

Table 6.3 CONDITION ON METEOROLOGICAL DATA COLLECTION

INDEX	1991												1992												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
101	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
102	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
103	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
104	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
105	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
106	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
107	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
108	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
201	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
202	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
203	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
204	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
205	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
206	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
207	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
208	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
209	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
210	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
211	.	.	.	.	.	.	.	NA	NA	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
212	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
214	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
215	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
217	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
218	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
219	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
301	3/26	3/26	4/26	5/21	7/4	8/7	8/29	10/1	12/2	12/2	9/21				9/21		9/21	9/21							
302	4/7	4/7	5/17	7/29	7/29	8/29	8/29	11/1	11/11		6/6	3/10	4/2	4/5		6/4	7/14	7/26			10/12				
303	4/8	4/8	4/6	5/17	6/3	7/9	8/8	9/8	10/1	12/5	12/5	3/10	3/10	3/10	4/8	5/4	6/6	7/10	4/10	9/7	10/18				
304	3/17	3/26	4/21	5/30	7/4	7/29	9/16	10/1	11/1	12/3	1/8	4/1	4/1	4/1	4/28	7/21	7/21	7/21	9/7						
305	3/27	4/11	4/11	6/16	6/16	8/11	8/11	11/1	11/1	11/1	2/18	2/18	3/25	3/25	5/10	5/10	7/8	8/18	8/18	9/22					
306	3/26	4/11	5/9	5/30	7/4	8/7	9/16	10/9	11/1	12/2	1/6	2/21	3/22	3/22	4/26	5/25	7/2	7/21	8/30						
307	6/16	7/4	4/9	5/13	6/10	8/7	8/13	9/16	5/3	11/2	12/1	3/26	4/5	3/13	4/9	5/11	6/22	7/12	8/30	9/21	10/18				
308	3/27	4/2	6/19	6/19	6/19	8/1	10/7	10/7	11/1	11/1	12/9	2/3	14/1	5/1	5/1	6/23	6/23	7/6	8/18	10/1					
309	3/17	4/3	4/3	6/4	7/10	8/1	10/1	11/1	2/18	11/9		3/13	2/29	3/30	1/0		1/2	1/2	1/10						
310	3/17	3/21	4/21	5/19	6/21	7/22	10/2	9/24	11/1	11/2	12/2	1/21	2/24	3/22	4/20	5/18	6/22	7/21	8/23	9/23	10/31				
311	STATION IS (IS)									11/1	11/1	12/6	1/9	1	2/27	3/10	4/5	5/10	6/7	7/6	8/18	9/7	10/12		
312	5/14	5/14	5/14	5/14	8/7	8/7	9/17	9/17	12/1	12/1	12/1	3/13	3/13	3/13			7/8	8/18	9/27	10/19					
313	2/24	3/26	4/11	5/18	6/10	7/10	8/11	9/16	10/9	11/1	12/1	1/9	1	2/16	3/13	4/12	5/10	6/11	7/12	8/18	9/26	10/18			
401	2/21	5/9	5/9	5/9	7/15	7/15	8/8	10/9	11/2	11/2	12/5	1/12	1	4/2	3/23	5/18	5/18	6/12	8/22	8/22	9/20				
402	2/14	3/17	4/5	5/9	6/9	7/14	8/11	9/16	10/6	11/2	12/5	1/7	1	2/5	3/22	4/3	5/14	6/10	6/8	8/4	1/1	10/18			
403	2/17	7/14	4/16	5/19	7/4	7/19	8/23	9/24	11/1	11/1	12/4	1/12	3/15	3/15	4/8	5/4	7/18	7/10	8/22	9/22					
404	7/9	7/9	7/9	7/9	7/9	10/9	10/9	3/4	3/4	3/4	3/4	3/4	1				7/29	7/29	9/7						
406	11/1	11/1	11/1	11/1	11/1	11/1	2/6	2/6	2/6	2/6	2/6	2/6	1	5/7	5/7	5/7	5/7	6/7	7/6						
407	3/26	3/26	10/9	6/10	7/29	7/29	8/23	10/9	11/1	3/17	3/17	6/24	6/24	6/24	6/24		6/24	7/21	8/22	9/23	10/20				
408	4/2	4/2	5/26	5/26	6/21	8/1	8/23	10/1	11/1	12/4	12/2	2/13	2/27	3/22	4/18	5/22	6/23	7/24	8/22	9/20					
409	11/1	11/1	11/1	8/1	7/4	8/1	11/1	11/1	11/1	7/13	7/13	7/13	7/13	7/13	7/13	7/13	7/13	3/13	7/13						
410	3/17	3/17	4/10	5/16	6/9	7/7	8/8	9/16	10/1	4/2	12/2	1/13	2/21	4/7	4/7	5/21	6/29	7/22	8/18	9/7	10/14				
411	3/26	5/2	5/2	6/10	7/4	8/1	8/29	10/1	11/1	12/3	12/2	1/26	1	3/6	3/22	5/10	6/2	8/26	7/24	8/30	10/12				
412	3/26	3/29	7/16	7/16	2/13	10/1	10/1	10/1	2/13	2/13	2/13	2/13	1	7/2	7/2	7/2	7/2	7/2	10/1	10/1					
413	3/26	5/27	5/27	5/27	9/18	9/18	9/18	9/18	11/1	12/1	12/1	3/15	1	3/15	3/15	4/14	5/14	9/7	9/7	9/7	9/23				
414	3/21	3/21	9/16	9/16	9/16	9/16	11/1	11/1	11/1	11/1	4/5	4/5	1	4/5	4/5	5/27	5/27	8/18	8/18	8/18	10/21	10/21			

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INDEX	1991												1992											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
415	5/30	5/30	5/30	5/30	7/4	7/28	10/9	10/9	11/3	6/3	6/3	2/27	2/27	4/26	4/26	6/14	7/14	8/30	9/25	9/25				
416	3/17	3/17	5/13	5/13	7/4	7/4	10/7	10/7	10/7	11/1	12/4	1/9	2/4	3/13	4/8	5/6	7/5	7/5	9/4	9/3				
417	2/24	3/26	4/18	5/26	7/4	8/1	10/9	10/9	11/1	12/1	12/2	1/26	2/27	3/22	5/1	5/21	6/23		8/23	9/23	10/20			
418	5/1	5/1	6/1	7/4	7/4	8/18	8/29	11/2	11/2	11/1	1/3	3/4	2/27	3/25	4/23	6/26	6/26	8/16	8/30	9/30				
419	3/17	11/1	6/4	6/4	7/29	7/29	10/9	10/9	11/1	2/18	2/18	2/18	2/27	6/23		6/23	7/27	7/27	9/10					
501	2/24	3/28	4/24	5/26	7/4	8/1	9/16	10/9	11/1	11/2	1/3	1/26	2/27	4/15	4/28	6/2	6/26	7/27	8/30	9/30	10/29			
502	3/24	4/18	5/22	6/10	7/9	8/21	9/16	11/2	11/2	1/3	1/31	2/13	3/6	4/9	6/23	6/22	7/18	8/22	9/7	10/29				
504	3/24	3/28	4/21	5/22	7/10	7/29	8/29	10/1	11/1	11/2	12/2	1/26	2/21	3/25	4/26	5/21	6/24	7/24	8/30	9/25				
505	4/7	4/7	7/4	7/4	7/4	9/16	9/16	11/2	11/2	1/6	1/9	7/27	3/17	4/26	4/26	5/29	7/24	7/24	8/30	9/25	10/29			
507	2/17	4/16	4/16	6/13	6/13	7/7	10/9	10/9	12/9	12/9	2/13	2/13	2/13	5/22	5/22	5/22		8/18	8/18					
508	2/11	4/7	5/9	5/9	6/18	7/16	9/16	9/16	10/1	11/1	12/2	1/31	2/16	3/15	4/12	5/10	6/11	7/30	8/18	9/7	10/19			
509	6/16	6/16	6/16	6/16	6/16	11/1	11/1	11/1	11/1	2/13	2/13	2/13	2/13	4/6	4/6	6/23	6/23	8/4	9/10	9/15	10/29			
510	2/17	3/26	8/18	8/18	8/18	8/18	8/18	11/1	11/1	11/1	11/1	2/27	2/27	2/27	7/16	7/16	7/16	7/16	8/30					
511	3/17	4/23	4/23	5/22	8/11	8/11	9/16	10/6	12/2	12/2	1/26	1/26	3/15	4/26	4/26	5/25	7/10	7/27	10/11	10/11				
512	3/17	3/21	4/21	5/21	6/21	7/28	8/23	10/1	11/1	11/2	12/2	1/21	2/21	3/22	4/19	5/18	6/23	7/21	8/23	9/25				
513	2/11	3/15	4/9	5/13	6/10	7/9	8/23	10/9	10/1	11/1	12/1	1/13	2/13	3/9	4/8	5/10	7/11	7/8	8/18	9/7	10/11			
514	2/11	3/15	4/9	5/16	6/13	7/11	8/13	9/16	10/1	11/1	12/1	1/9	2/18	3/13	4/9	5/13	7/12	7/14	8/18	9/10	10/14			
515	3/21	3/21	8/23	8/23	8/23	8/23	8/23	10/9	10/9	12/5	1/22	1/22	3/23	3/23	ERR	5/6	6/25	7/8	8/20	9/15				
601	2/5	3/6	4/3	5/8	6/9	7/5	8/12	9/23	10/9	11/2	12/5	6/27	3/9	5/5	4/6	5/4	6/15	7/10	8/6	9/4	10/12			
604	3/17	3/19	4/8	5/30	7/5	7/15	8/12	9/5	10/1	11/2	12/1	4/1	4/6	5/15	4/6	5/8	6/9	7/10	8/10	9/7				
605	2/7	3/7	4/8	5/8	6/9	7/15	8/5	9/5	10/2	11/2	12/9	4/18	3/8	3/9	4/6	5/7	6/15	7/10	8/9	9/7	10/15			
606	2/11	3/12	6/14	6/14	6/14		9/13	10/2		4/6	4/1	4/6	4/6	4/6	4/6	5/12	6/19	7/4	8/16					
607	2/11	5/1	4/3	7/9	6/9	7/7	8/12	10/2	10/2	11/2	12/1	4/15	2/17											
608	6/9	6/9	6/9	6/9	6/9	6/9	6/9	6/9	6/9	6/9	6/9	6/9	10/20				10/20	10/20	10/20	9/8	10/20			
609	4/9	4/9	4/3	5/11	6/12	7/15	8/25	10/2	10/1	11/2					5/15	6/15	7/24	8/30	9/16					
610	6/9	6/9	6/9	6/9	6/9	6/9	6/9	6/9	6/9	6/9	6/9	6/9	6/9	6/9	4/20			9/7	9/4	10/15				
612			7/9	7/9												7/26	7/26	7/26	7/26					
613	2/11	4/7	4/7	5/30	7/7	7/7	8/23	9/25	11/2	11/2	4/6	4/6	4/6	4/6	4/6	7/20	7/20	8/18	8/18					
614	2/7	3/8	4/7	5/8	6/5	7/8	8/12	9/6	10/1	11/2	12/6	4/18	3/9	3/9	4/6	5/18	6/15	7/12	8/10	9/7	10/12			
615	2/17	ERR	4/12	5/30	6/12	7/29	9/6	9/6	11/2	4/18	4/15	4/6	5/5	5/19	5/19	5/19	7/12	7/12	7/12	8/18	9/21			
616	4/3	4/3	7/18	7/18	7/18	8/21	8/21	9/12	1/27	1/27	1/27	1/27	5/19	4/6	5/19	5/19	6/12	7/26	9/30					
619	2/24	3/7	4/3	5/8	6/9	7/8	8/12	9/15	10/1	11/2	12/9	4/1	10/20	###	10/20	5/29	6/15	7/20	8/5	9/30	10/12			
620	2/11	3/8	4/10	5/8	6/9	7/8	8/12	9/15	10/1	11/2	12/1	4/1	4/6	4/6	4/6	5/12	6/15	7/12	8/6	9/7	10/15			
621	2/11	3/7	4/4	5/8	6/4	7/8	8/12	9/13	10/9	11/2	12/9	1/27	4/6	4/6	4/6	5/12	7/12	7/12	8/16	9/17	10/20			
622	2/11	3/11	4/7	5/13	6/14	7/8	8/21	9/25	10/1	11/2	12/1	4/1	4/6	4/6	4/27	6/15	7/20	8/5	9/11	10/22				
701	2/7	3/11	4/5	5/8	6/9	7/8	8/12	9/10	10/7	11/2	12/1	4/1	4/6	4/6	4/6	5/7	6/15	7/13	8/15	9/7	10/12			
702				STATION CLC						4/1	4/1	4/1	4/6	5/4	4/6	5/4	10/15	7/20	8/7	9/7				
703	2/11	3/12	4/15	5/13	6/12	7/8	8/12	9/10	10/9	11/2	12/1	4/1	4/6	4/6	4/6	5/10	6/15	7/13	8/6	9/11				
704	2/11	3/12	4/12	5/13	6/9	7/15	8/21	9/15	10/1	11/2	12/1	4/1	2/17	4/6	4/6	5/17	6/15	7/13	8/15	9/7	10/15			
705	2/7	3/8	4/7	5/7	6/9	9 Jul				11/2	12/2	12/2	12/2	3/23	4/23	6/15	6/15	7/15			10/21			
706	2/5	3/15	4/4	5/6	6/5	7/5	8/4	9/4	10/9	11/2	12/5	4/1	3/9	3/5	4/6	5/4	6/15	7/6	8/6	9/7	10/15			
707	2/11	3/10	4/23	5/30	6/14	7/11	8/12	9/25	11/2	11/2	12/1	4/1	4/18	4/6	4/27	5/29	6/15	8/30	8/30	9/7	10/15			
708		3/12	4/15	5/12	6/14	7/21	8/21	9/25	10/2	11/2	12/9	4/1	4/6	4/6		5/10	6/15	7/20	8/16	9/14	10/20			
710	3/24	3/22	4/7	5/17								4/1												
715	3/24	4/7	7/5	7/4	7/21	7/21	9/25	9/25	10/2	10/3	4/1	4/1	3/9	3/15	5/19	5/29								
716	2/7	3/31	4/5	5/6	6/12	7/8	8/15	9/10	10/1	11/2	12/1	4/6	3/9	3/9	4/14	5/18	6/15	7/12	8/17					
721	2/11	3/19	4/15	5/13	6/14	7/15	8/12	9/15	10/9	11/2	12/1	4/1	2/14	4/6	4/14	5/18	6/15	7/15	8/15	9/11	10/12			
722	2/11	3/19	4/15	5/13	6/14	7/15	8/12	9/25	10/2	11/2	12/1	4/1	2/17	4/6	4/28	5/17	6/15	7/20	8/15	9/11	10/12			
723	2/11	3/11	4/15	5/13	7/15	7/15	8/12	9/17	10/2	12/2	4/1	4/1	2/17	4/6	4/27	5/17	6/15	7/15	8/16	9/3				
725	2/5	3/8	4/7	5/15	0.67	7/8	0.67	9/6	10/1	11/2	12/6	4/1	3/9	3/9	4/6	5/8	6/15	7/8	8/7	9/7	10/12			

