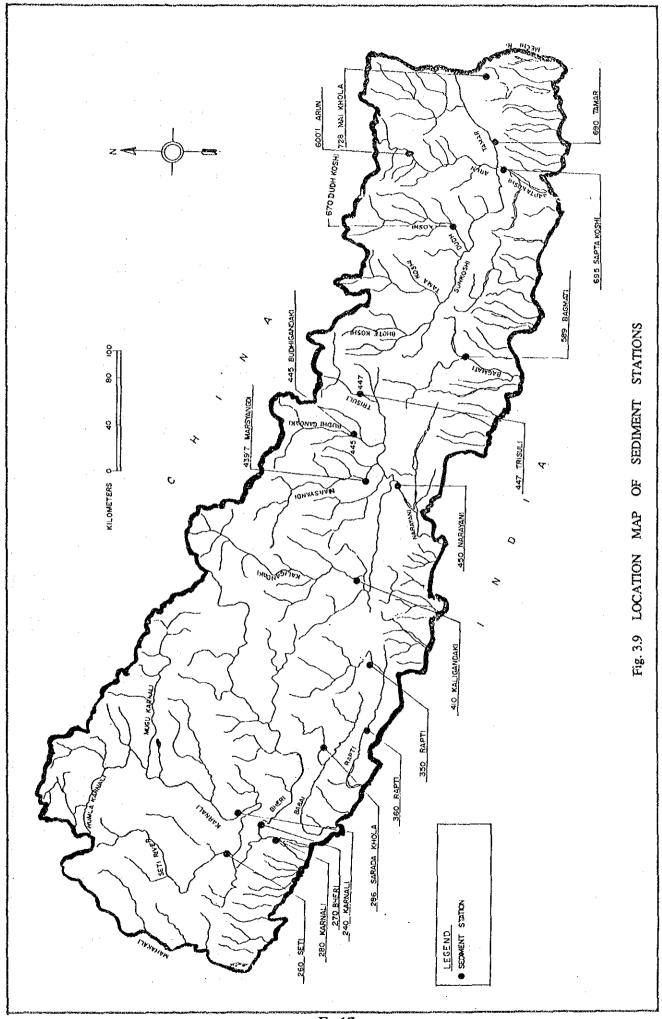
F- 14



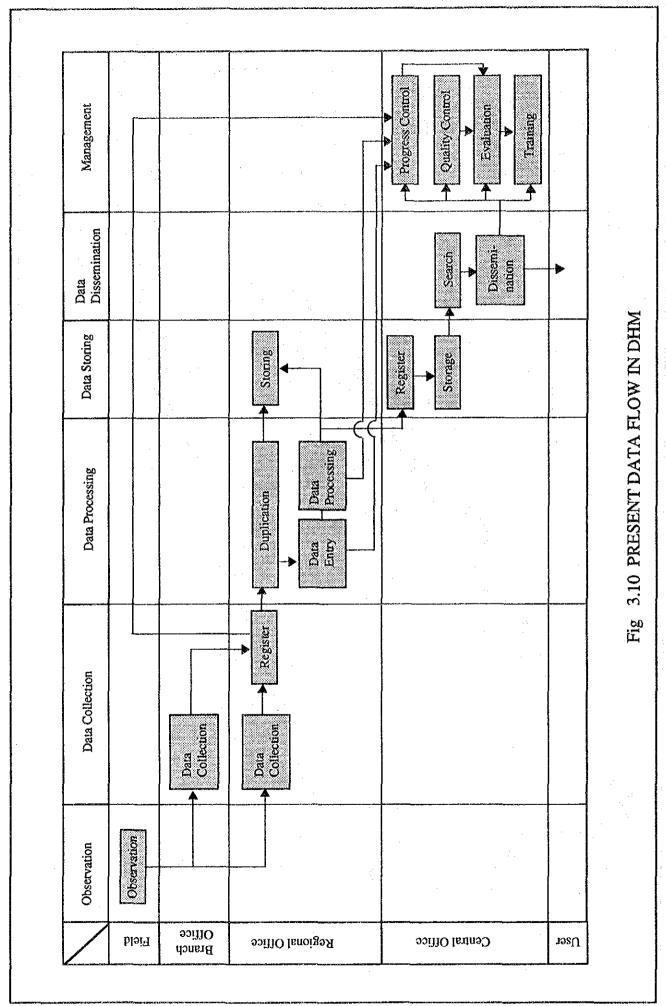
F- 15



F- 16

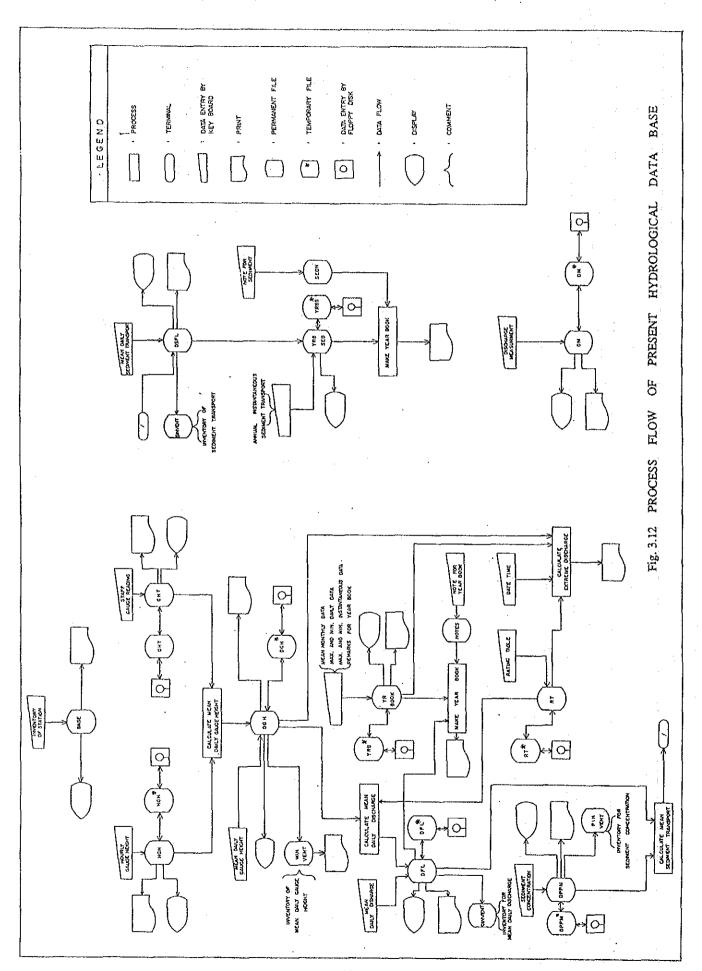


F- 17

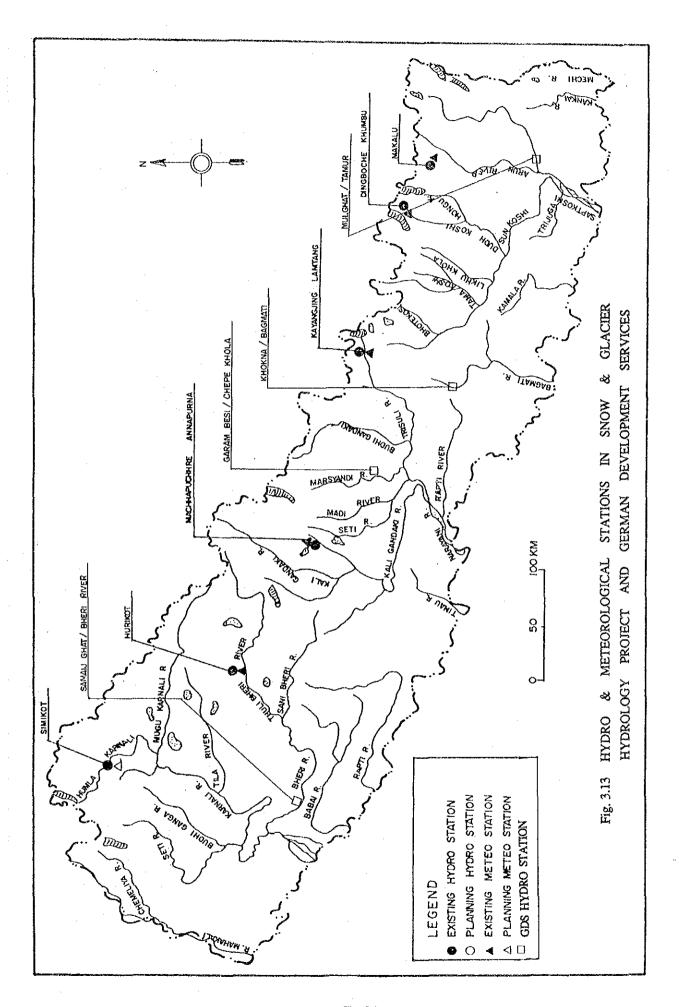


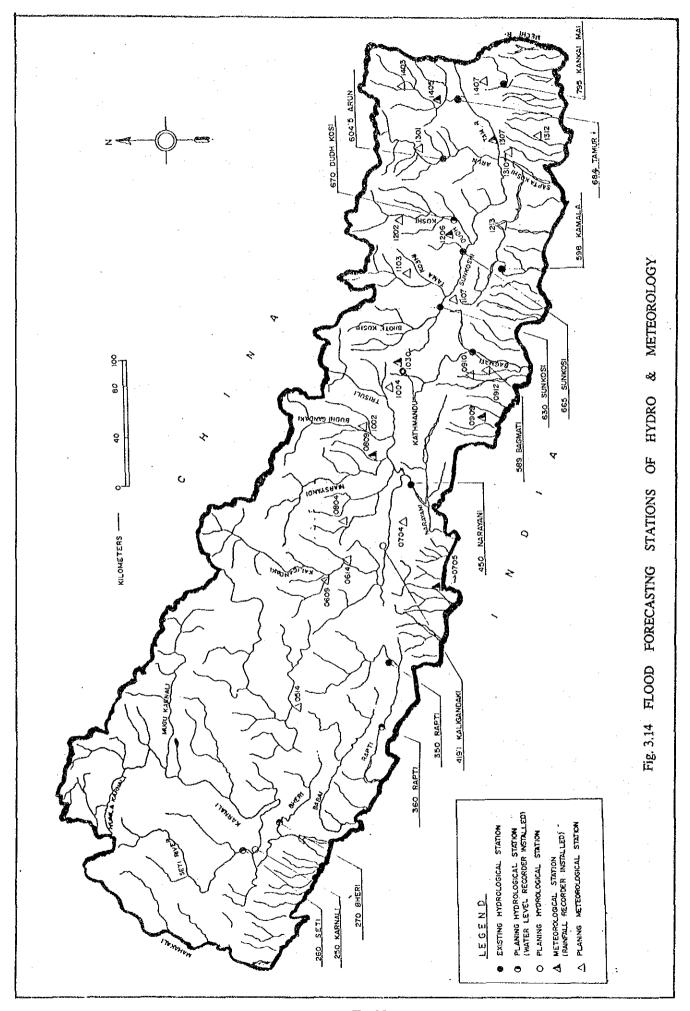
F- 18

BASE .	IBM PS/2 30	IBM PS/2 30	i 80286 (16 BIT) 512 KB NO 1.44 MB FOR DATA ENTRY
RS METEOROLOGICAL DATA E	IBM PS/2 30	IBM PS/2 30	KB KB KB KB KB KB KB KB KB KB KB KB KB K
HEADQUARTERS ME	IBM PS/2 80	IBM PS/2 80	1 80386 43 144 FOR DA FOR DA SYSTEM
DATA BASE	IBM PCXT	1BM PC XT	
HYDROLOGICAL	O O O IBM PC AT	IBM PC AT	80286 (16 BIT) 512 KB 32 MB 12 MB OR DATA BASE [O O] RECORDER
WESTERN REGIONAL OFFICE	IBM PC XT	IBM PC XT	i 8088 (16 BIT) i 256 KB 360 KB FOR DATA BASE F
ITEM	SYSTEM	COMPUTER	M P U  TO MEMORY  TO MEMORY  TO MEMORY  FLOPPY  FLOPPY  FLOPPY  FLOPPY

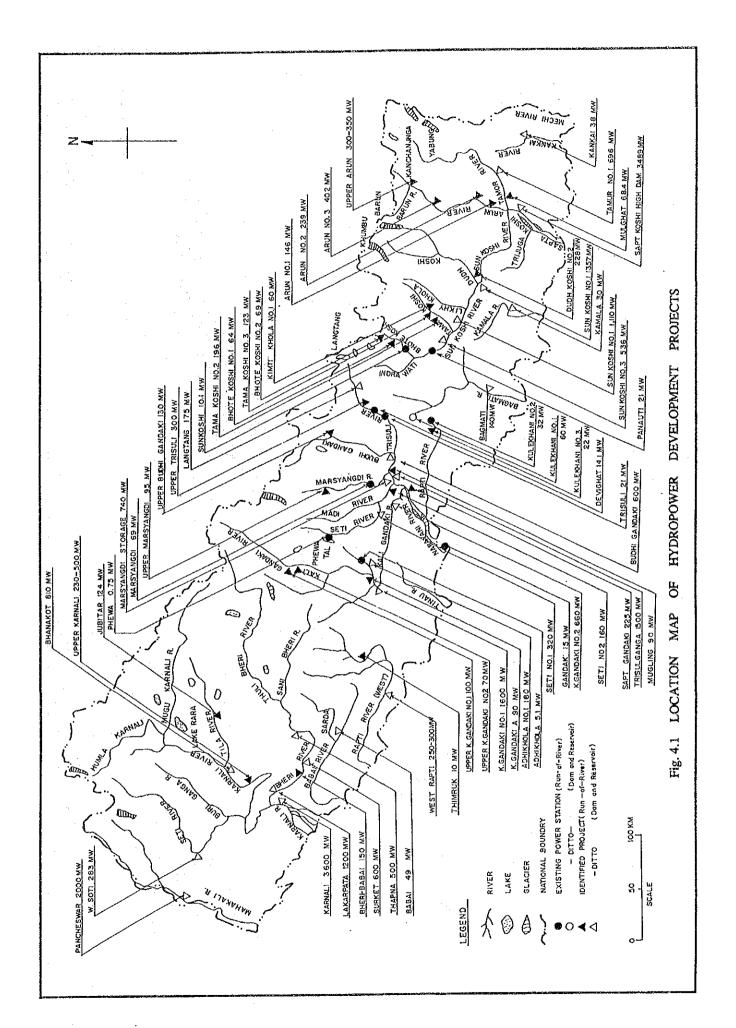


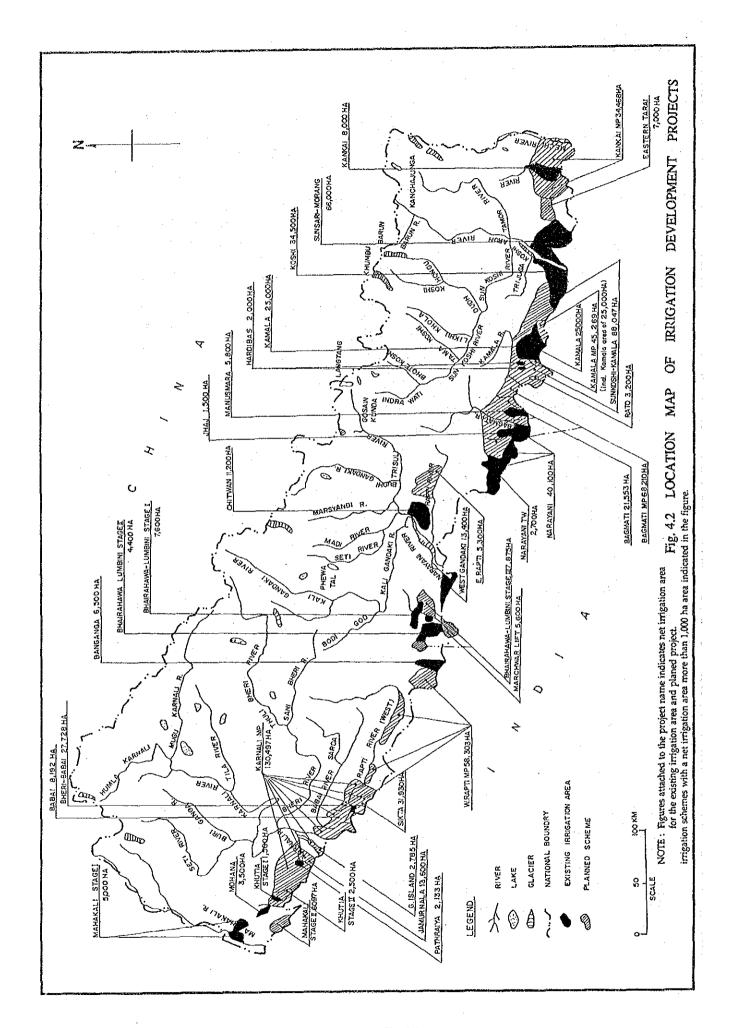
F- 20

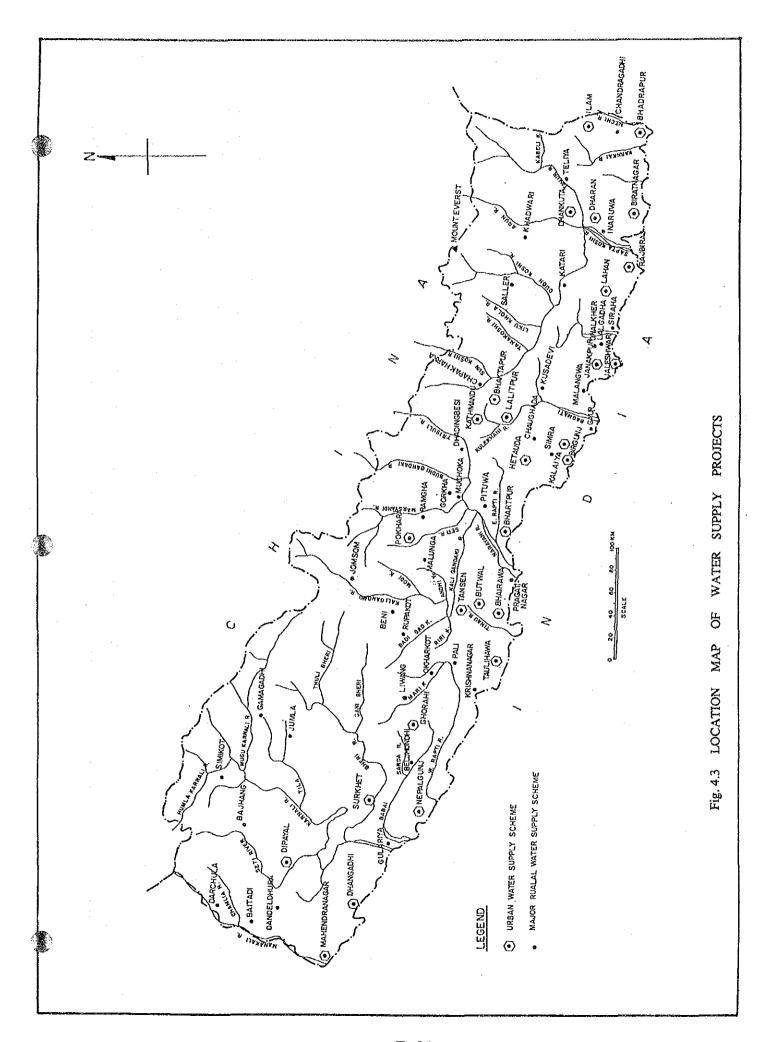


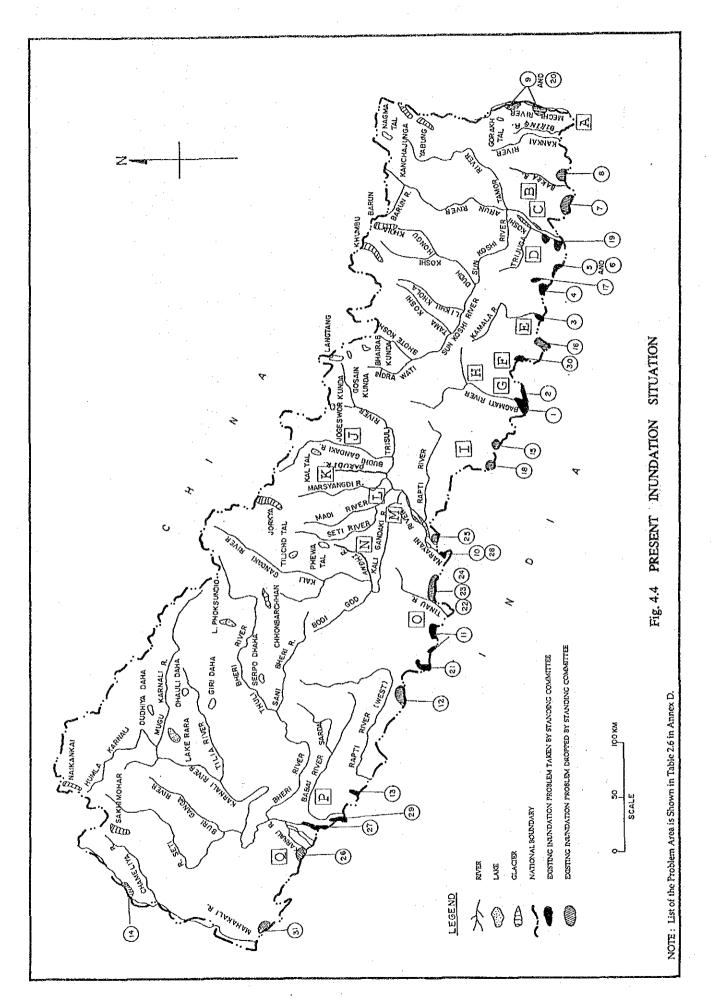


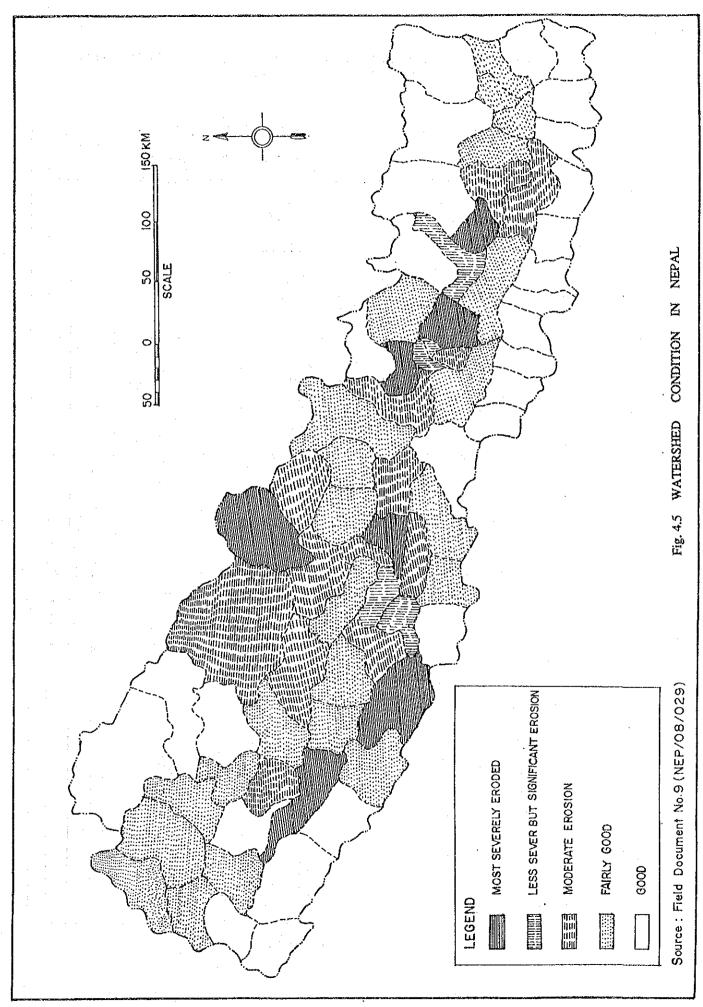
F- 22





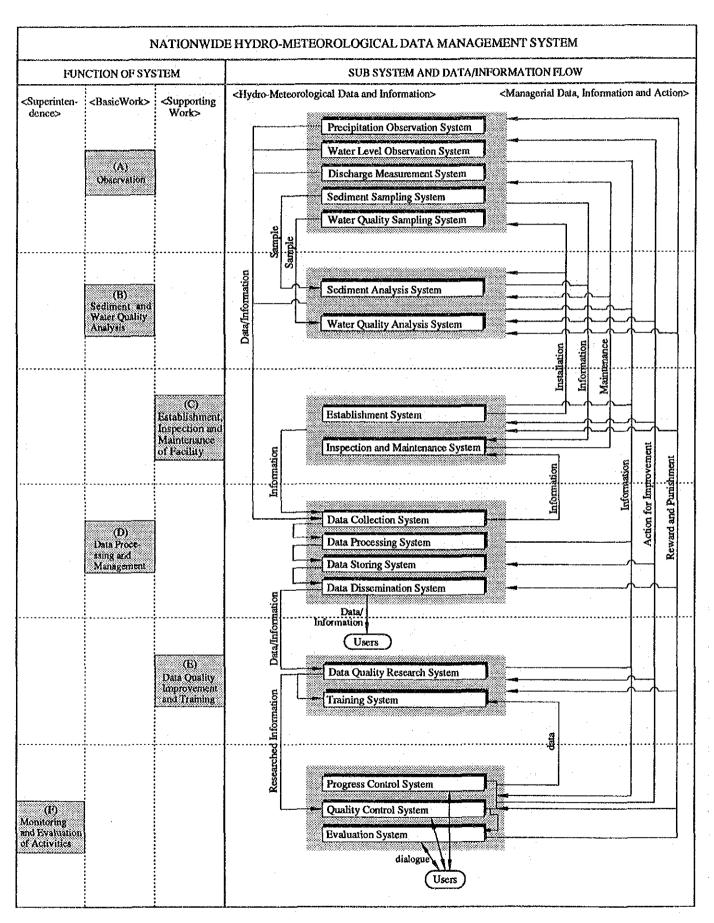