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726	2/11	8/14	4/8	5/15	0.43	7/21	8/21	9/20	10/2	11/2	12/1	4/1	2/14	4/6	8/7	5/18	6/15	7/20	8/7	9/23	10/12			
727	2/3	3/12	4/15	5/8	1.5	7/7	8/12	9/20	10/1	11/2	12/1	4/1	4/6	4/6	5/17	5/17	6/15	7/20	8/18	9/4	10/12			
728	2/11	3/25	4/30	5/8	0.43	8/4	8/12	9/25	10/1	11/2	12/1	4/1	5/5	5/5										
801	7/8	7/8	7/8	7/8	0.88	7/8							3/5	3/5	3/5	6/16	8/15	8/15	7/20					
802	2/7	3/10	4/8	5/8	0.67	7/8	8/12	9/22	10/2	11/2	12/9 M		3/9			5/18	6/18	7/21	8/10	9/7	10/15			
804	2/5	3/3	4/2	5/5	1	7/15		9/5	10/1															
805	2/5	3/8	4/4	5/8	1.5	7/5	8/12	9/4	10/1	11/2	12/1	4/1	3/9	4/6	4/6	5/4	6/15	7/6	8/5	9/7				
806	12/1	12/1	12/1	12/1	0.92	12/1	12/1	12/1	12/1	12/1	12/1		6/15	6/15	6/15	9/11	9/11	9/11	9/11	9/11	9/14			
807	2/11	3/8	0.8	5/8	0.67	7/21	8/12	9/6	10/1	11/2	12/2	4/1	4/6	4/6	4/8	5/8	6/15	7/13	8/16	9/11	10/15			
808	2/3 M		5/8	5/8	0.43	7/8	8/12 M		10/1 M		12/2	4/1	3/5		4/6		6/15	7/15	8/18	9/7	10/20			
809	2/21	3/10	4/21	5/17	0.5	7/15	8/28	9/25	10/1	11/2	12/3		3/5	3/16	4/6	5/8	6/15	7/12	8/9	9/11	10/14			
810	2/7	3/10	4/11	5/8	1.2	7/5	8/12	9/6	10/1	11/2	12/5	4/1	4/1	4/6	4/26	5/18	6/15	7/12	4/23	9/16	10/15			
811	5/31	5/31	5/31	5/31			STATI							4/6	4/6	5/18	6/15	7/14	8/7	9/11	10/12			
813	2/11	3/8	4/22	5/30	1.5	7/7	8/12	9/10	10/2	11/2	12/2	4/1	4/6	5/5	4/6	5/18	6/15	7/20	8/18	9/4	10/20			
814	2/11	3/7	4/8	5/7	1.2	7/7	8/13	9/10	10/1	11/2	12/5	4/1	3/9	5/8	5/11	5/8	6/15	7/21	8/5	9/9				
815	8/18	8/18	8/18	8/18	0.44	8/18	8/18	10/1	10/1	11/1	12/2	4/1	3/15	3/15	7/26	6/15	6/15	7/26	8/8	9/21	10/15			
816	2/7	3/8	4/8	5/8	0.5	7/8	8/12	9/10	10/1	11/2	12/9		3/9	3/9	4/5	5/16	6/15	7/28	8/9	9/11	10/22			
817	2/5	3/8	4/4	5/8	0.67	7/5	8/12	9/6	10/1	11/2	12/1	4/1	4/6	4/6	4/6	5/4	6/15	7/12	8/5	9/11	10/12			
818	2/5	3/8	4/3	5/13	0.67	7/5	8/4	9/5	10/1	11/2	12/1	4/1	2/17	4/1	4/6	5/4	6/15	7/21	8/5	9/11	10/12			
820	2/14	3/12	4/12	7/8	0.88	7/15	8/21	9/16	10/2		12/1	4/1	2/17	4/6	4/6	9/16	9/16	9/16	9/16	9/16	9/16			
821	5/8	5/8											3/21	3/21	7/5	7/5	7/5	7/12	9/11	9/11				
823	8/23	8/23	8/23	8/23	0.35	7/21	8/28	9/25		11/2		4/1	2/17	4/6	4/6	5/6	4/23	7/20	8/23	9/14				
824	2/13	3/8	4/4	5/17	1.2	7/7	8/12	9/10	10/1	11/2	12/8	4/1	3/3	3/3	4/1	5/18	6/15	7/12	8/12	9/11	10/13			
825																								
826	2/13	3/19	4/4	5/8	0.33	7/15	8/12	9/25	10/8	11/2	12/1	4/1	4/6	4/6	4/6	5/8	6/15	7/20	8/12	9/18	10/15			
827	2/11	3/11	4/12	5/13	0.67	8/21	8/21	9/23	11/2	11/2	12/1	5/10	2/17	4/6	4/17	5/18	7/13	7/13	8/16	9/7	10/15			
902	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A			
903	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	A	P	A	A	P				
904	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	A	P	A	A	P				
905	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	P			
906	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A			
907	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	P			
909																								
910	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	P			
911	A	A	A	A	A		A	A	A	A	A	A	A	A			A	A	A					
912	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	A	P							
914																								
915	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	P			
916																								
917	A	A	A	A	A																			
918	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	P			
919	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	P			
920	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	P			
921	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	P			
922	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A			
1001	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	P			
1002	A	A	A	P	A	A	A	A	A	A	A	A	A				P	A	A	P				
1003	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	P			
1004	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	P			
1005	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	P			
1006	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	P			

Table 6.3 CONDITION ON METEOROLOGICAL DATA COLLECTION

INDEX	'1991												'1992											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1007	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	P				
1009	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	A	A	A	P	
1010																								
1011																								
1012																								
1013																								
1014																								
1015	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	P	P							
1016	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	P				
1017	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	P				
1018	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	P				
1019																								
1020	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	P	P							
1021																								
1022	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A					
1023	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	P				
1024																								
1025	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	P				
1026																								
1027	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	P	P							
1028	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	P				
1029	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A						
1030																								
1031																								
1032																								
1034																								
1035	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	A	P			
1036	A	A	A		A	A		A	A	A	A	A		A										
1037																								
1038	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	P				
1039	A	A	A	P	A	A	A	A	P	P	A	A	A	A	A	P	A	A	A	P				
1040																								
1041																								
1042																								
1043	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	P				
1044																								
1045																								
1046																								
1047																								
1048																								
1049	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	P				
1050																								
1051																								
1052	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	P				
1054	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	A	P			
1055	A	A	A	P	A	A	P								P	P	A	A	P					
1056																								
1057	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	P				
1058	A	A	A	P	A	A	A	A	A	A	A	P					P	P						
1059	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	A	P			
1060	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	P	A	A	P					

Table 6.3 CONDITION ON METEOROLOGICAL DATA COLLECTION

INDEX	'1991												'1992											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1061																								
1062	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	P	P	A	P					
1063	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	P	P	P	P					
1064																								
1065																								
1066																								
1067																								
1068																								
1069																								
1070																								
1071	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A					
1072	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A					
1101	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	P	A	A	P					
1102	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	P	A	A	P					
1103	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A					A
1104	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	P	A	A	P					
1105																								
1106	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	P	CLOSED FROM MAY 92							
1107	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A								
1108	A	A	A	P	A	A	A	A	A	A	A	A	A	A	P	A	A	P						
1109	A	A	A	P	A	A	A	A	A	A	A	A	A	A	P	A	A	P						
1110	A	A	A	P	A	A	A	A	A	A	A	A	A	A	P	A	A	A	P					P
1111	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A					
1112	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A						
1113																								
1114																								
1115	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	A				P
1116	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	P	A	A	P					
1117																								
1118	A	A	A	P	A	A	A	A	A	A	A	A	A	A	P	A	P							
1119	A	A	A	P	A	A	A	A	A	A	A	A	A	A	P	A	P							
1120	A	A	A	P	A	A	A	A	A	A	A	A	A	A	P	A	A	P						
1121	A	A	A	P	A	A	A	A	A	A	A	A	A	A	A	A	A	P						
1122	A	A	A	P	A	A	A	A	A	A	A	A	A	A	P	A	A	A	P					
1202																								
1203																								
1204																								
1206																								
1207																								
1210																								
1211																								
1212																								
1213																								
1215																								
1216																								
1217																								
1219																								
1220																								
1222																								
1223																								
1224																								

Table 6.3 CONDITION ON METEOROLOGICAL DATA COLLECTION

INDEX	'1991												'1992											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1226
1301
1303
1304
1305
1306
1307
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1405
1406
1407
1408
1409
1410
1411	CLOSED
1412
1415
1416
1419
1420
1421

LEGEND A / B A : MONTH
 B : DAY
 . DATA HAVE BEEN COLLECTED
 - SINCE EASTERN REGIONAL OFFICE BEGAN TO RECORD AFTER AUGUST, 1992, NO RECORD BEFORE AUGUST.