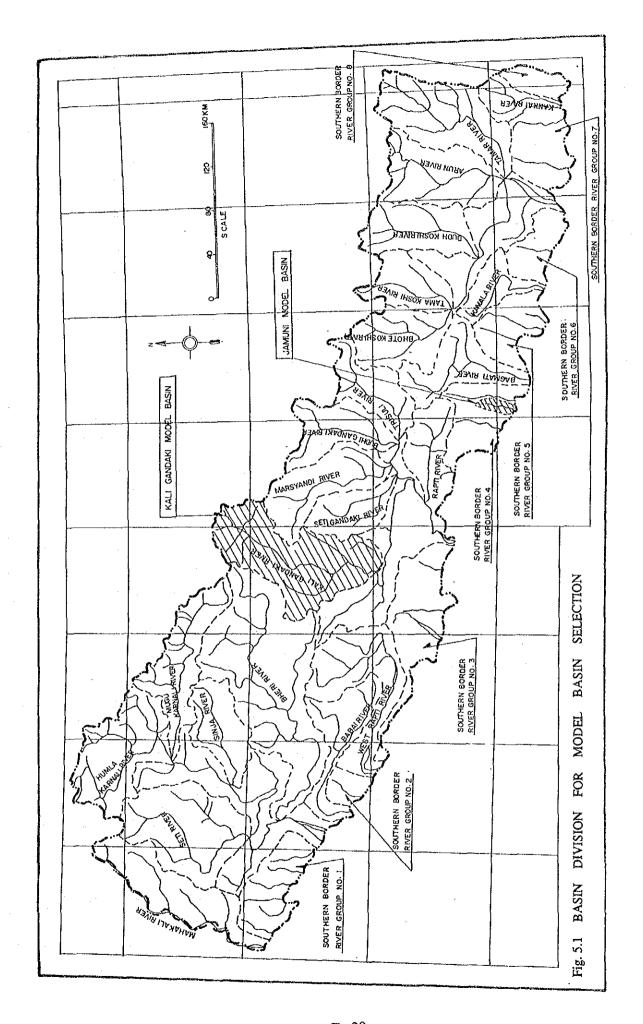


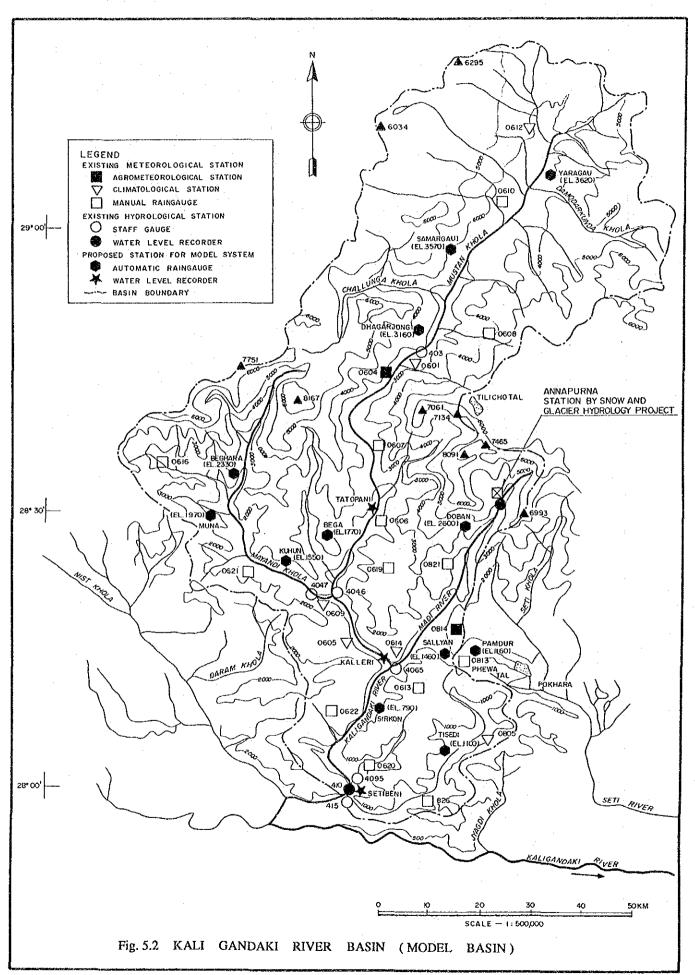


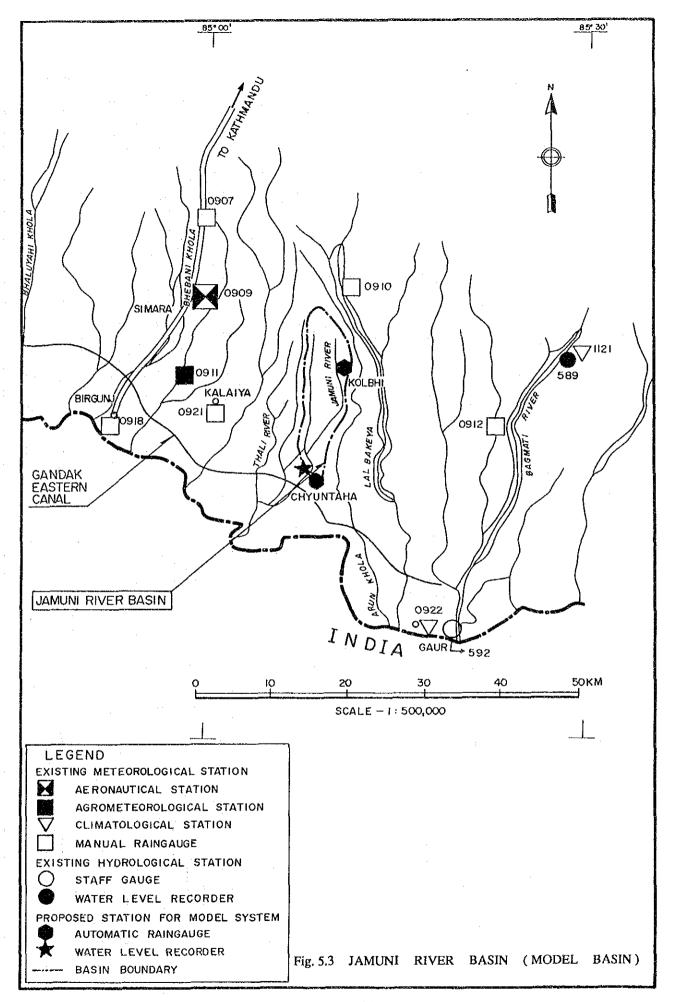
F- 27

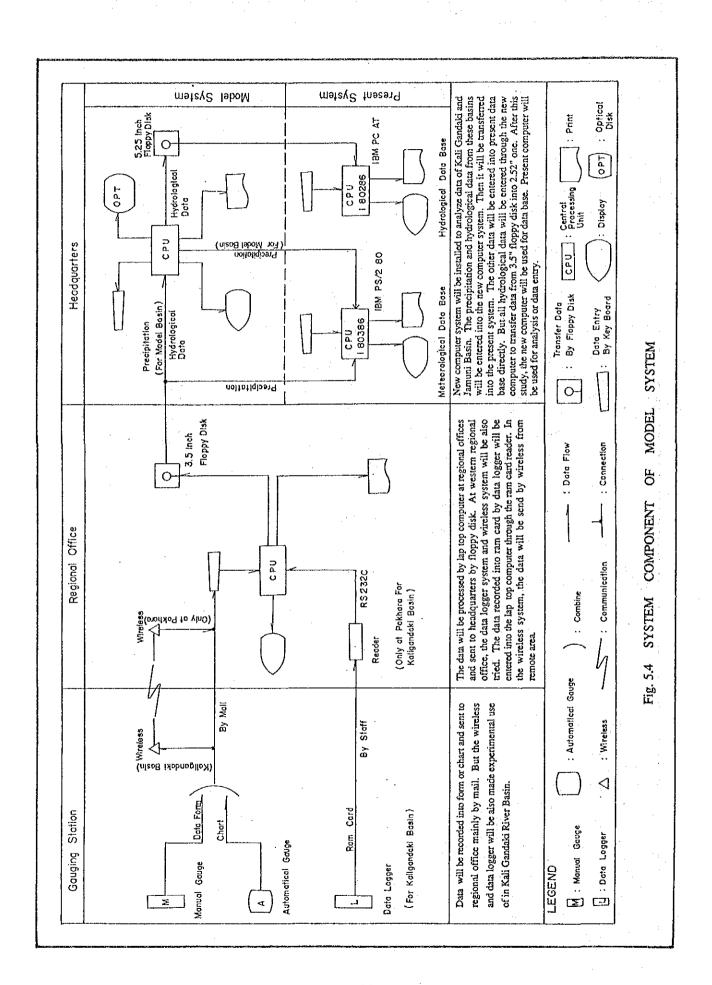
Fig. 4.6 NATIONWIDE HYDRO-METEOROLOGICAL DATA MANAGEMENT SYSTEM IN THE IMPROVEMENT PROGRAMME

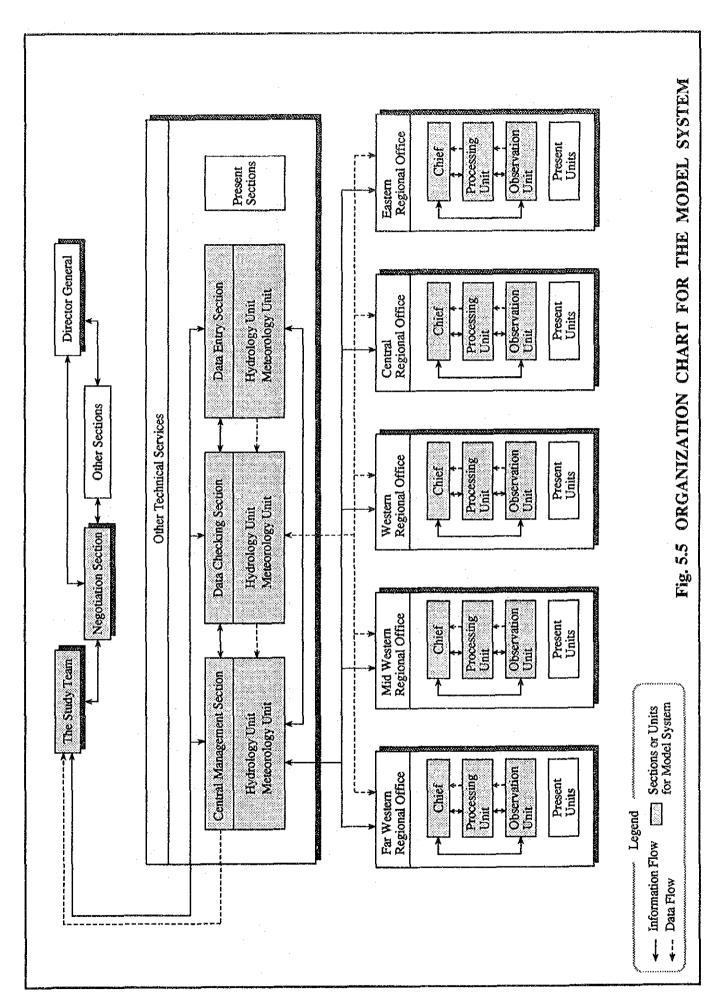












F- 33

Date   May 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992   June 1992	
Yaragau   4/6   6/17	July 1992         August 1992         November 1992         November 1992
Yaragau       4/6       6/12       A       1       (4/5)       (6/12)       A       (1/2)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)       (4/1)	20 27 3 10 17
Samargau 4/5 (6/12) (6/12) (1) (4/1) (6/13) (4/1) (6/15) (4/1) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6/15) (6	
4/1 6/18 A 1 1 4 1 1 4 1 1 4 1 1 4 1 1 4 1 1 4 1 1 4 1 1 4 1 1 4 1 1 1 4 1 1 1 4 1 1 1 4 1 1 1 4 1 1 1 1 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Bega       4/1       Alia	
Xuhun       4/1       6/15       III       4       III       4         Muna       4/3       6/8       III       4       III       Baghara       4/3         Sirkeng       4/3       6/18       III       III       III       III	The recorder was not working.
Muna 4/3 6/18	
Baghara 4/3 (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Communication (1) (6/18) Co	
Sirk and All Carbona All Carbona Market Provinces and and and and and and and and and and	
Outcome 77.1	[2] (incorrect traverse point)

4 : recording charts which have not been collected by technicians [5]: lack of recording charts

[2] : inappropriate adjustment of instruments

: check & recalibration of instrument

: reliable data : unreliable data

: no check

: check of instrument

: daily data of ordinary raingauge

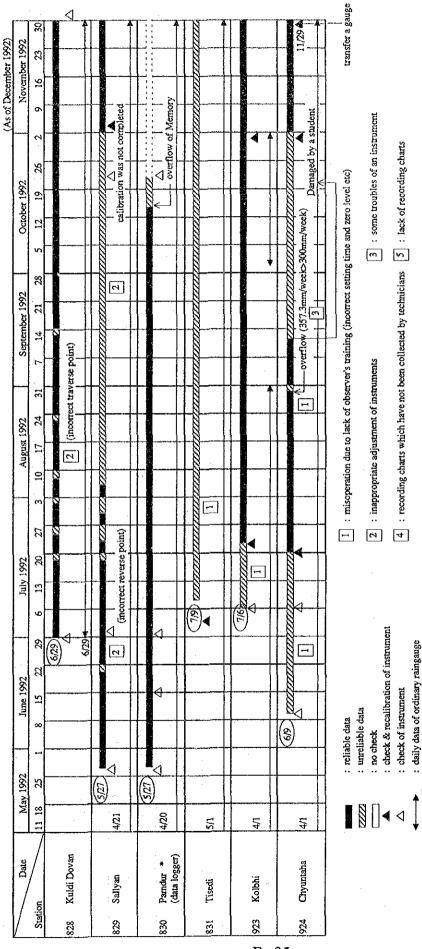
All recording gauges are weighing type ones.

Fig. 5.6 STATUS OF RAINGAUGE RECORD (1/4)

3 : some troubles of an instrument

[1] : misoperation due to lack of observer's training (incorrect setting time and zero level etc)

F - 34



(Revised in June 1993)

* All recording gauges are weighing type ones except No. 0830 at Pandur, which is tipping bucket-type with data logger system.

Fig. 5.6 STATUS OF RAINGAUGE RECORD (2/4)

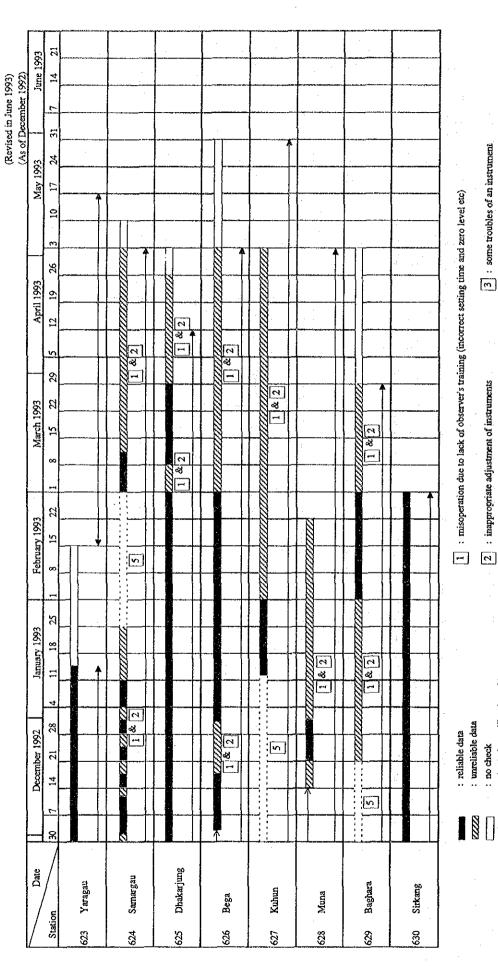


Fig. 5.6 STATUS OF RAINGAUGE RECORD (3/4)

3 : some troubles of an instrument

4 : recording charts which have not been collected by technicians  $\boxed{5}$  : lack of recording charts

[2] : inappropriate adjustment of instruments

: check & recalibration of instrument

: unreliable data

: no check

: check of instrument

: daily data of ordinary raingauge

All recording gauges are weighing type

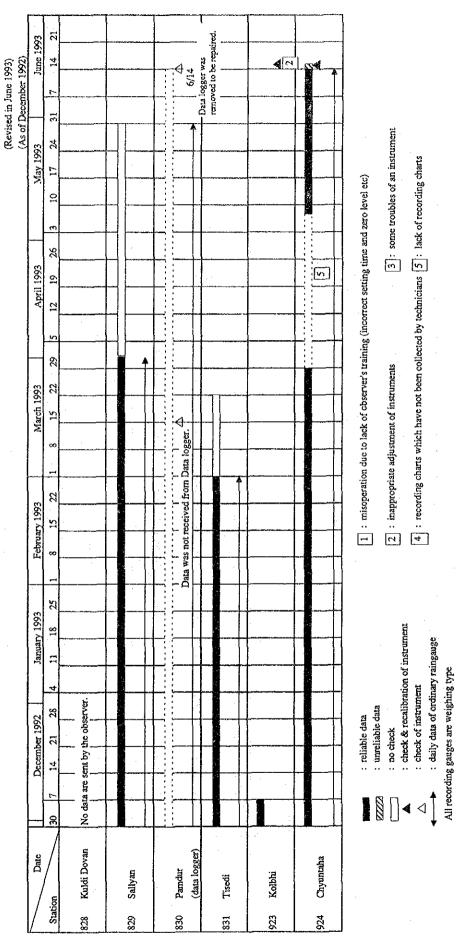


Fig. 5.6 STATUS OF RAINGAUGE RECORD (4/4)