SOURCE: REGISTOR AT EACH REGIONAL OFFICES

TABLE 6.4 CONDITION OF HYDROLOGICAL DATA COLLECTION AT REGIONAL OFFICE

ST.NO. FECS	OBSERVATION DATE																							
	1 9 9 1												1 9 9 2											
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O		
640 E	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
665 E	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
688.4 E	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
688.5 E	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
670 E	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
680 E	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
681 E	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
684 E	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
688.7 E	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
689 E	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
690 E	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
691 E	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
695 E	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
728 E	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
730 E	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
738 E	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
795 E	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
799 E	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
120 F	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
150 F	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
169.8 F	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
190.5 F	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
240 F	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
250 F	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
251 F	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
255 F	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
259.2 F	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
260 F	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
262 F	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
280 F	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
285 F	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
205 M	4/12	12.Apr	4/26	7/4	7/4	7/29	10/7	10/7	1/31	1/31	1/31	1/31	1	4/15	4/15	7/12	7/12	7/12	7/31	8/23	9/24			
206 M	4/12	4/1	4/29	6/4	7/4	8/7	9/16	10/7	12/3	12/6	7/8	1/20	1	3/9	4/1	4/18	5/29	7/12	8/4	8/30	10/11			
208 M	4/21	4/21	7/4	7/29	7/29	10/7	10/7	10/11	11/11	3/22	1/8	3/22	1		5/13	5/13	6/29	6/29	8/17	8/30	10/1			
209 M	5/16	5/16	5/16	7/29	7/29	4/2	4/2	2/18	4/2	1/1	4/2	4/2	1	2/27	4/2	5/7	6/1	6/29	9/10	9/1				
210 M	4/12	4/12	5/21	6/16	10/7	10/7	10/7	11/11	11/11	2/5	2/5	2/5	1	2/27	3/27	4/26	5/25	7/27	7/27	9/20	9/30			
215.M	5/17	5/17	5/17	7/16	8/1	7/21	9/16	4/20	4/20	4/20	4/20	4/20	1	3/10	3/25	5/1	6/1	7/5		9/21	9/22			
220 M	4/8	4/8	5/7	6/19	6/19	7/21	10/7	11/5	11/5	12/9	1/6	2/3	1	4/11	5/1	5/1	5/27	7/6	8/18		10/1			
225 M	4/8	4/8	5/7	6/19	6/19	7/21	10/7	11/15	11/15	12/9	1/6	2/3	1	4/11	5/1	5/1	5/27	7/6	8/18		10/1			
230 M	4/12	4/12	5/27	5/27	7/9	9/16	9/16	12/5	12/5	12/5	1/9	4/2	1	3/25	5/10	7/8		7/8	8/17		9/21			
241 M	2/24	4/10	4/19	5/22	6/21	7/22	8/29	10/9	11/11	11/5	1/3	1/26	1	2/24	3/27	4/20	5/29	6/29	7/23	8/30	9/23			
245 M	4/10	7/16	7/16	7/16	8/7	8/7	4/2	11/11	11/11	12/20	12/25	4/2	1	3/22	3/22	5/18	7/8	7/8	8/4	9/21	9/21			
265 M	7/9	7/9	7/9	7/9	7/9	7/29	8/29	9/24	11/11	11/27	2/6	2/6	1	8/18	8/18	8/18	7/10	7/10	7/30	8/22	9/25	10/29		
267 M	5/21	5/19	7/4	7/7	7/9	11/19	11/19	3/4	3/4	3/4	3/4	3/4	1	7/10	7/10	7/10	7/10	7/10	8/17	10/13				
269.5 M	4/1	4/8	5/15	5/15	6/17	7/18	8/19	9/17	10/9	11/26	1/19	1/19	1	2/3	4/14	5/14	5/14	6/24	7/19	8/18	9/21	10/18		
270 M	2/17	3/26	4/16	5/19	7/4	7/19	8/23	9/24	11/13	12/4	1/12	1/26		3/15	3/15	4/22	6/23	6/23	7/18	8/22	9/21			
284 M	3/26		4/26	5/21	6/21	7/29	8/29	9/22	11/11	12/27	1/3	1/21	1	2/21	3/22	4/19	3/22	7/10	7/31	8/30	9/30	10/29		
286 M	4/8	3/26	4/26	6/4	7/4	8/1	8/29	11/19	11/11	12/2	1/3	1/26	1	2/24	3/27	4/28	5/29	6/26	7/24	8/30	10/1			

TABLE 6.4 CONDITION OF HYDROLOGICAL DATA COLLECTION AT REGIONAL OFFICE

ST.NO.	REG.	OBSERVATION DATE																								
		1 9 9 1												1 9 9 2												
		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O			
287 M		4/11	7/16	7/16		10/6	10/6	10/6	10/6	2/13	2/13	2/13	2/13	I	5/21	5/21	5/21	5/21	5/21	8/30	8/30					
288 M		5/1	5/1	5/1	8/7	8/7	8/7	8/29	10/9	2/13	2/13	2/13	2/13	I	2/24	4/1	4/19	5/18	6/24	7/24	9/1	9/23	10/29			
289.5 M		3/26	3/26	4/21	5/26	7/4	7/29	8/29	10/9	11/11	2/14	2/14	2/14	I	2/21	3/27	4/16	5/22	8/17	8/17	9/30	9/30				
289.99 M		7/7	7/7	7/7	7/7	7/7	11/19	11/19	10/10	3/17	3/17	3/17	3/17	I	7/10	7/10	7/10	7/10	7/10	10/1	10/1	10/13				
290 M		4/2	5/27	5/27	5/27	7/16	7/16	10/10	1/19	1/19	1/19	1/19	1/19	I	5/14	5/14	5/14	5/14	7/22	7/22	8/18	9/21	10/18			
292 M		2/24	4/12	4/18	5/21		7/29	10/22	9/22	11/11	11/24	12/20	2/13	I	2/27	2/32	8/19	3/22	6/23	7/27	8/23					
327 M		3/8	4/16	4/26	5/26	7/5	8/1	8/29	9/26	11/11	11/29	12/26	1/28	I	2/27	3/25	8/29	3/25	7/2	8/23	8/30	10/11	10/29			
330 M		3/8	4/12	4/26	5/26	7/4	8/1	8/29	10/11	11/11	11/29	1/3	1/31	I	2/27	3/29	8/28	6/7	6/29	7/27	8/30	9/30	10/29			
333 M		4/8		4/23	6/10	8/1	8/8	9/22	11/11	11/21	12/20	12/24	2/18	I	4/20	4/20	5/13	5/27	7/2	8/17	10/11	10/11				
339.5 M			4/7	5/1	6/4	7/4	8/7	9/16	10/9	11/12	3/17	1/3	2/3	I	2/21	4/2	4/28	5/25	6/23	7/26	8/23	9/30	10/29			
350 M		4/1	4/1	4/23	11/19	7/4	8/1	9/16	10/9	3/17	1/6	2/26	2/3	I	2/27	4/5	4/26	5/25	6/26	7/24	8/30	9/30	10/29			
350.5 M		4/8	4/8	4/18	5/21	12/6	9/28		10/9	11/11	12/23	12/24	1/26	I	2/21	3/22	4/19	ERR	6/23	7/18	8/22	9/21	10/29			
360 M		4/8	4/5	4/21	11/19	11/19	11/19	11/19	11/19	3/17	3/17	3/17	3/17	I	4/15	4/15	4/15	9/21	9/21	9/21	9/21	9/21	10/29			
385.2 M		2/13	7/6	7/6	7/6	2/13	2/13	2/13	2/13	2/13	2/13	2/13	2/13	I	6/7	6/7	6/7	6/7	8/20	8/20						
387.4 W											12/5	12/5	1/5	2/2	I	3/20	3/20	5/22	5/22	6/23	7/27	9/24	10/10	10/22		
387.5 W								8/28	9/27	10/31	11/27	1/5	2/2	I	3/1	3/20	5/26		6/29	7/27	9/24	10/1				
387.8 W											11/27	11/27	2/21	1/21	I	2/2		4/22	5/20	7/27	7/27	9/2	10/1			
390 W						4/26	8/26	9/23	10/12	12/19	2/12	2/16		I	2/16	3/30	5/25			9/2	9/2	10/22	10/22			
403 W							8/26	9/23	10/30	11/29	12/19	1/26		I	2/17	3/2	4/22		5/29	9/2	9/27	10/22				
404.6 W							8/26	12/26	11/20	11/20	7/18	7/18		I	2/24	3/20	4/22				9/2	9/24				
404.7 W								9/23	1/10	1/10	1/10	1/10		I	3/6	4/22		6/7	9/2	9/2						
406.5 W							8/22	9/23	10/24	11/20	12/22	1/21		I	2/17	3/20	4/22	5/22			9/2	9/23	10/22			
409.5 W							8/26	9/25	10/31	11/20	1/5	1/10		I	2/24	3/26	4/22		6/18	9/2	9/23	10/22				
410 W							8/22	9/23	10/25	11/27	12/22	1/21		I	3/6	3/20	5/22	5/22			9/2	9/23	10/22			
414 W						9/18	8/12	10/14	10/14					I		5/8	5/8	9/24	9/24	9/24	9/24	10/1				
415 W									10/14	1/5	1/5	1/5	1/10	I	5/13	5/13	5/13	8/17	8/17	8/17						
416.2 W						8/13	8/13	10/14	10/14	1/7	1/7	1/7		I		4/21	4/21	8/17		9/24	10/11	10/11				
417 W							8/26	9/23	10/28	11/27	1/6	1/21		I	3/6	3/24	5/26		6/28			10/1				
419.1 W							8/4	10/28		11/27	1/9	1/23		I	2/17		4/21	5/22	7/2	10/1	10/22					
428 W							8/26	9/19	11/24	11/24		1/23		I	2/13	3/30	4/21	5/14	6/18			9/17	10/22			
430 W							8/22							I												
438 W							11/29	9/23	10/24	11/21	1/20	1/20		I		3/15	4/22	5/20	6/21	8/18	8/18	9/2				
439.3 W						8/26	8/26	10/28		11/27	12/26	1/10		I			4/22	6/7	6/29	9/2	9/2	10/1				
439.4 W						11/29	11/29	11/24	11/24	11/24	2/12	2/12		I	5/8	5/8	5/8	9/23	9/23	9/23	9/23	9/23	9/23			
439.7 W						8/19	9/16					1/19		I	2/13	3/24	4/22	6/7	6/29	8/17	9/17	10/22				
440 W						8/5	9/29	9/29	2/12	2/12	2/12	2/12		I	3/6	5/8	5/8	9/23	9/23	9/23						
441 W			9/25	11/29	11/29	11/29					2/11			I	5/8	5/8	5/8	9/23	9/23	9/23						
445 W						8/21	9/23	11/21	11/21		1/21			I	3/30	3/30	5/8	6/19	6/19	7/27	9/2	10/1				
445.3 W											2/12			I	5/8	5/8	5/8		7/2	7/21						

SOURCE: REGISTER AT EACH REGIONAL OFFICES

LEGEND

- | | | |
|-------------------------------|------------------------------------|-----------|
| F FAR WESTERN REGIONAL OFFICE | A ALL DATA HAVE BEEN COLLECTED | A / B |
| M MID WESTERN REGIONAL OFFICE | P PART OF DATA HAVE BEEN COLLECTED | A : MONTH |
| W WESTERN REGIONAL OFFICE | O STATION WAS INSTALLED | B : DAY |
| C CENTRAL REGIONAL OFFICE | C STATION WAS CLOSED | |
| E EASTERN REGIONAL OFFICE | * DATA HAVE BEEN COLLECTED | |