			F	<u> </u>			<u> </u>				<u> </u>	à							_			
993) 992)				ay (Aug						and												
(Revised in June 1993) (As of December 1992)	72	31		Serior was washed away (Aug. 1)			100			Gauge well was out of working due to sand												
(Revised (As of D	August 1992	20	danna	TISOT Was				4		t of worki			der		ogger		der					
	₹.	31 1 10	1000 V	ਨੇ   						ell was ou	arks	:	with recor		with data l		with recor		recorder			÷
	July 1992	20	-00	7 [						Gauge w	Remarks		pe gauge v		pe gauge		pe gauge		auge with	,	nent etc)	uble
	July	10	0 c		Ì								pressure type gauge with recorder		pressure type gauge with data logger		pressure type gauge with recorder		float type gauge with recorder	,	raining misadjusin	achine tro
	2	30 1						•			1992	31	Ä.	•				<b>A</b>	Ĩ	Î	bserver's t	sor) to some n
	June 1992	10 20		-				1		•	December 1992	10 20									misoperation due to lack of observer's training (incorrect setting time and water level, misadjustment etc) stop clock (for spring watch)	: Low battery (for pressure sensor) : High water level was cut due to some machine trouble : Lack of recording chart
		31 1	(S)				autan					31 1	ready						-		misoperation due to lack of c (incorrect setting time and w stop clock (for spring watch)	Low battery (for pressur High water level was cu Lack of recording chart
	May 1992	20			-						November 1992	20	The recorder was not ready	Removal of Recorder (Oct. 12)								: Low batt : High wat : Lack of r
	Σ	1 10									Nove	31 1 10	The record	of Recorde						4	1 — ,	υ 4 κυ 
	1992	20 30							4120/2011	•	r 1992	0		Removal	-	t H		4				l & JICA)
	April 1	10							4		October	10		•				3				ng ng
	72	31			-				4	*	266	30 1		+					-	+	reliable data unreliable data not yet checked	inspection of station (DHM) staff gauge reading
	March 1992	20			79		(3/18)				September 1992	20									: reliable data : unreliable da : not yet cheol	: inspec
	,4 ,	1 10	4/20		( <u>9</u> )	3/15					Se	1 10										4 ↓
	Date	/	topani /	Kali Gandaki	Kalleri /	Kali Gandaki	Setibeni /	Kali Gandaki	Chyuntaha /	Jamuni River			topani /	Kali Gandaki	Kalleri /	Kali Gandaki	Setibeni /	Kali Gandaki	Chyuntaha	Jamuni River	Note:	. •
	<u>/</u>	Station	403.5 Tatopani,	Ka	406 Ka	Ka	410 Ser	Ka	595 Ch	Jar			403.5 Tatopani/	Ka	406 Ka	Ka	410 Set	Ka	595 Ch	Jar	. ,	

Fig. 5.7 STATUS OF WATER LEVEL GAUGE RECORD (1/2)

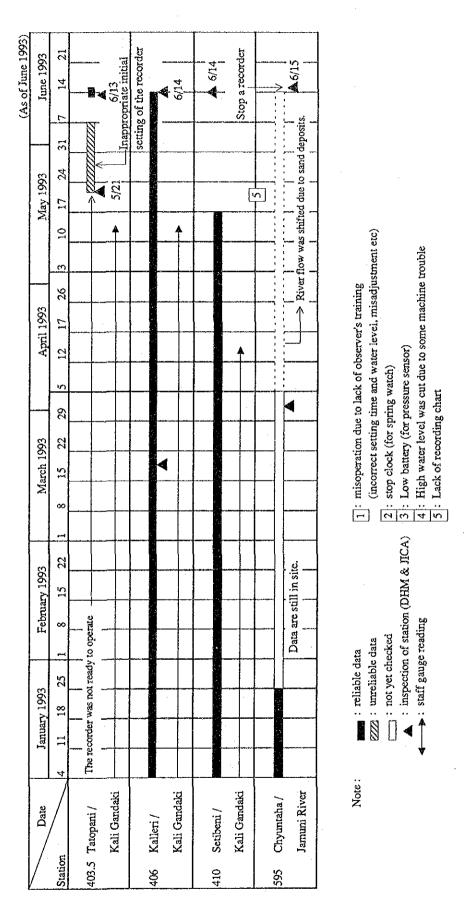
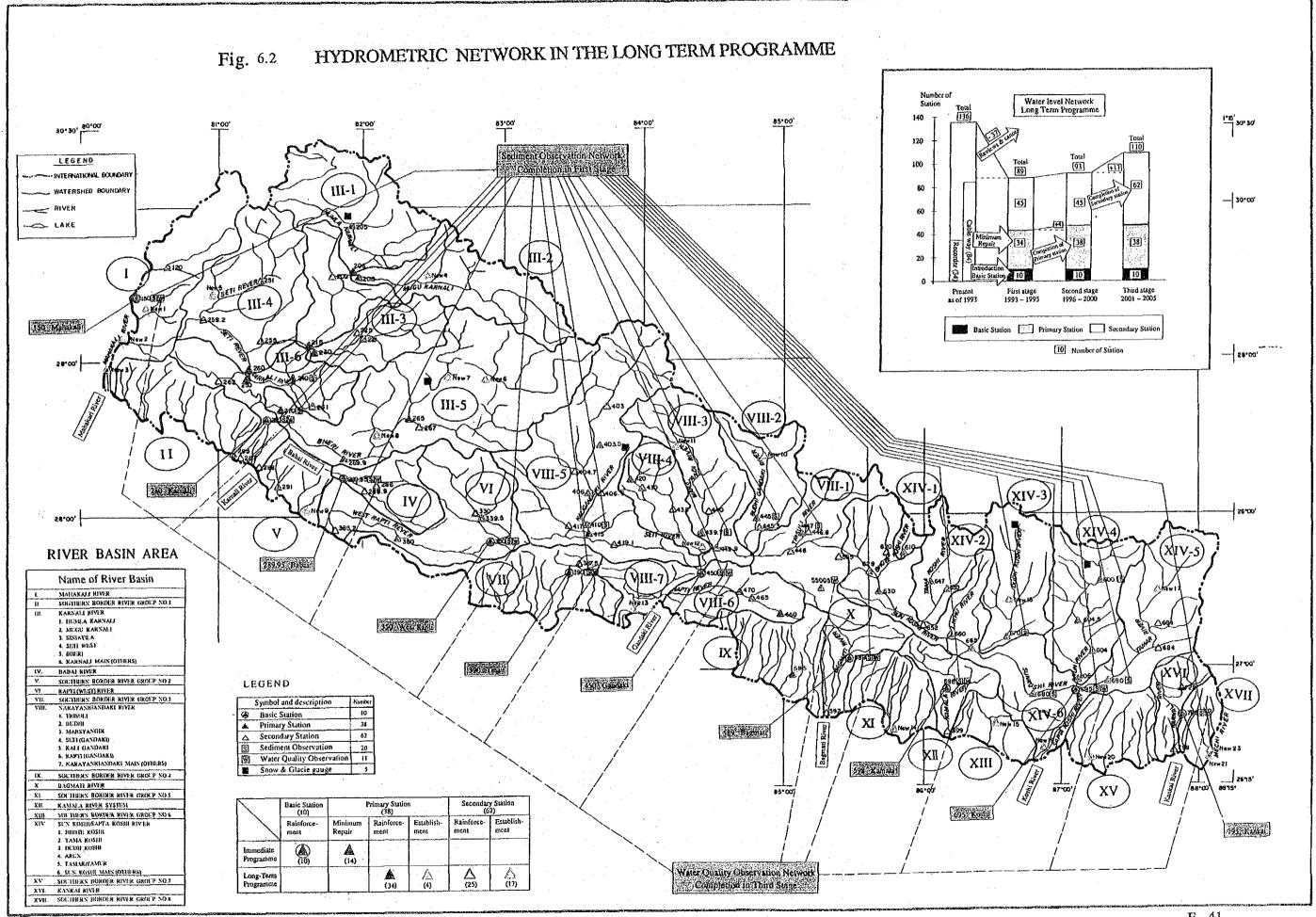
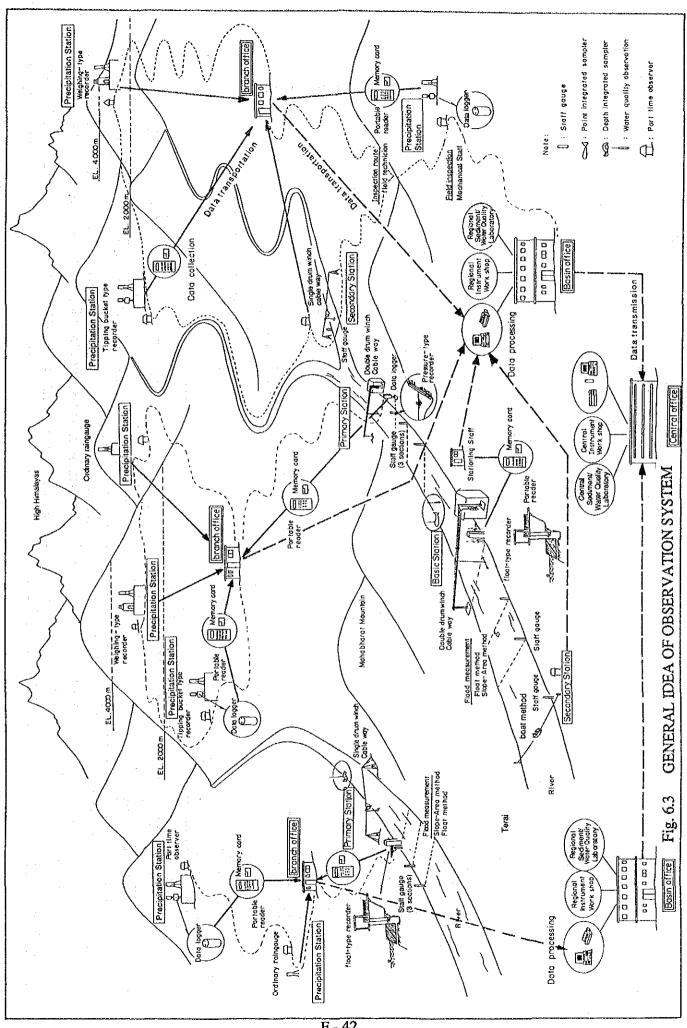


Fig. 5.7 STATUS OF WATER LEVEL GAUGE RECORD (2/2)

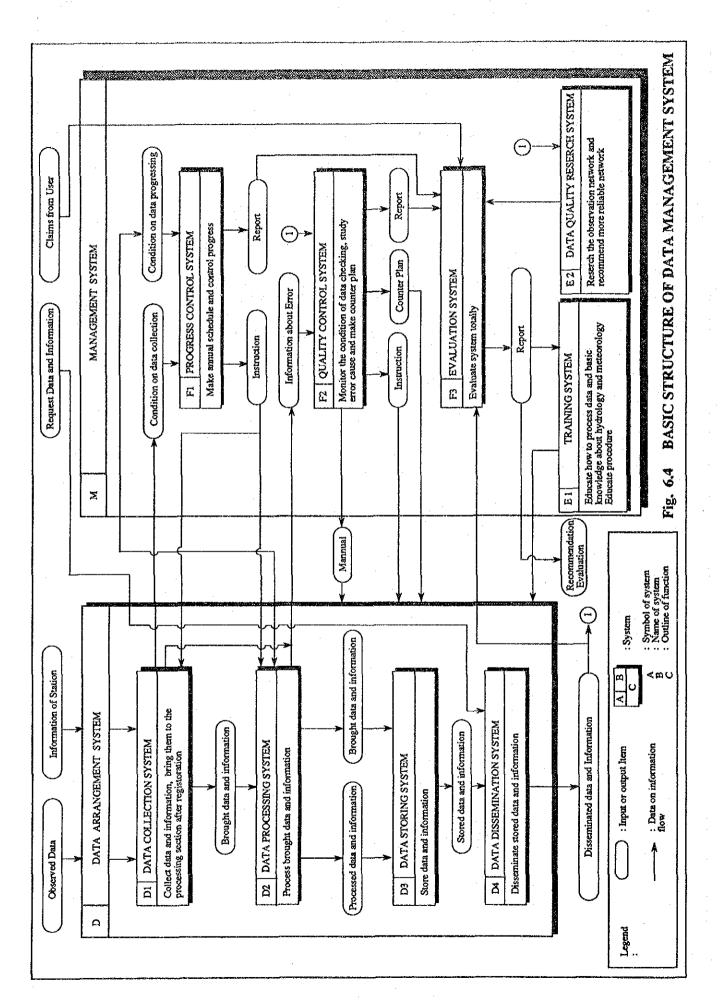
PRECIPITATION NETWORK IN THE LONG TERM PROGRAMME Fig. 6.1 30*30',80*00' Number of Station Precipitation Network Long Tenn Programme 500 III-1 Jumla Chinpur 350 300 250 200 III-2 Musikot 150 100 [60] Third stage 2001 - 2005 Present as of 1993 First stage 1993 ~ 1995 Second stage 1996 ~ 2000 28*00 Mon-Recording Station Recording Station [10] Number of Station Bangga Khandbari (XIV-3 (XIV-4)RIVER BASIN AREA (XIV-5 Name of River Basin MARIAKATA RIVER SOUTHERN BORDER RIVER GROUP NO.3 Taplejung REPUR ELANGA LIARRAN A.M.DI .I 2. MUGU KARNALI 3. SINIATUA 4. SEULWEST Nepalganj Basin office s. BJUERT & KARNALI MAIN (OTHERS) IV. DABAI RIVER V. SOUTHERN BORDER RIVER GROUP NO.2 V SGL HEAR BURDER RIVER ORDER SOLD
VII. SORTHERN BORDER RIVER GROUP NO.3
VIII. SARAYAKGANDAKI RIVER
L TRISULI
J. BLOBB
J. MARSYANGDI LEGEND Pokhara Basin office Simara Symbol and description Hixisting Raingauge 4. SITT(GASDAKI)

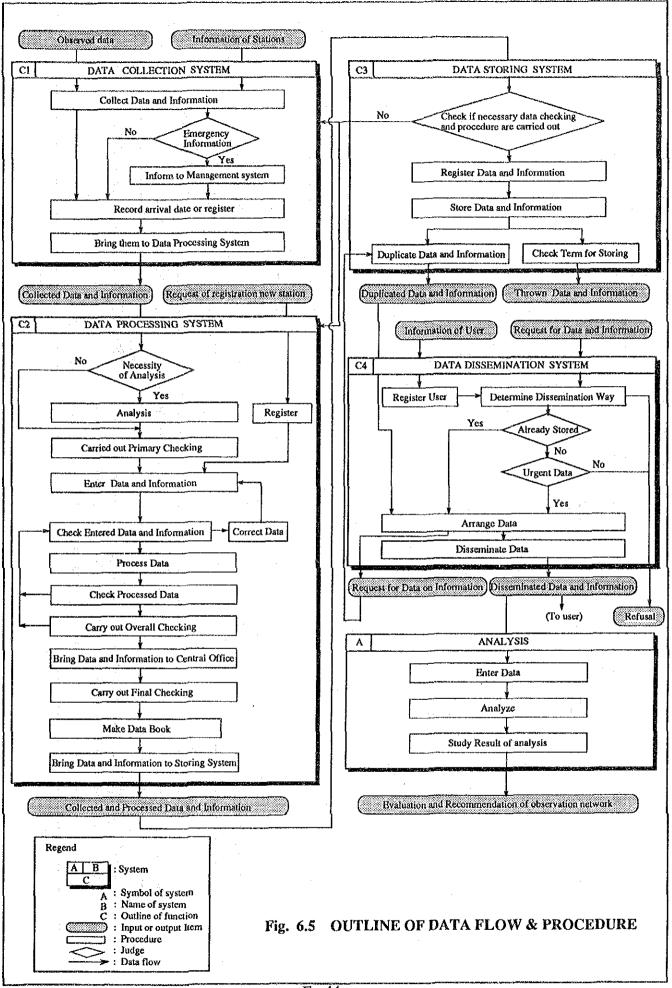
5. KALI GASDAKI Proposed Raingauge € Model System Raingauge 6. RAPTI(GANDAKI) 7. NARAYANKIANDAKI MAIN(OTHERS) 60 Recording Raingauge IX. SOUTHERN RORING RIVER GROUP NO.4 Kathmandu Basin office Snow & Glucie gauge 1 2675' X HAGMATI RIVER Okhaldung XI. SOUTHERN BORDER RIVER GROUP NO.5 85*00 R Recording Raingauge KII. KAMAJA RIVER SYSTEM
KIB. SOCTHERS BORDER RIVER OROUP NO 6
KIV. SUN KOSHIGAPTA KOSHI RIVER
1. HIGHTE KOSHI
1. TAMA KOSHI
1. DADDI KOSHI
4. ARCN
5. TAMARITANI'R
6. SV. KOSHI MANIMATANI'R XII. KAMALA RIVER SYSTEM Ordinary Raingauge New installation LEGEND (10) (4) Immediate Immediate Biratnagar Basin office Programme WATERSHED BOUNDAR (82) (10) R Long-Term Programme (204) Long-Term Programme (108) RIVER 6. SUN KOSHI MAIN (OTHERS) SOUTHERN DORDER RIVER GROUP NO.7 (22) LAKE XVI. KANKAI RIVER XAIL ZOUTHERN HORDER BLACK GROUP ZOR F - 40