Table 6.5 SUMMARY OF NECESSARY DAYS FOR DATA COLLECTION

REGION	DATA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
Western	Hydro	27	22	40	21	43	26*	31	26	23	55	38	45	33
	Meteo	49	49	41	42	34	30	31	30	31	41	36	96**	43
Mid Western	Hydro	57	48	35	43	48	48	53	49	68	54	40	32	48
	Meteo	65	61	56	43	45	41	47	49	53	52	55	52*	52

Source : Register of data collection at each Regional Office in 1991 and 1992 (See Table 6.4)

Note * : There is data that have not arrived at Regional Office

** : The staff for register of date went to field and it was impossible to record date on time.

Table 6.6 SUMMARY OF NECESSARY MONTHS FOR DATA COLLECTION

Region	Data	Item	Necessary Months For Data Collection						Total	
			One Month	Two Months	Three Months	Four Months	Five Months	Six Months		More
Western	Hydro	Number of sample	140	45	18	11	4	0	2	220
		Rate	64%	20%	8%	5%	2%	0%	1%	100%
		Total	64%	84%	92%	97%	99%	99%	100%	-
	Meteo	Number of sample	460	34	16	51	11	9	29	610
		Rate	75%	6%	3%	8%	2%	1%	5%	100%
		Total	75%	81%	84%	92%	94%	95%	100%	-
	Sub Total	Number of sample	600	79	34	62	15	9	31	830
		Rate	72%	10%	4%	7%	2%	1%	4%	100%
		Total	72%	82%	86%	93%	95%	96%	100%	-
Mid-Western	Hydro	Number of sample	191	80	36	23	15	8	11	364
		Rate	53%	22%	10%	6%	4%	2%	3%	100%
		Total	53%	75%	85%	91%	95%	97%	100%	-
	Meteo	Number of sample	203	179	66	25	16	7	21	517
		Rate	39%	35%	13%	5%	3%	1%	4%	100%
		Total	39%	74%	87%	92%	95%	96%	100%	-
	sub Total	Number of sample	394	259	102	48	31	17	32	881
		Rate	45%	29%	12%	5%	4%	2%	3%	100%
		Total	45%	74%	86%	91%	95%	97%	100%	-
Grand Total	Number of sample	994	338	136	110	46	26	63	1711	
	Rate	58%	20%	8%	6%	3%	1%	4%	100%	
	Total	58%	78%	86%	92%	95%	96%	100%	-	

Source : Register at each Regional Office.

(See Table 6.4)

Table 6.7 STATIONS THAT CONDITION OF DATA COLLECTION WERE NOT GOOD

Data	Region	Station Number	Distance to Post Office	Remarks
Hydro	Mid Western	215	near	mountain area
		265	15km	mountain area
		267	15km	mountain area
		287	12km	plane area
		290		
		360	10km	plane area
		385.2	near	plane area
		Western	439.4	near	mountain area
Meteo	Mid Western	301	50km	mountain area
		404	near	mountain area
		406	near	mountain area
		409	near	plane area
		412	near	plane area
		509	near	plane area
		510	near	plane area
		515	near	plane area
	Western	608	near	mountain area
		610	near	mountain area
		612	near	mountain area
		801	5km	mountain area
		806	15km	mountain area
		815	near	near from a highway
		820	5km	mountain area
823	10km	mountain area		

Note : The condition of data collection was investigated in 1991 and 1992

Table 6.8 ACTUAL DATA COLLECTION METHODS IN WESTERN REGION

Station Index	Number of Samples				Rate (%)				Remarks
	Post	Staff	Observer	Total	Post	Staff	Observer	Total	
440	3	10	0	13	23	77	0	100	
414	3	1	0	4	75	25	0	100	
416.2	12	1	0	13	92	8	0	100	
439.7	5	0	6	11	45	0	55	100	
445	10	1	3	14	71	7	22	100	
430	0	0	1	1	0	0	100	100	
410	13	0	0	13	100	0	0	100	
406.5	14	0	0	14	100	0	0	100	
387.5	10	2	1	13	77	15	8	100	
409.5	13	0	0	13	100	0	0	100	
404.6	8	3	2	13	62	23	15	100	
403	13	0	1	14	93	0	7	100	
417	11	2	0	13	85	15	0	100	
439.3	12	0	0	12	100	0	0	100	
390	8	3	2	13	62	23	15	100	
428	0	0	12	12	0	0	100	100	
419.1	4	0	0	4	100	0	0	100	
438	4	0	8	12	33	0	67	100	
404.7	10	0	0	10	100	0	0	100	
387.4	9	2	1	12	75	17	8	100	
387.8	9	1	0	10	90	10	0	100	
415	8	3	0	11	73	27	0	100	
439.4	0	10	5	15	0	67	33	100	
441	1	5	3	9	11	56	33	100	
445.3	2	5	2	9	22	56	22	100	
419.1	5	0	2	9	71	0	29	100	
414	1	8	0	9	11	89	0	100	
Total	188	57	49	294	64	19	17	-	

Source : Register for data collection recorded in 1991 and 1992 by the Mid-Western Region.

Table 6.10 YEARS OF STAFF GAUGE READING RECORD ENTERED INTO COMPUTER

Region	Condition of Entry	Year							Total	Rate (%)
		1985	1986	1987	1988	1989	1990	1991		
Eastern	All data	6	7	3	4	1	1	5	27	43
	Part of data	3	2	6	2	1	1	1	16	25
	None of data	0	0	0	3	7	7	3	20	32
	Total	9	9	9	9	9	9	9	63	100
Central	All data	18	11	6	7	9	5	7	63	47
	Part of data	1	8	13	11	9	14	10	66	50
	None of data	0	0	0	1*	1	0	2*	4	3
	Total	19	19	19	19	19	19	19	133	100
Western	All data	7	7	7	7	7	7	3	45	92
	Part of data	0	0	0	0	0	0	2	2	4
	None of data	0	0	0	0	0	0	2	2	4
	Total	7	7	7	7	7	7	7	49	100
Mid Western	All data	6	1	2	6	3	2	0	20	48
	Part of data	0	5	4	0	3	4	4	20	48
	None of data	0	0	0	0	0	0	2	2	4
	Total	6	6	6	6	6	6	6	42	100
Far Western	All data	5	4	4	3	1	3	0	20	57
	Part of data	0	1	1	2	4	2	5	15	43
	None of data	0	0	0	0	0	0	0	0	0
	Total	5	5	5	5	5	5	5	35	100
All	All data	42	30	22	27	21	18	15	175	54
	Part of data	4	16	24	15	17	21	22	119	37
	None of data	0	0	0	4	8	7	9	28	9
	Total	46	46	46	46	46	46	46	322	100

Source : Table 6.9

TABLE 6.11 DISCHARGE MEASUREMENT RECORD IN THE MODEL BASIN

STATION NAME:		TATOPANI		STATION NUMBER:		403.5	
NUMBER	DATE	GAUGE HEIGHT (m)	DISCHARGE (m/S)	AREA (m ²)	VELOCITY (m/S)		
1	21/06/91	2.02	85.51	29.18	2.93		

STATION NAME:		KALLERI		STATION NUMBER:		406	
NUMBER	DATE	GAUGE HEIGHT (m)	DISCHARGE (m/S)	AREA (m ²)	VELOCITY (m/S)		
1	29/06/92	1.86	148.83	72.61	2.05		
2	30/06/92	2.07	174.27	81.19	2.15		
3	30/06/92	1.99	162.42	80.14	2.03		
4	10/08/92	3.87	247.63	186.29	1.33		
5	11/08/92	3.81	170.22	180.01	0.95		
6	20/10/92	1.57	98.98	66.50	1.49		

STATION NAME:		SETIBENI		STATION NUMBER:		410	
NUMBER	DATE	GAUGE HEIGHT (m)	DISCHARGE (m/S)	AREA (m ²)	VELOCITY (m/S)		
1	25/06/92	2.62	274.17	151.20	1.81		
2	26/06/92	2.65	276.89	152.78	1.81		

STATION NAME:		CHUNTAHA		STATION NUMBER:		595	
NUMBER	DATE	GAUGE HEIGHT (m)	DISCHARGE (m/S)	AREA (m ²)	VELOCITY (m/S)		
1	17/04/92	1.90	1.04	3.04	0.34		
2	18/04/92	1.89	1.30	4.45	0.29		
3	19/04/92	1.97	1.38	4.03	0.34		
4	20/04/92	1.99	1.65	5.14	0.32		
5	21/04/92	2.00	2.06	5.96	0.35		
6	09/06/92	1.82	1.07	4.35	0.25		
7	09/06/92	1.83	1.07	4.40	0.24		
8	21/06/92	1.81	0.76	3.44	0.22		
9	05/07/92	1.94	1.82	5.48	0.33		
10	05/07/92	1.94	1.94	5.98	0.32		
11	31/10/92	2.08	6.04	12.03	0.46		
12	31/10/92	2.08	5.79	12.93	0.44		

Table 6.12 NUMBER OF DISCHARGE MEASUREMENT RECORD IN DATA BASE

STATION NUMBER	OBSERVED YEAR												TOTAL	AVE RAGE	MINI MUM	MINI MUL	REM ARKS
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991					
240	5	6	4	4	9	7	10	14	12	5	6	1	83	7	14	1	
250	5	5	4	4	5	7	7	8	6	5	5	1	62	5	8	1	*
260	5	6	4	4	6	5	13	10	8	5	7	1	74	6	13	1	*
262	4	6	3	3	3	4	6	9	8	3	6	1	56	5	9	1	
280	8	6	5	4	21	10	7	34	9	15	0	1	120	10	34	0	\$
270	4	6	5	5	5	7	11	17	16	10	8	0	94	8	17	0	*
286	7	6	3	8	2	3	6	17	18	11	4	1	86	7	18	1	
330	9	9	3	8	7	2	9	14	12	8	3	0	84	7	14	0	
339.5	5	12	3	8	2	2	8	9	6	15	3	0	73	6	15	0	
350	9	6	3	8	5	7	8	20	16	14	8	2	106	9	20	2	*
360	2	8	5	9	9	3	13	16	23	5	7	2	102	9	23	2	*
390	2	3	1	2	1	1	9	7	4	6	7	5	48	4	9	1	
410	2	2	3	0	2	4	10	5	11	9	9	4	61	5	11	0	
415	2	2	3	1	2	4	7	4	10	6	5	4	50	4	10	1	
430	5	1	3	0	1	0	0	0	5	6	5	0	26	2	6	0	
439.7	0	0	0	0	0	0	0	0	0	0	9	3	12	1	9	0	
440	1	2	3	0	3	2	10	5	12	5	9	3	55	5	12	0	
445	0	0	0	0	0	1	0	6	15	17	8	3	50	4	17	0	
420	1	2	1	1	0	0	3	2	3	2	1	1	17	1	3	0	
446.8	10	8	1	5	3	5	5	0	4	3	5	3	52	4	10	0	
447	9	7	1	5	1	3	3	2	0	3	7	3	44	4	9	0	
448	3	3	1	1	1	3	4	1	4	4	4	3	32	3	4	1	
450	1	10	1	0	0	1	5	3	4	0	2	5	32	3	10	0	*
460	2	2	0	0	1	3	5	3	5	2	4	2	29	2	5	0	
465	1	2	1	1	1	4	4	2	4	0	4	1	25	2	4	0	
470	2	2	1	1	1	3	5	3	6	1	4	4	33	3	6	1	
505	2	2	2	2	1	2	6	9	2	2	4	5	39	3	9	1	
536.2	2	2	0	0	2	0	3	2	3	1	4	1	20	2	4	0	
589	3	2	1	2	29	0	1	9	4	2	5	2	60	5	29	0	*
610	4	4	0	3	2	2	6	5	0	5	5	7	43	4	7	0	
620	6	6	1	3	0	0	2	4	3	3	5	5	38	3	6	0	
630	4	3	1	2	4	0	5	4	3	2	5	4	37	3	5	0	*
640	3	0	2	2	1	0	1	2	2	0	5	1	19	2	5	0	
647	4	5	2	4	3	2	9	8	0	3	6	8	54	5	9	0	
650	3	3	2	3	3	2	8	3	2	3	4	5	41	3	8	2	
652	2	3	1	2	2	0	0	1	3	1	5	2	22	2	5	0	
660	3	3	0	1	2	0	4	0	1	0	2	0	16	1	4	0	
600.1	0	0	0	0	0	0	6	12	7	0	6	2	33	3	12	0	
604.5	0	0	1	3	5	3	10	22	11	3	6	32	96	8	32	0	
670	0	0	0	4	4	1	8	9	7	4	5	4	46	4	9	0	*
680	0	0	0	0	3	0	0	0	0	0	0	0	3	0	3	0	*
690	8	22	25	4	5	2	6	20	11	3	3	11	120	10	25	2	
695	1	9	11	2	2	0	0	0	6	0	1	0	32	3	11	0	
728	0	0	1	12	7	1	9	11	8	3	3	11	66	6	12	0	
730	1	0	4	3	5	2	8	7	5	3	2	11	51	4	11	0	
795	2	4	4	1	0	1	13	12	9	3	2	31	82	7	31	0	*
AVERAGE	3	4	3	3	4	2	6	8	7	4	5	4	53	4	12	0	