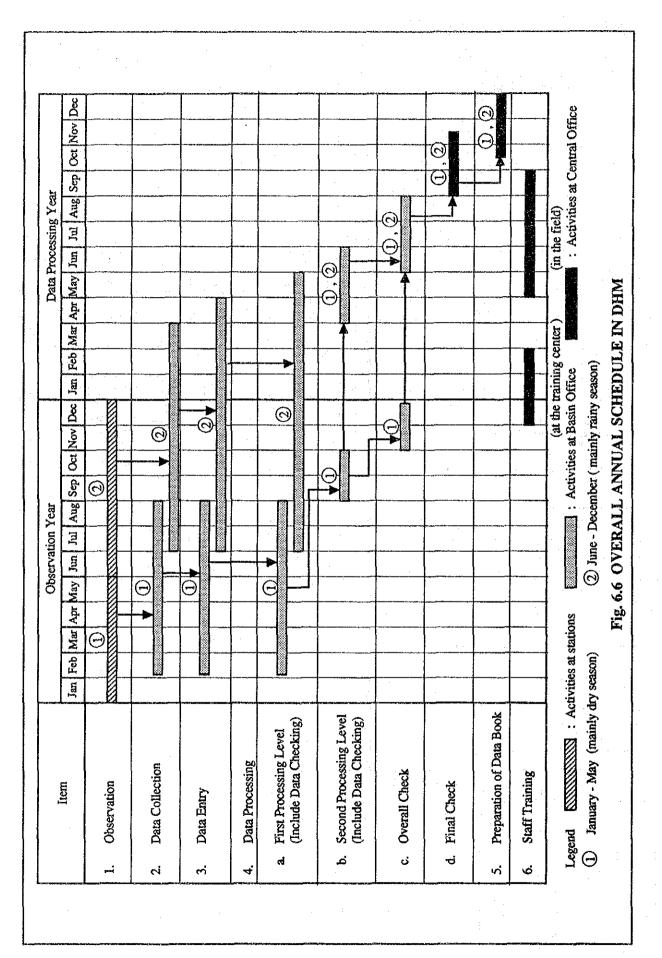


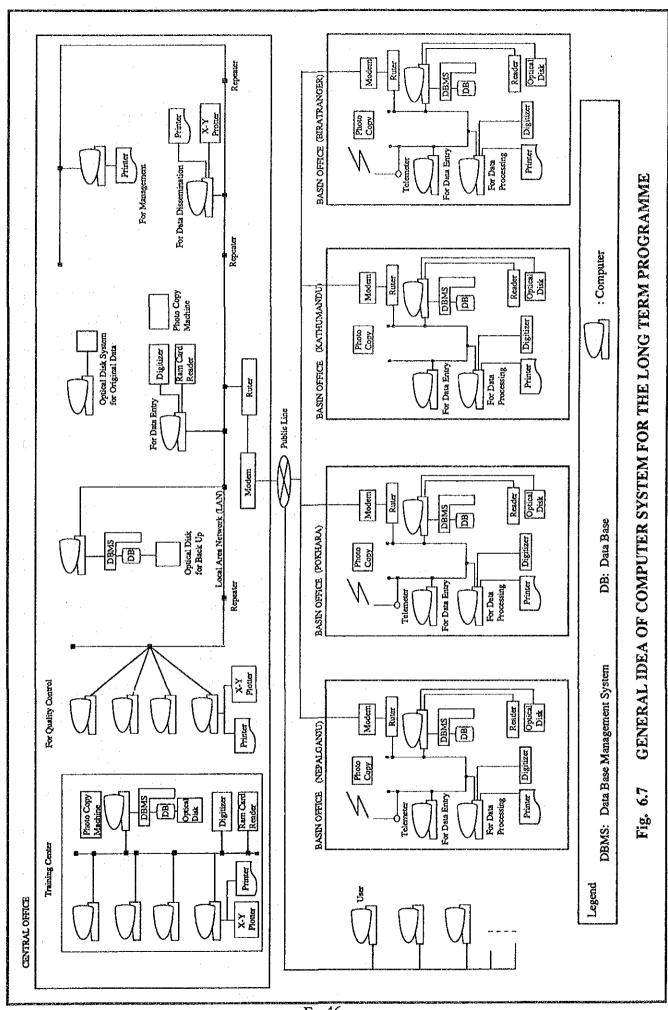
F - 42



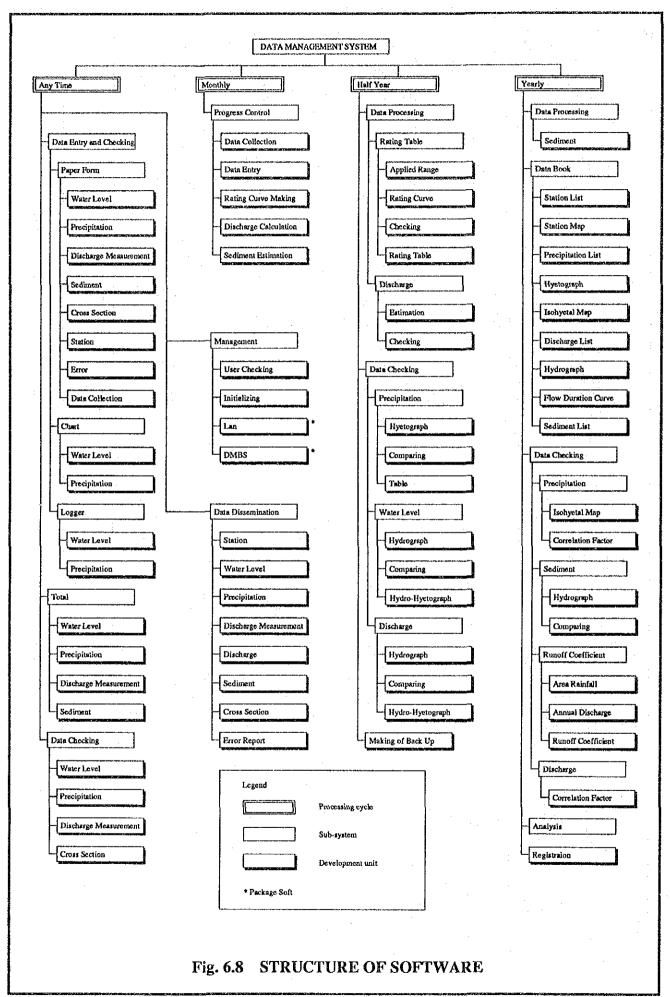


F-44

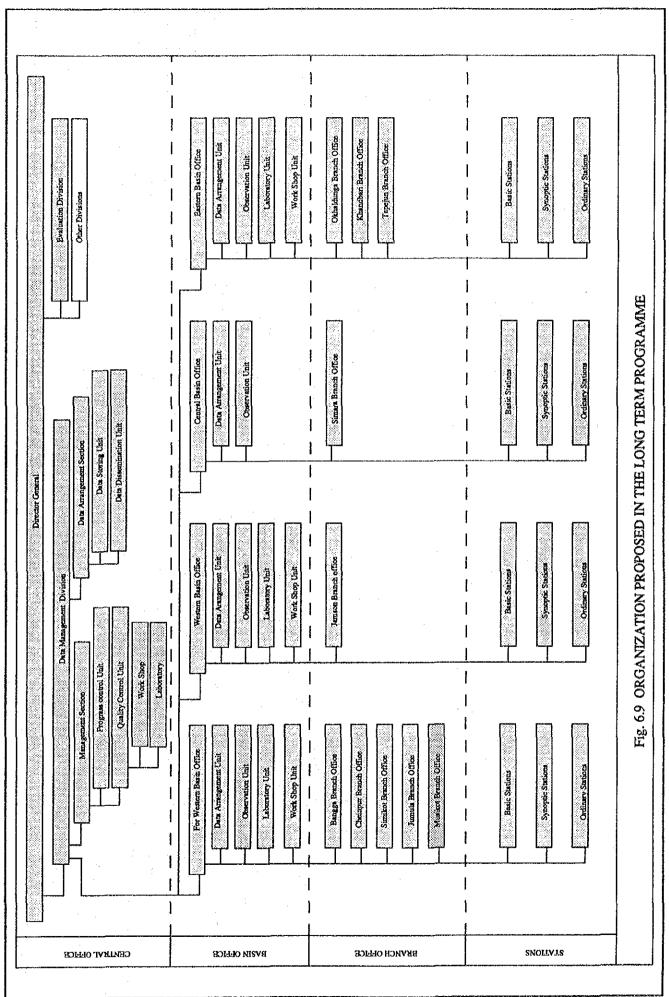




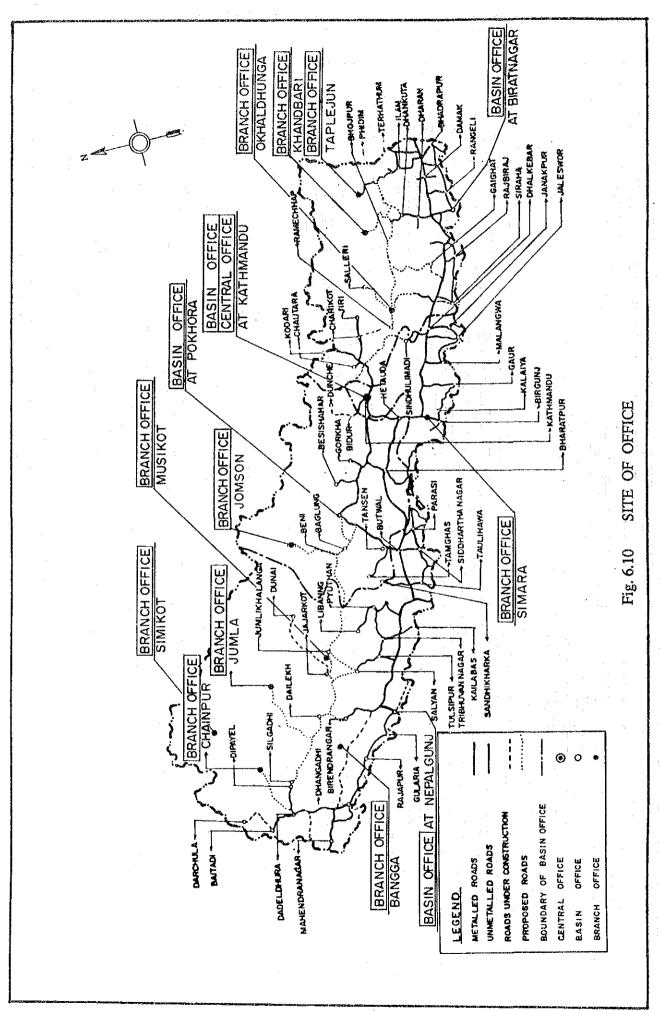
F - 46



F - 47



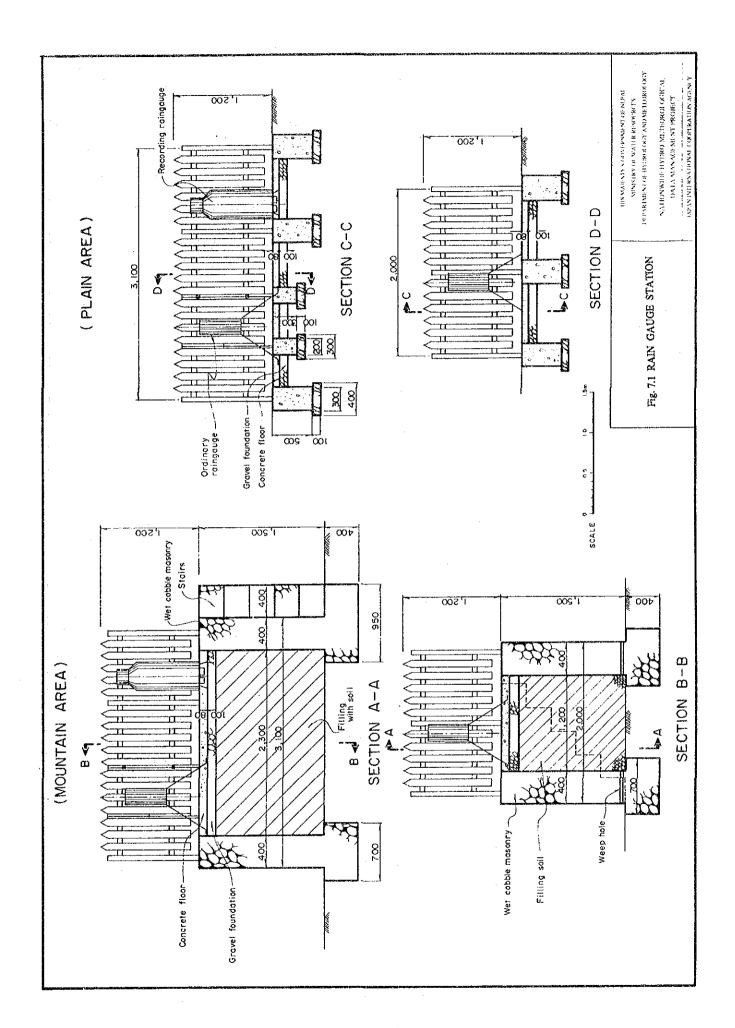
F - 48

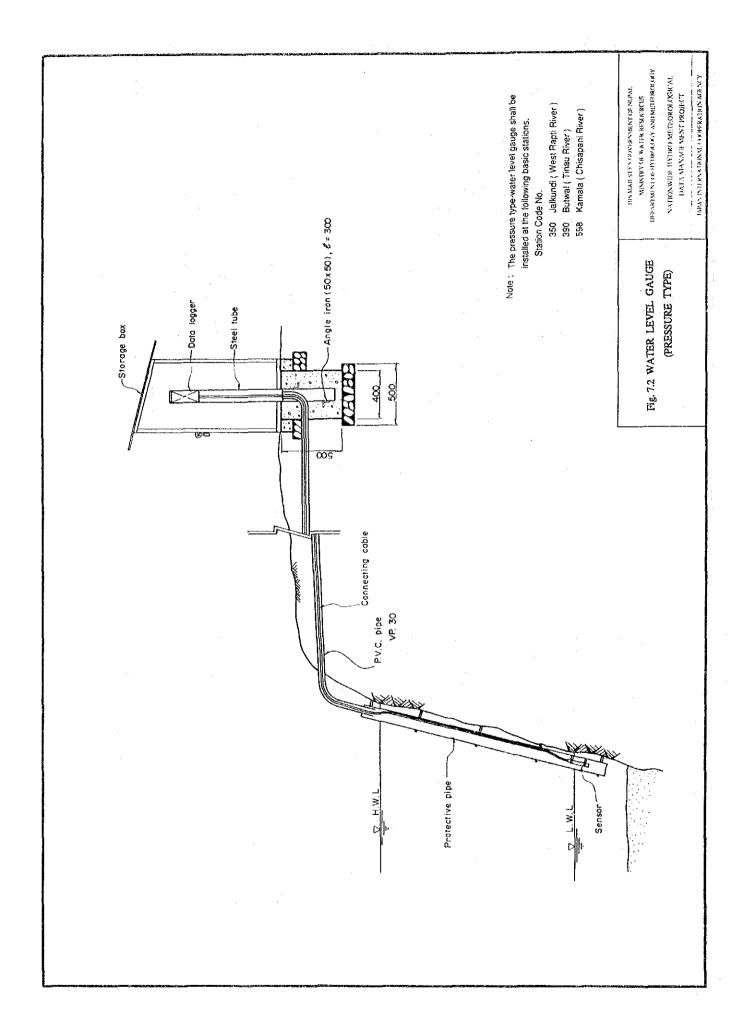


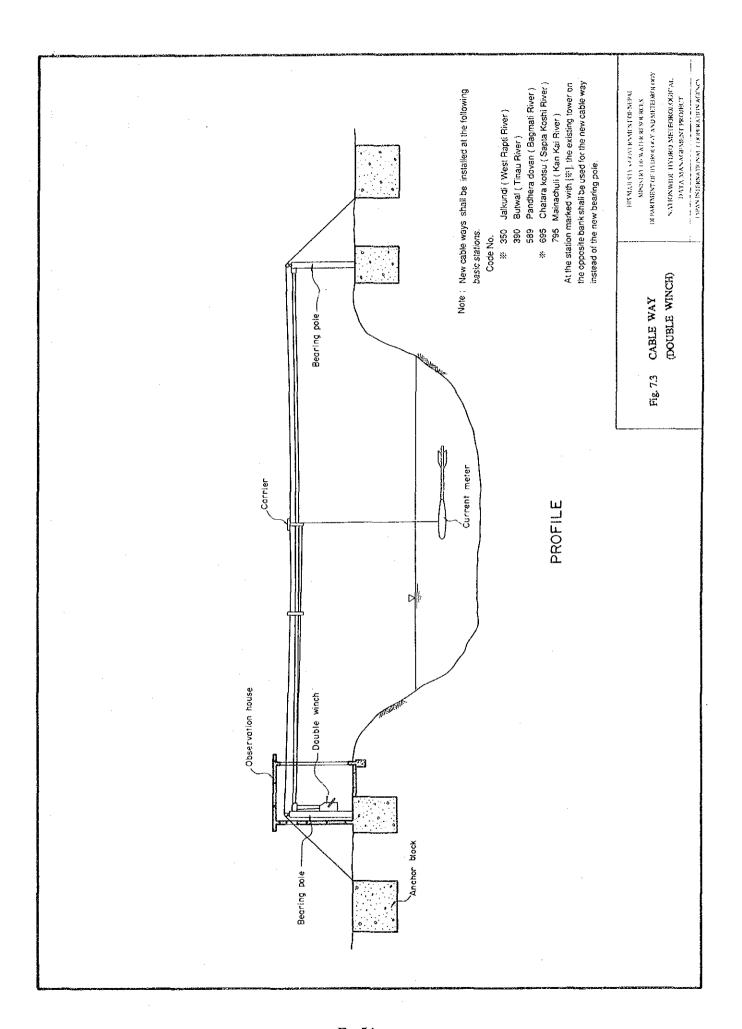
		Main Instruction	H.A.	1007 1004 1005	7007	0001 8001	2000	1006	TO SUM	200	2005
				- - - -	  -		╬	╁-	1	1	
	Ordinary	- Ordinary raingauge	Repair of existing gauge	(82 existing stations) and	**						
34.00	ožneš		Installation of new gauge	• •			368 💠			Total 470 ganges	ganges
Ocservation	apige.		Replacement of existing gauge			(102 new stations)		(10	(102 new stations)		-
	Recording	ng - Weighing type	(excluding 10 model stations)	(4 existing stations)	ļ	(10 existing statiods)	C			Total 60 recording	guipao
	0.0		Installation of new gauge	288	re stational	, and the second		C. printing stationers		gange	
····	Basic	- Staff gauge	Repair of existing gauge	Completion of basic station		Completion of primary station		The state of		Completion of secondary post on	cetton
	station	(3 section)	frechlation of new cause	(5 existing stations)					:		
		gauge	0	(3 existing/stations)	V I otal 10 basic stations						
(Z) Water level	level Primary	<u>-</u> -	Repair of existing gauge	Minor repair							
observation		recording gauge	Installation of new gauge	(14 existing stations)	-		_ <b>_</b>	Total 38 primary stations	- Stations		
		1	Installation of Deak gauge	· ·	(14cx	(14-cousting stations)	(4 new stations)	- জি			
	Secondary		3				الر -	(2) (2)	existing stations)	10t	Total 62 secondary
		gange			-				(manine 2:	350	SERVICE A
non	Basic	- Double drum winch	Repair of existing cable way				:			(1.7 new	(1.7 new stations)
WAX.	station	cable way	Installation of new cable way	(2 existing stations)	Total 10 basic stations						
<b>3</b> 84(C				(5 existing stations)	100000000000000000000000000000000000000						
A) (A	Primary	- Single drum winch	Repair of existing cable way	Minorrepair							•
<u> </u>	ĕ		Installation of new cable way	(14 existing stations)			L <b>^</b>	Total 38 primary	imary stations		
		$\top$	Repair of existing cable way		(26 _{cx}	(26 cristing stations)	(3 new stations)	ঞ্চি		 Y	
	Secondary	ry - Single drum which -	T				_E		-		Total 62 secondary
			installation of new capie way					(12 existing stations)	ions)	\$121	stations
	Onto	Current meter (peopeller, price, type)	Improvement/addition of				   			(15 new stations)	stations)
	G. C.	Daller for annual and	Installation of new sampler				-	-	-		Ţ
(4) Sediment		pasic station from int. Sampler en	Turbidity meter		Total 10 desic stations						
***************************************		Other station Depth int. sampler etc.	Repair of existing sampler		Total 10 other stations						
	Sampling	Sampling equipment	Introduction of new		River bed material s	River bed material sampling to be started	₽	}			
		-	Introduction of water cuality		Water majire absentation to be described	The state of the state of	+		-	stations '	OSCIVATION