NOTE The stations listed above are priority hydrolometric stations.
The investigation date is November 1992.

LEGEND *: station for flood forecasting project
\$: station for Chisapani Multi-purpose Project

SOURCE: Data Base

Table 6.13 SUMMARY OF THE CONDITION FOR RATING TABLE ENTRY

Retion	Item	Observation Year							Total	Average
		1985	1986	1987	1988	1989	1990	1991		
Eastern	Number of Month	8	6	6	6	4	3	2	35	5
	Rate (%)	89	67	97	67	44	33	22	-	56
Central	Number of Month	18	16	12	10	7	6	2	71	10
	Rate (%)	95	84	63	52	37	32	11	-	53
Western	Number of Month	5	5	5	5	5	5	4	34	5
	Rate (%)	71	71	71	71	71	71	67	-	70
Mid Western	Number of Month	6	6	6	6	6	4	1	35	5
	Rate (%)	100	100	100	100	100	67	17	-	83
Far Western	Number of Month	4	4	2	3	3	3	1	20	3
	Rate (%)	80	80	40	60	60	60	20	-	57

Note :

The number of months means that the months which rating curve is exist. The number includes the rating curve under checking. The object stations for above number is priority stations only the total priority stations under each Regional offices are as follows.

Eastern : 9
 Central : 19
 Western : 7 (one of the station was closed in 1991.)
 Mid Western : 6
 Far Western : 5

Source : Data Base at the Central Office

Table 6.16 SCHEDULE ON THE FIRST TRAINING

Date	Time	Schedule
March		
15 (Sun):	11:00 - 11:10	Outline of this Training
<u>Introduction</u>	11:10 - 11:15	Introduction of Study Team
	11:15 - 11:30	Introduction of Trainees
	11:30 - 12:40	Introduction of Training Schedule
	12:40 - 13:40	Introduction of this Project
	13:40 - 14:00	Present data processing condition
	14:00 - 15:00	Discussion on data processing
16 (Mon):	11:00 - 11:20	General
<u>Outline of the Model</u>	11:20 - 11:30	Schedule
<u>System</u>	11:30 - 12:00	Organization & Roles
	12:00 - 12:10	Gauging station
	12:10 - 12:15	General data flow
	12:15 - 12:30	Frame of this system
	12:30 - 13:30	Operation
	13:30 - 14:00	Management
	14:00 - 14:10	Training
	14:10 - 15:00	Forms
	15:00 - 16:00	Break
	16:00 - 17:00	Examination
17 (Tue):	11:00 - 12:00	General
<u>Outline of Rating Curve</u>	12:00 - 13:00	Making Rating Curve
	13:00 - 15:00	Sample
	15:00 - 16:00	Break
	16:00 - 17:00	Examination
18 (Wed): Holiday		Free
19 (Thu):	11:00 - 15:00	Making rating curve using the actual observed value
<u>Training on Rating Curve</u>	15:00 - 16:00	Break
	16:00 - 17:00	Examination
20 (Fri):	11:00 - 11:30	Condition and Problems on the Existing Observation System
<u>Outline of Observation</u>	11:30 - 11:50	Model Observation System
	11:50 - 12:00	Break
	12:00 - 12:30	Operation of Instruments
	12:30 - 12:50	Our Long-Term Programme
	12:50 - 13:00	Break
	13:00 - 13:30	Observation Method (Discharge measurement, etc.)
	13:30 - 14:00	Discussion and Question
	14:00 - 15:00	Break
	15:00 - 16:00	Examination
21 (Sat): Holiday		Free
22 (Sun):	11:00 - 11:10	Frame of Computer
<u>Introduction of Computer</u>	11:10 - 11:20	on & Off
	11:20 - 11:30	Key Board
	11:30 - 11:40	System Prompt
	11:40 - 12:00	Software
	12:00 - 12:10	Files
	12:10 - 12:30	Director
	12:30 - 12:40	Frame of Command
	12:40 - 15:00	MS-DOS Command
	15:00 - 16:00	Break
	16:00 - 17:00	Examination
23 (Mon):	11:00 - 12:00	Meteorological data base
<u>Introduction of Data Base</u>	12:00 - 15:00	Hydrological data base

Table 6.17 SCHEDULE ON THE SECOND TRAINING

Date	Training Items
June 3 (Wed)	Orientation and MS-DOS*
4 (Thu)	MS-DOS*
5 (Fri)	MS-DOS*
6 (Sat)	Holiday
7 (Sun)	MS-DOS*
8 (Mon)	LOTUS 1-2-3*
9 (Tue)	LOTUS 1-2-3 & Installation Programme
10 (Wed)	LOTUS 1-2-3 & Outline of Observation
11 (Thu)	LOTUS 1-2-3 & Outline of Observation
12 (Fri)	Vaccine Program

Note: * The training on MS-DOS and Lotus 1-2-3 will be held as follows:
 - From 11:00 to 12:00 Lecture
 - From 12:00 to 13:00 Practice
 - From 13:00 to 14:00 Lunch time
 - From 14:00 to 16:00 Other training or free practice

Table 6.18 SCHEDULE ON THE THIRD TRAINING

Date	Time	Training Items
Dec. 6 (Sun)	11:00 - 12:00	Orientation
	12:00 - 15:00	Present Manual for Model System
7 (Mon)	11:00 - 14:00	New Manual
	14:00 - 15:00	Examination
8 (Tue)	11:00 - 12:00	Making of Table by Lotus 1-2-3
	12:00 - 14:00	Making of Graph by Lotus 1-2-3
	14:00 - 15:00	Printing of Graph
9 (Wed)	11:00 - 14:00	Data Processing (1)
	14:00 - 15:00	Examination
10 (Thu)	11:00 - 14:00	Data Processing (2)
	14:00 - 15:00	Examination
11 (Fri)	11:00 - 14:00	Data Checking (1)
	14:00 - 15:00	Examination
12 (Sat)		Holiday
13 (Sun)	11:00 - 14:00	Data Checking (2)
	14:00 - 15:00	Examination
14 (Mon)	11:00 - 13:00	Basic Analysis

Table 7.1 RIVER BASIN AREA

Name of River Basin	Basin Area (sq.km)	Percentage of Basin Area within Nepal
I. MAHAKALI RIVER	5,317	34%
II. SOUTHERN BORDER RIVER GROUP NO. 1	3,811	100%
III. KARNALI RIVER	(43,227)	100%
1. HUMLA KARNALI	5,527	65%
2. MUGU KARNALI	6,155	100%
3. SINJATILA	3,252	100%
4. SETI WEST	7,103	100%
5. BHERI	13,867	100%
6. KARNALI MAIN (OTHERS)	7,323	100%
IV. BABAI RIVER	3,252	100%
V. WOUTHERN BORDER RIVER GROUP NO. 2	948	100%
VI. RAPTI (WEST) RIVER	6,215	100%
VII. SOUTHERN BORDER RIVER GROUP NO. 3	4,849	100%
VIII. NARAYANI/GANDAKI RIVER	(31,726)	
1. TRISULI	3,622	57%
2. BUDHI	3,621	73%
3. MARSHANGDI	4,819	100%
4. SETI (GANDAKI)	2,843	100%
5. KALI GANDAKI	11,573	100%
6. RAPTI (GANDAKI)	2,993	100%
7. NARAYANI/GANDAKI MAIN (OTHERS)	2,255	
IX. SOUTHERN BORDER RIVER GROUP NO. 4	3,502	100%
X. BAGMATI RIVER	3,681	100%
XI. SOUTHERN BORDER RIVER GROUP NO. 5	3,013	100%
XII. KAMALA RIVER SYSTEM	1,786	100%
XIII. SOUTHERN BORDER RIVER GROUP NO. 6	1,896	100%
SVI. SUN KOSHI.SAPTA KOSHI RIVER	(27,863)	
1. BHOTE KOSHI	240	10%
2. TAMA KOSHI	2,714	76%
3. DUDH KOSHI	4,030	100%
4. ARUN	5,248	15%
5. TAMAR/TAMUR	6,125	100%
6. SUN KOSHI MAIN (OTHERS)	9,506	100%
XV. SOUTHERN BORDER RIVER GROUP NO. 7	3,462	100%
XVI. KANKAI RIVER	1,317	100%
SVII. SOUTHERN BORDER RIVER GROUP NO. 8	1,316	100%
TOTAL	147,181	

Table 7.2 BASIN OFFICE AND BRANCH OFFICE SITE

Basin Office Site	River Basin to be Managed	Branch Office Site
1. Nepalgunj	I. Mahakali River II. Southern Border River Group No. 1 III. Karnali River IV. Babai River V. Southern Border River Group No. 2 VI. Rapti River VII. Southern Border River Group No. 3	1. Bangga 2. Chainpur 3. Simikot 4. Jumla 5. Musikot
2. Pokhora	VIII. Narayani River	1. Jomson
3. Kathmandu	IX. Southern Border River Group No. 4 X. Bagmati River XI. Southern Border River Group No. 5	1. Simara
4. Biratnagar	XII. Kamala River XIII. Southern Border River Group No. 6 XIV. Sunkoshi River XV. Southern Border River Group No. 7 XVI. Kankai River XVII. Southern Border River Group No. 8	1. Okhaldhunga 2. Khandbari 3. Taplejun

Table 7.3. NUMBER OF OBSERVATION STATION IN CHARGE OF BASIN OFFICE
(Alternative Plan: Basin Office)

Basin Office	Far Western	Western	Central	Eastern	Total
Location of Office	Napalgañj	Pokhara	Kathmandu	Biratnagar	4
Branch Office	1. Bangga 2. Chainpur 3. Simikot 4. Jumla 5. Musikot	1. Jomson	1. Simra	1. Okhaldhung 2. Khandbari 3. Taplejung	
Main Basin	Mahakari Karnali Babai West Rapti	Narayani	Bagmati	Kamala Kankai Sun Koshi	
Basin Area (km ²)	67,619	31,726	10,196	37,640	147,181
Hydrometric Station					
Basic Station	5	1	1	3	10
Primary Station	13	11	2	12	38
Secondary Section	28	16	3	15	62
Total	47	28	6	30	110
Precipitation Station					
Recording Station	21	19	6	14	60
Non-recording Station	175	95	37	103	410
Total	196	64	43	117	470

Table 7.4

CONDITION OF ACCESS TO REMOTE STATIONS FROM REGIONAL OFFICE

Location of Office	Far Western		Mid Western		Western		Central		Eastern	
	Dhangahi		Surket		Pokhara		Kathmandu		Dharan /Dhankuta	
Remote Hydrometric Station	Starting Place *1	Dhangahi(→Chisapani)	Surket		Pokhara(→Gorkha)		Kathmandu(→Bandipur)		Dharan(→Tumlintar)	
	Station	Karnali/ Asaraghat (240)	Kharpukhola/ Kharpu (205)		Budhi Gandaki Lukuwa (New 10)		Sun Koshi/ Ahrkapur (665)		Dudh Koshi/ Rabuwā Bazar (670)	
	Distance (km) *2	50 km	195 km		60 km		45 km		65 km	
	Required Days *3	4	13		4		3		5	
Remote Rainfall Station	Starting Place	Dhangadi→Dipayel	Surket		Pokhara→Baglung		Kathmandu→Yalun		Dharan→Mansin	
	Station	Seti/Chainpur (251)	Mugu-Karnali/ Dabra (New 4)		Kali Gandaki/ Jomson (403)		Likhu Khola/ Sangutar (660)		Dudh Koshi/ Jubin (New 16)	
	Distance (km)	50 km	180 km		70 km		55 km		80 km	
	Required Days	4	12		5		4		6	
Remote Rainfall Station	Starting Place	Dhangadi(→Buitadi)	Surket		Pokhara(→Baglung)		Kathmandu(→Dhadin)		Dhankuta(→Tumlintar)	
	Station	Darchula (0107)	Mugu (0301)		Yaragau (M001)		Charikot (1002)		Okhaling (1206)	
	Distance (km)	50 km	200 km		120 km		20 km		90 km	
	Required Days	4	14		8		2		6	
Non-recording Station	Starting Place	Dhangadi→Dipael	Surket		Pokhara→Baglung		Kathmandu→Charikot		Dhankuta→Masin	
	Station	Sanigau (New 2028)	Munchu (New 2016)		Mustan 612		Thanchhemu (New 2170)		Khurnjung (1217)	
	Distance (km)	140 km	250 km		120 km		50 km		110 km	
	Required Days	10	17		8		4		8	

Note: *1: →: by vehicle

*2: () : Road head in consideration of road condition in 2005.

*3: Distance (km) : distance through main foot path.

Required days for walking (15 km/day by walk)

Table 7.5 CONDITION OF ACCESS TO REMOTE STATIONS FROM BRANCH OFFICE

Basin Office	Far Western	Western	Central	Eastern	
Location of Office	Nepalganj	Pokhara	Kathmandu	Birumagar	
Branch Office	1. Baraga 2. Chainpur 3. Simikot 4. Jumla 5. Musikot	1. Jomson	1. Simra	1. Okhaldhung 2. Khandbari 3. Taplejung	
Remote Hydrometric Station	Starting Place *1	Jumla	Kathmandu	Okhaldung	
	Station	Humla Kamali/Thuldada (240)	Bagmati/Khokana (550.05)	Sun Koshi/Ahirkapur (665)	
	Distance (km) *2	75 km	60 km	1 km	
	Required Days *3	5	4	1	
	Starting Place	Musikot	Pokhara(→Besishahar)	Kathmandu	Okhaldung
Remote Rainfall Station	Station	Thuli-berri/Juphal (New 6)	Marsyangdi/Baje (New 11)	Dudh Koshi/Jubin (New 16)	
	Distance (km)	70 km	35 km	5 km	
	Required Days	5	3	1	
	Starting Place	Jumula	Pokhara(→Dhadin)	Kathmandu(→Banepa)	Biratnagar(→Sabra)
	Station	Dunai (0312)	Arughat (1002)	Harharpurgadhi Valley (1117)	Pakribvas (1304)
Distance (km)	75 km	20 km	30 km	10 km	
Required Days	5	2	2	1	
Remote Rainfall Station	Starting Place	Jumla	Pokhara(→Dhadin)	Okharung	
	Station	Kuwangau (New 2021)	Ligau (New 2124)	Kalimati (New 2161)	Khumjung (1217)
	Distance (km)	110 km	80 km	45 km	70 km
	Required Days	8	6	3	5

Note: *1: →: by vehicle

(): Road head in consideration of road condition in 2005.

*2: Distance (km) : distance through main foot path.

*3: Required days for walking (15 km/day by walk)

Table 7.6 EVALUATION OF ORGANIZATION (1/2)

Case	Organization and Roles			Outline of the cases	Advantage	Disadvantage
	Work Item	Central Office	Basin Office			
1	Data Collection	○		DHM will consist of only Central Office. Central Office will carry out every works.	Since every resources such as manpower and computer equipments will be concentrated to one place, it will save resources and is efficiency.	It will be difficult to maintain all stations well because of big number of stations. If error will be found, it will be difficult to investigate the causes.
	Data Entry	○				
	Date Processing	○				
	Data Management	○				
2	Data Collection	○	○	DHM will consist of Central Office and Basin Office. Basin Office will collect data. Central Office will enter, process and manage data.	Since every resources for data management will be concentrated at one place, it will save resources for them and is efficiency.	It will be difficult to investigate the cause of errors, because all data will be processed and checked far from stations and staffs for inspection. It will be also difficult to instruct local staffs and observers.
	Data Entry	○	○			
	Date Processing	○	○			
	Data Management	○	○			
3	Data Collection	○	○	DHM will consist of Central Office and Basin Office. Basin Office will collect and enter data. Central Office will process and manage data.	Since all data will be collected, entered and checked at one place, it will be easy to investigate the cause of error and instruct staffs for inspection and observers.	The responsibility for data check will not be clear because the data will be processed at the different place where they will be collected and entered. The data checking work will be late because of transfer of data.
	Data Entry	○	○			
	Date Processing	○	○			
	Data Management	○	○			
4	Data Collection	○	○	DHM will consist of Central Office and Basin Office. Basin Office will collect, enter and process data. Central Office will manage data.	Since data will be collected, entered and processed at same place, it will be easy to investigate cause of error and instruct staffs for inspection and observers. The responsibility will be also clear.	Since data will be processed at Basin Offices, much experienced staffs and resources will be necessary. It will difficult to cope with urgent information without Branch Office.
	Data Entry	○	○			
	Date Processing	○	○			
	Data Management	○	○			
5	Data Collection	○	○	DHM will consist of Central Office, Basin Office and Branch Office. Branch Office will collect data. Basin Office will collect and enter data. Central Office will process and manage data.	In case that urgent information such as damaged or troubled station will be get, Branch Office will cope with early.	The responsibility for data checking will not be clear, because the place for data entry and processing will not same.
	Data Entry	○	○			
	Date Processing	○	○			
	Data Management	○	○			
6	Data Collection	○	○	DHM will consist of Central Office, Basin Office and Branch Office. Branch Office will collect data. Basin Office will collect, enter and process data. Central Office will manage data.	Branch Office will be able to cope with urgent information such as damaged or troubled stations. It will be easy to check and investigate error, because data will be processed at one place and Branch Office will be established.	The running cost for Branch Office will be charged.
	Data Entry	○	○			
	Date Processing	○	○			
	Data Management	○	○			
7	Data Collection	○	○	DHM will consist of Central Office, Basin Office and Branch Office. Branch Office will collect and enter data. Basin Office will collect, enter and process data. Central Office will manage data.	It will be easy to check or investigate error, because Branch Office will be established stations and the data will be entered and checked near from stations.	Since the electric condition will not be good, it will be difficult to operate computer regularly. Much resources will be necessary. It will take much time to enter and transfer data.
	Data Entry	○	○			
	Date Processing	○	○			
	Data Management	○	○			

Table 7.6 EVALUATION OF ORGANIZATION (2/2)

Case	Organization		Condition of Access	Computer Equipment				Number of Staffs		Evaluation	
	Number of Offices	Running Cost NRs./Year		Equipment	Number	Cost (US\$)	Total	Observation	Data Arrangement		
1	No Basin Office and Branch Office	-	See Table 7.4	Computer Printer Digitizer Plotter	9 3 1 1	67,000 2,700 1,000 6,000	76,700	56	9	It will be difficult to get reliable data because big number of stations will be managed by one place. In case of trouble, it will difficult to cope with. It will be difficult to investigate error cause, too.	7
2				Computer Printer Digitizer Plotter	9 3 1 1	67,000 2,700 1,000 6,000	76,700	56	9	Once, DHM processed data with this case. But DHM changed this mode because much backlogs remained at Central Office. It will be also difficult to investigate error cause	3
3	Basin Office	4 NRs./Year 2,528,000	See Table 7.4	Computer Printer Digitizer Plotter	10 6 5 1	72,000 5,400 5,000 6,000	88,700	56	10	DHM should process data completely at same place because of reliable data. The responsibility for data check will not be clear.	6
4				Computer Printer Digitizer Plotter	18 6 5 5	140,000 5,400 5,000 30,000	180,400	56	18	DHM processes as with this style at present. The responsibility will be very clear and it will be evaluated. But it will be difficult to manage stations in Northern part of Nepal.	2
5				Computer Printer Digitizer Plotter	10 6 5 1	72,000 5,400 5,000 6,000	88,400	56	10	The responsibility will no clear for data check. It will be difficult to investigate error cause.	4
6	Basin Office Branch Office	4 NRs./Year 10 3,310,400	See Table 7.5	Computer Printer Digitizer Plotter	18 6 5 5	140,000 5,400 5,000 30,000	180,400	56	18	It will be able to manage, investigate error cause and cope with trouble better than other cases even if the station will be in Northern and remote area in Nepal. The responsibility for data check will be clear.	1
7				Computer Printer Digitizer Plotter	28 16 15 5	190,000 14,400 15,000 30,000	249,400	56	18	It will be difficult to process data regularly at Branch Office. It will take much time to enter and transfer data. This case will be costly.	5

Note : Running cost is not include of Central Office.