(5) Wate	(5) Water quality observation	n - field text kit	observation		are duality office	Value to the state of		-			
Setiment (1) Sediment		the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	Repair/reinforcement of existing sediment laboratory								
fanA smibs sus vis vis		ביניתי משישונים ושכני כל מיניונים	Reinforcement of sediment		Gradiation analysis to be started	to be started					
So ad an (Z) Water quality	r quality Labo, equipment		Establishment of water quality		Water quality analy	quality analysis to be started		Total 2 W.Q	Total 2 W.Q. Laboratories		
	ļ		Establishment of regional		(Kethmandu)		<u> </u>	(Eastern)			
	T	Repair machines and tools	Repair/reinforcement of existing								
C) Repair of equipment	ir of Space			Construction							
1			Canada or curent meta								
	collection	tery equipment	Telemetery system				<u> </u>	<b>, e</b> o		Construction	
D) Date (C) Date (C) Date (C) (C)	Data Hard Terminal	arminal	Installation of data logger system							(guanting c)	
1	<del> </del> -		Forein expert			(General subjects)					
Elin (1) Staff training	training	-		Consider Constant	Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Contro	Constitution of the second		,			
opio opio opio opio opio opio opio opio			Training in Manufacture	and one reported	D putti de Scullicia din via	ra Cumry)	-1		interpretation in the second		
	(2) Training center		Training Center	Construction				•			
Note: ( ) :	( ): Number of instruments ▼266: Number of stations	וכוג	E 6 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	6 11 IMPI EMENTATION SCHEDIII E EOD OBSEDVATION SVSTEM	TON SCHED		เสงสบ	7T A 17 O	ONI GVO	ريد المدادة الأ	
									֡		

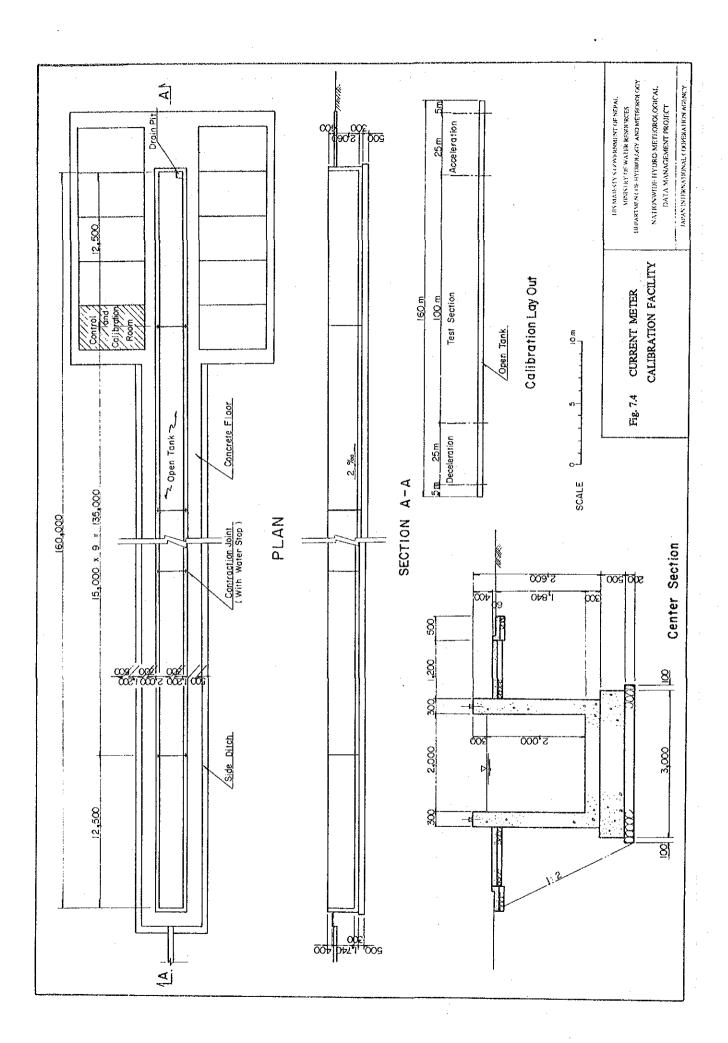
	2005	Tunne T		***************************************										ya gaya awa na manana			******	
	20	Progra											-  -	14 to 1944 American			edelinik zaroan	
ပ္	2004	ong Term					Δ											
Third Stage	2003	Completion of Long Term Programme																
[-	2002	Comp																
	2001	:																
	2000						Δ											
9 <u>2</u>	1999																	
Second Stage	1998		:															
S	1997	Programme																
	1996	mmediate		(N_													:	: -
e amme)	1995	Completion of Immediate Programme	ر م				ΔΔ		•			Repair 4	rovement	p==	4	2	9	
First Stage (Immediate Program	{ .		2 8 E				Δ	5	ŗ			<b></b> 28				<b>3</b> 6		
(Jmme	1993	8 01 8						8							-			
,,,,,	rear	Design	Basic Design Detail Design Programming Operation Test		a. Locai Level b. Grobal Level			Detail Design & Tendering	Manual type	Tipping bucket type Weighing type		Staff gauge Float type Pressure type				Current Meter Calibration Facility	ter	System
	-						Installation	etail Design		Rain Gauge		Water Level Gauge	Discharge	Facility	Basic Station	urrent Mete	Training Center	Telemetering System
			em Develop		noite		<u> </u>	Ă	Lyw-old Fo	<u>~</u>					Ř	ರ	Ë	븨
		U	ement Systen	orur/	A RIG	u			78-84-8		******	noit	onnsu	ريا				

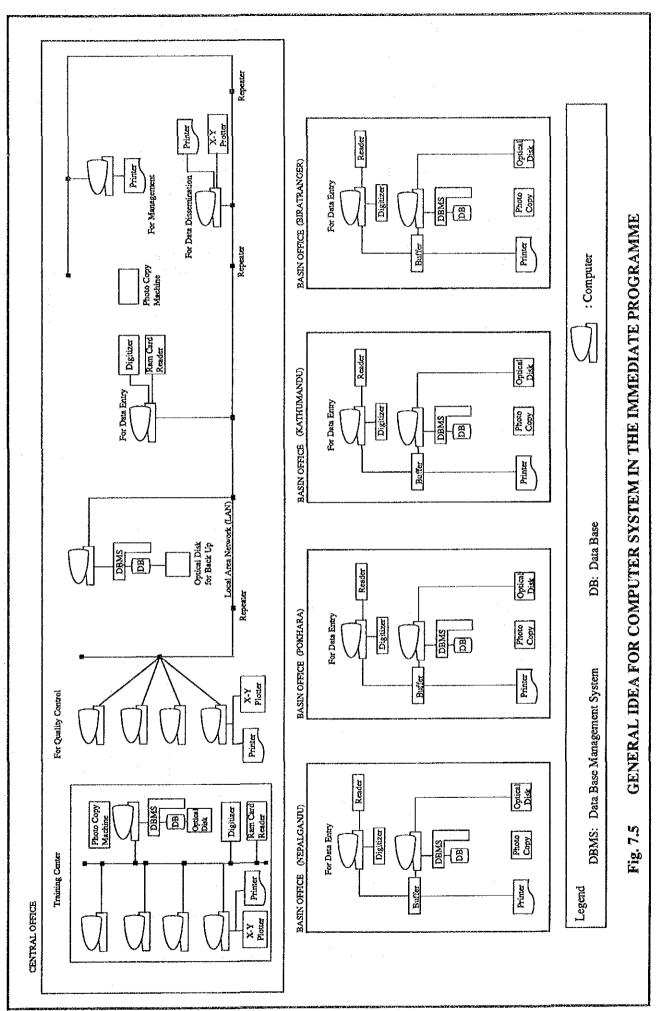
Fig. 6.12 IMPLEMENTATION SCHEDULE FOR DATA MANAGEMENT SYSTEM AND CIVIL CONSTRUCTION











F - 56