Legend ○ : carry out this work
 × : no such roles
 △ : carry out this work by Branch Office and also Basin Office

Table 7.7 OUTLINE OF COLLECTED MATERIAL

Data, Sample or Information to be Collected	Observation Method	Style of Data	Number of Data Collection			Collection Frequency	Processing Frequency	Remarks
			Max.	Min.	Ave.			
1. Precipitation • daily • continuous • real time	manual gauge	paper form	12	12	12	monthly	<ul style="list-style-type: none"> Observe once per day Number depends on paper. Processing frequency depends on inspection schedule Number depends on capacity and recording frequency. Collection and processing frequency depend on inspection schedule. Number, collection frequency and processing frequency depend on inspection schedule. 	
	automatic automatic	chart rain card				real time		
2. Water Level • daily • continuous	telemeter	digital sign					<ul style="list-style-type: none"> Observed once per day Number depends on paper. Processing frequency depends on inspection schedule. Number depends on capacity and recording frequency. Collection and processing frequency depend on inspection schedule. 	
	Staff gauge automatic automatic	paper form chart rain card	12	12	12	monthly		
3. Discharge	telemeter	telemeter					<ul style="list-style-type: none"> Number, collection frequency and processing frequency depend on inspection schedule. The number of discharge measurement depends of kind of stations, river condition and number of floods. 	
	current meter	paper form	36	6	6	monthly		
	float	paper form				monthly		
	slope-area tracer	paper form sample				monthly monthly		
4. Suspended Sediment	sample	sample					<ul style="list-style-type: none"> Basic Station : bi-weekly discharge, flood Primary Station : ten times per year Secondary Station : minimum six times per year 	
	sample	sample	1	1	1	monthly		
5. Riverbed Material	sample	sample					Collection frequency depends on season. Number depends on flow condition	
	sample	sample	1	1	1	yearly		
6. Water Quality	sample	sample	365	365	365	every day	<ul style="list-style-type: none"> Collection frequency depends on season. Number depends on flow condition 	
	sample	paper form	365	365	365	every day		
7. Report on Station Inspection	inspection	paper form	4	1	4	every three month	<ul style="list-style-type: none"> Collection frequency depends on season. Number depends on flow condition 	
	inspection	paper form	4	1	4	every three month		
8. Cross Section Survey	survey	paper form	1	1	1	yearly		
9. Emergency Information	---	telephone	-	-	-	-		

Table 7.8 WAY OF DATA COLLECTION

Collection Way	Post	Manpower	Wireless	Telemeter	Telephone
1. Outline of method	Observer sends data by register mail once a month	Staff or observer carries data by themselves	Observer sends data with wireless every day	Telemeter system sends data automatically every day	Observer sends data with telephone every day
2. Correctness	Because of duplicate of data at station, data can be recovered if they are lost	Data can be collected without loss. This way is the most correct way.	Sometimes mistakes occurs. The condition of communication with wireless is not good especially in day time.	Because of lightning, this system sometimes fails to send data.	Sometimes hearing and recording mistakes occurs.
3. Operation	If the post office is near from observer's house, this way is easy to operate. If it is far from post office, it is not so easy to send data every month.	If traffic condition is not good, this way is not easy.	The condition of communication is not good especially in day time. It is not easy for observers to operate and maintain wireless. In remote area, oil must be supplied for wireless.	Well trained staffs are necessary to operate and maintain systems. Purchase of spare parts is not easy in Nepal	It is not difficult to operate. But it is difficult to get telephone especially in remote area in Nepal.
4. Collection period	about one week	It depends on traffic condition and distance to stations.	within one day	real time	within one day
5. Charge	Eight Nepal Rupees per mail	It depends on place	wireless system: US\$2,500/set oil: 100 NRs./month	This way is very costly	Average NRs. 6/min.
6. Evaluation	If the post office is near from observer's house, this way is most suitable way for paper form, because of economical, efficiency, correctness and easy operation. In case of sample, chart or ram card, this way is not possibly to collect data safely.	It is not easy to collect all data by manpower. In case that the staffs observe or inspect, it is most suitable way. There is no way to collect sample beside this one.	This way is not reliable to send data. But, this way is suitable to send emergency information in case of no telephone area.	This way is most suitable to collect data early and get condition on observation. If there is no observers, there is no way besides telemeter. This way is also useful to monitor stations. But telemeter system is costly to establish and maintain.	This way is not reliable to transfer data. In case of emergency information, this way is most suitable to send information.

Table 7.9 SUMMARY OF DATA ENTRY WAY

Entry Data	Recording Style	Observation Method	Entry Method	Remarks
1. Precipitation a. Daily precipitation b. Continuous precipitation	Paper form Chart Ram card Wire Wireless	Manual Automatic gauge Data logger Telemeter system Telemeter system	Keyboard Digitizer Reader Automatically Automatically	For basic station For basic station
2. Water Level a. Daily water level b. Continuous water level c. Extreme water level	Paper form Chart Ram card Wire Wireless Chart Ram card Wire Wireless	Manual Automatic gauge Data logger system Telemeter system Telemeter system Automatic gauge Data logger system Telemeter system Telemeter system	Keyboard Digitizer Reader Automatically Automatically Keyboard Reader Automatically Automatically	For basic station For basic station
3. Discharge	Paper form Paper form Paper form	Float current meter SlopE-area	Keyboard Keyboard Keyboard	
4. Sediment a. Suspended sediment concentration b. Particle size analysis c. Grain size d. Percentage of void	Paper form Paper form Paper form Paper form Paper form	Depth integrated sampling Point integrated sampling Hydrometer method Sieve	Keyboard Keyboard Keyboard Keyboard Keyboard	
5. Water Quality	Paper form	Kit Laboratory	Keyboard Keyboard	
6. Information of Station	Paper form	Inspection or phone	Keyboard	
7. Cross Section Survey	Paper form	Survey	Keyboard	

Table 7.10 DATA ITEMS FOR DATA BOOK

Data Book	Data Items
1. Common Item	<ul style="list-style-type: none"> • location map of stations • code number for stations • summary of station description
2. Precipitation	<ul style="list-style-type: none"> • summary of precipitation condition in Nepal • isohyetal map in Nepal • continuous precipitation • daily precipitation • monthly precipitation • annual precipitation • hyetograph
3. Discharge	<ul style="list-style-type: none"> • summary of stream flow condition in Nepal • daily mean discharge • monthly mean discharge • annual discharge • hydrograph • flow duration curve • specific discharge
4. Sediment, Water Quality & Riverbed Material	<ul style="list-style-type: none"> • summary of sediment and water quality condition in Nepal • daily suspended sediment concentration • monthly suspended sediment concentration • daily suspended sediment transportation • monthly suspended sediment transportation • annual sediment transportation • grain curve • specific gravity • percent of void • water quality index

Table 7.11 STORING DATA (1/2)

Data	Style	Storing Frequency	Term to be stored	Remarks
A. Original Data				
1. Precipitation				
a. continuous precipitation	chart	yearly	forever	
	ram card	*	—	
	digital or analog sign	*	—	
b. daily precipitation	paper form	yearly	forever	
2. Water Level				
a. continuous water level	chart	yearly	forever	
	ram card	*	—	
	digital or analog sign	*	—	
b. daily water level	paper form	yearly	forever	
3. Discharge	paper form	yearly	forever	
4. Sediment				
a. sediment concentration	paper form	yearly	forever	
b. particle size	paper form	yearly	forever	
c. grain size	paper form	yearly	forever	
d. percentage of void	paper form	yearly	forever	
5. Water Quality	paper form	yearly	forever	
6. Station Description				
a. inventory	paper form	yearly	forever	
b. inspection sheet	paper form	yearly	forever	
c. others	paper form	—	—	
7. Cross Section Survey	paper form	yearly	forever	
8. Error Report	paper form	yearly	forever	
B. Processed Data				
	File			In Computer
1. Precipitation				
a. continuous precipitation	file	yearly	forever	
b. daily precipitation	file	yearly	forever	
c. daily mean precipitation	file	yearly	forever	
d. rainfall intensity	file	yearly	forever	
e. isohyetal map	file	yearly	forever	
2. Water Level				
a. continuous water level	file	yearly	forever	
b. daily water level	file	yearly	forever	
c. daily mean water level	file	yearly	forever	
d. extreme water level	file	yearly	forever	
3. Discharge				
a. discharge measurement	file	yearly	forever	
b. continuous discharge	file	yearly	forever	
c. daily mean discharge	file	yearly	forever	
d. extreme discharge	file	yearly	forever	
4. Rating Table	file	yearly	forever	

Table 7.11 STORING DATA (2/2)

Data	Style	Storing Frequency	Term to be stored	Remarks
5. Sediment				
a. daily sediment concentration	file	yearly	forever	
b. daily sediment transport	file	yearly	forever	
c. extreme sediment transport	file	yearly	forever	
d. particle size	file	yearly	forever	
e. grain size	file	yearly	forever	
f. percentage of void	file	yearly	forever	
7. Water Quality	file	yearly	forever	
8. Station Information				
a. station description	file	irregular	till updated	
b. data collection record	file	every day	till updated	
9. Cross Section	file	yearly	forever	
C. Data Book	book	yearly	forever	
D. Backup	Optical disk			
1. Precipitation				
a. continuous precipitation	optical disk	**	forever	
b. daily precipitation	optical disk	**	forever	
2. Water Level				
a. continuous water level	optical disk	**	forever	
b. daily water level	optical disk	**	forever	
c. extreme water level	optical disk	**	forever	
3. Discharge				
a. discharge measurement	optical disk	**	forever	
4. Rating Table	optical disk	**	forever	
5. Sediment				
a. sediment concentration	optical disk	**	forever	
b. particle size	optical disk	**	forever	
c. grain size	optical disk	**	forever	
d. percentage of void	optical disk	**	forever	
7. Water Quality	optical disk	**	forever	
8. Station Information				
a. inventory	optical disk	**	forever	
b. inspection sheet	optical disk	**	forever	
9. Cross Section Survey	optical disk	**	forever	
10. Error Report	optical disk	**	forever	
E. Output List	paper	**	forever	

Note: —; These data will not be stored. Note: —; These data will not be stored.

*: It will depend on the field trip of staff

**:

- The back up for original data will be made once a year.

- The back up for processed data will be made twice a year at the Central Office.

- The back up for processed data will be made every month at the Basin Office

Table 7.12 TRAINING ITEM

Trainee	Target	Training Item			
		Introduction	Observation	Data Processing	Analysis
Newly Employed Staff	Introduction on the DHM works	Outline of the DHM	—	—	—
Field Assistant	Correct observation according to the DHM observation manual	Necessity of hydrological and meteorological data	Observation method The way to maintenance of gauge	—	—
Junior Hydro-Meteorological Assistant	Correct observation including site inspection and data entry	Data processing in the DHM	Observation method Inspection of station	Basic knowledge on computer Data entry	—
Senior Hydro-Meteorological Assistant	Correct data processing according to the DHM data processing manual	Data checking in the DHM General knowledge on meteorology and hydrology	Water quality	Data processing in the DHM according to the operation manual on data processing and data base software Operation on computer	—
Engineer	Full responsibility on data quality	Management	Total knowledge on observation Planning of observation Network Calibration	Data checking in the DHM Maintenance of computer	Precipitation analysis Stream flow analysis

Table 7.13

REQUIRED NUMBER OF TECHNICIANS IN BASIN OFFICE
(Alternative Plan: Basin Office)

Basin Office	Far Western Basin Office				Western Basin Office		Central Office		Eastern Office				Total		
	Branch Office		B. Office		B. Office		B. Office		Branch Office		Branch Office				
Number of Staff	Nepal-gani (4)	Baranga (2)	Champur (2)	Simkot (2)	Jumla (2)	Musikot (2)	Pokkara (6)	Jomson (2)	Kathmandu (2)	Simla (2)	Birath-agar (4)	Okhal-dung (2)	Khad-bari (2)	Taple-jung (2)	(36) (18 teams)
Number of Primary Station / Number of Teams	(14) (7 teams)														
Number of Hydro. Station / Number of Teams	3.67 (2.75) *1														
Number of Recording / Number of Staff	9.00 (6.75) *1														
Number of Rain gauge Station / Number of Staff	3.17														
Number of Basic Station	16.33														
Number of Staff	Mahakari (2)	Kamali (2)	Babai (2)	W. Rapti (2)	Tinau (2)	Gandaki (2)	Bagmati (2)	Karnala (2)	Koshi (2)	Kankai (2)					(20)
Total Number of Staff	(24)														
	(10)														
	(6)														
	(16)														
	(56)														

Note: Two extra staffs (1 team) are employed in each basin office.

*1: Calculated value includes extra staff

Table 8.1 TRAINING ITEM FOR IMMEDIATE PROGRAMME (1/2)

Training Item	Training Hour				
	N	F	J	S	E
1. Introduction					
1.1 Outline of DHM	1				
1.2 Observation of DHM	1	1			
1.3 Data Processing in DHM	1		1		
1.4 Data Checking in DHM	1			1	
1.5 Analysis					1
Sub-Total	4	1	1	1	1
2. Observation					
2.1 Precipitation					
2.2.1 General	1	1			
2.2.2 Observation Network					3
2.2.3 Manual Gauge		1	1		
2.2.4 Recording Gauge (Weighting Type)		5	1		5
2.2.5 Recording Gauge (Other Type)					
2.2 Snowfall					1
2.3 Rainfall					
2.3.1 Radar					5
2.3.2 Satellite					1
2.4 Snow cover			1		
2.5 Evaluation			1		
2.6 Water Level					
2.6.1 General	1	1	1		
2.6.2 Observation Network					3
2.6.3 Manual Gauge		1	1		
2.6.4 Recording Gauge (Float Type)		5	1		
2.6.5 Recording Gauge (Other Type)					5
2.7 Discharge Measurement					
2.7.1 General	1	1	1		
2.7.2 Current Meter		5	5		
2.7.3 Float					5
2.7.4 Other Way					5
2.8 Sediment					
2.8.1 General	1				
2.8.2 Selection of site					2
2.8.3 Suspended-Sediment					
2.8.3.1 Sampling		1	1		
2.8.3.2 Sediment Concentration				5	
2.8.3.3 Suspended-Sediment Discharge					2
Sub-Total	4	21	14	5	37

Table 8.2 TOTAL NUMBER OF REQUIRED ENGINEERING STAFFS (1/2)

Office	Remarks	Number of staffs
1. Central Office		
1.1 Evaluation Division	Chief	1
1.2 Data Management Division	Chief	1
	Staff	2
1.2.1 Management Section		
1.2.1.1 Progress Control Unit		1
1.2.1.2 Quality Control Unit	Chief	1
	Data Processing Staff	4
	Observation	1
Laboratory	Chief	1
	Sediment	2
	Water Quality	2
Workshop	Chief	1
	Observation Equipment	4
	Computer Maintenance	2
Sub-Total (1.2.1)		19
1.2.2 Data Arrangement Section	Chief	1
1.2.2.1 Data Storing Unit	Chief	1
	Data Arrangement	2
	Maintenance of Software	4
1.2.2.2 Data Dissemination Unit	Staff	2
Sub-Total (1.2.2)		10
Sub-Total (1)		33
2. Basin Office		
2.1 Far Western Basin Office	Chief	1
a Data Arrangement Unit	Data Entry	1
	Data Processing	2
b Observation Unit		4
c Laboratory Unit		2
d Workshop Unit		3
Sub-Total (2.1)		13
2.2 Western Basin Office	Chief	1
a Data Arrangement Unit	Data Entry	1
	Data Processing	2
b Observation Unit		6
c Laboratory Unit		2
d Workshop Unit		2
Sub-Total (2.2)		14
2.3 Central Basin Office	Chief	1
a Data Arrangement Unit	Data Entry	1
	Data Processing	2
b Observation Unit		2
c Laboratory Unit		0
d Workshop Unit		0
Sub-Total (2.3)		6
2.4 Eastern Basin Office	Chief	1
a Data Arrangement Unit	Data Entry	1
	Data Processing	2
b Observation Unit		4
c Laboratory Unit		2
d Workshop Unit		2
Sub-Total (2.4)		12
Sub-Total (2)		45

Table 8.2 TOTAL NUMBER OF REQUIRED ENGINEERING STAFFS (2/2)

Office	Remarks	Number of staffs
3. Branch office		
3.1 Barnga		2
3.2 Chainpur		2
3.3 Simikot		2
3.4 Jumla		2
3.5 Musikot		2
3.6 Jomson		2
3.7 Simla		2
3.8 Okhalding		2
3.9 Khadbari		2
3.10 Taplejung		2
Sub-Total (3)		20
4 Basic Station		
4.1 Mahakali		2
4.2 Karmali		2
4.3 Babai		2
4.4 West Rapti		2
4.5 Tamur		2
4.6 Gandaki		2
4.7 Bagmati		2
4.8 Kamara		2
4.9 Koshi		2
4.10 Kankai		2
Sub-Total (4)		20
5 Synoptic Station		
5.1 Dandeldhura		2
5.2 Dhangadhi		2
5.3 Dipayal		2
5.4 Surkhet		2
5.5 Jumla		1
5.6 Ghorai		2
5.7 Bhairhawa		2
5.8 Pokhara		2
5.9 Simla		1
5.10 Kathmandu		2
5.11 Okhaldhunga		1
5.12 Dhankuta		2
5.13 Biratnagar		2
5.14 Taplejung		1
Sub-Total (5)		20
Grand-Total		138

Table 10.1 EQUIPMENT FOR THIS PLAN

EQUIPMENT AND MANPOWER	UNIT	MODEL	FIRST STAGE			SECOND STAGE					THIRD STAGE					GRAND TOTAL		
			SYSTEM	1993	1994	1995	TOTAL	1996	1997	1998	1999	2000	TOTAL	2001	2002		2003	2004	2005	TOTAL
1. Computer System																		
(1) Design and Programming																		
Basic Design	M/M		3			3					0						0	3
Detail Design	M/M			3		3					0			2			2	5
Programming (Foreigner)	M/M			5	5	10					0			4			4	14
Programming (Local staff)	M/M			25	25	50					0						0	50
System Test	M/M				1	1					0						0	1
(2) Computer Instrument																		
Computer (1GB)				1		1					0						0	1
Computer (300 MB)					4	4					0						0	4
Computer (100 MB)				4	1	5					0			4			4	9
Computer (40 MB)		6				0					0						0	0
Printer		6			1	1					0						0	1
Digitizer				1	4	5					0						0	5
X - Y plotter				1	1	2					0						0	2
Optical disk device				1	4	5					0						0	5
Optical system						0				1	1						0	1
Photo copy machine					5	5					0						0	5
UPS				1	4	5					0						0	5
Co-processor					4	4					0						0	4
Stabilizer and Spike suppresser		6		7	11	18					0			4			4	22
Buffer					4	4					0						0	4
Paper	Case			10		10					0			1			1	11
Floppy disk	Box			10		10					0			5			5	15
Optical disk				2		2					0						0	2
Ink ribbon				10		10					0			5			5	15
Cable for LAN	m			380	20	400					0			400			400	800
Terminator				2		2					0			8			8	10
Ruter						0					0			5			5	5
Modem						0					0			5			5	5
Reapeter					3	3					0						0	3
LAN board				5	2	7					0			8			8	15
(3) Software																		
Operation system				5	5	10					0			4			4	14
DBMS for server machine				1	4	5					0						0	5
DBMS for cilant machine				5	2	7					0			8			8	16
LAN				1		1					0			4			4	5
Graphical software				6	10	16					0			4			4	20
Vaccine				1		1					0			5			5	6
Word perfect						0					0			5			5	5
Other software		6		5	5	10					0			4			4	14
(4) Furniture and Installation																		
Air conditioner				7	7	14					0						0	14
Furniture	lot			5	5	5					0						0	5
(5) Staff training																		
Foreign expert	M/M			5	5	5					0			5			5	10
2. Training Center																		
(1) Computer Instrument																		
Computer (120 MB)		1				0					0						0	0
Computer (100 MB)				4		4					0						0	4
Printer		1				0					0						0	0
Digitizer				1		1					0						0	1
X - Y plotter				1		1					0						0	1
Optical disk device		1				0					0						0	0
Optical system						0					0						0	0
Photo copy machine				1		1					0						0	1
UPS						0					0						0	0
Co-processor				1		1					0						0	1
Stabilizer and Spike suppresser		1		7		7					0						0	7
Buffer						0					0						0	0
Cable for LAN				100		100					0						0	100
Terminator				2		2					0						0	2
LAN board				4		4					0						0	4
(2) Software																		
Operation system				5		5					0						0	5
DBMS for server machine				1		1					0						0	1
DBMS for cilant machine				4		4					0						0	4
LAN				1		1					0						0	1
Graphical software				5		5					0						0	5
Vaccine				1		1					0						0	1
Word perfect				4		4					0						0	4
Other software		1		5		5					0						0	5
(3) Furniture and Installation																		
Air conditioner				1		1					0						0	1
Furniture	lot			1		1					0						0	1

Table 10.2 DIRECT COST

EQUIPMENT AND MANPOWER	UNIT COST	DIRECT COST (NRe. 1000)														GRAND TOTAL	
		FIRST STAGE				SECOND STAGE					THIRD STAGE						
		1993	1994	1995	TOTAL	1996	1997	1998	1999	2000	TOTAL	2001	2002	2003	2004		2005	TOTAL
1. Computer System																	
(1) Design and Programming																	
Basic Design	1,043	3,129	0	0	3,129	0	0	0	0	0	0	0	0	0	0	0	3,129
Detail Design	1,043	0	3,129	0	3,129	0	0	0	0	0	0	0	0	2,086	0	2,086	5,215
Programming (Foreign Expert)	1,043	0	5,215	5,215	10,430	0	0	0	0	0	0	0	0	4,172	0	4,172	14,602
Programming (Local Expert)	100	0	2,500	2,500	5,000	0	0	0	0	0	0	0	0	0	0	0	5,000
System Test	1,043	0	0	1,043	1,043	0	0	0	0	0	0	0	0	0	0	0	1,043
SUB-TOTAL		3,129	10,844	8,758	22,731	0	0	0	0	0	0	0	0	6,258	0	6,258	28,989
(2) Computer Instrument																	
Computer (1GB)	1,084	0	1,084	0	1,084	0	0	0	0	0	0	0	0	0	0	0	1,084
Computer (300 MB)	514	0	0	2,056	2,056	0	0	0	0	0	0	0	0	0	0	0	2,056
Computer (100 MB)	324	0	1,296	324	1,620	0	0	0	0	0	0	0	0	1,296	0	1,296	2,916
Computer (40 MB)	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Printer	42	0	0	42	42	0	0	0	0	0	0	0	0	0	0	0	42
Digitizer	77	0	77	308	385	0	0	0	0	0	0	0	0	0	0	0	385
X - Y plotter	299	0	299	299	598	0	0	0	0	0	0	0	0	0	0	0	598
Optical disk device	204	0	204	616	1,020	0	0	0	0	0	0	0	0	0	0	0	1,020
Optical system	1,533	0	0	0	0	0	0	0	0	1,533	1,533	0	0	0	0	0	1,533
Photo copy machine	115	0	0	575	575	0	0	0	0	0	0	0	0	0	0	0	575
UPS	58	0	58	232	290	0	0	0	0	0	0	0	0	0	0	0	290
Co-processor	77	0	0	308	308	0	0	0	0	0	0	0	0	0	0	0	308
Stabilizer and Spike suppressor	5	0	35	55	90	0	0	0	0	0	0	0	0	20	0	20	110
Buffer	58	0	0	232	232	0	0	0	0	0	0	0	0	0	0	0	232
Paper	1	0	10	0	10	0	0	0	0	0	0	0	0	1	0	1	11
Floppy disk	2	0	20	0	20	0	0	0	0	0	0	0	0	10	0	10	30
Optical disk	8	0	16	0	16	0	0	0	0	0	0	0	0	0	0	0	16
Ink ribbon	1	0	10	0	10	0	0	0	0	0	0	0	0	5	0	5	15
Cable for LAN per meter	2	0	760	40	800	0	0	0	0	0	0	0	0	800	0	800	1,600
Terminator	1	0	2	0	2	0	0	0	0	0	0	0	0	5	0	5	10
Ruter	269	0	0	0	0	0	0	0	0	0	0	0	0	1,345	0	1,345	1,345
Modem	39	0	0	0	0	0	0	0	0	0	0	0	0	195	0	195	195
Respeater	77	0	0	231	231	0	0	0	0	0	0	0	0	0	0	0	231
LAN board	16	0	60	32	112	0	0	0	0	0	0	0	0	128	0	128	240
SUG-TOTAL		0	3,951	5,550	9,501	0	0	0	0	1,533	1,533	0	0	3,808	0	3,808	14,842
(3) Software																	
Operation system	12	0	60	60	120	0	0	0	0	0	0	0	0	48	0	48	168
DBMS for server machine	550	0	550	2,200	2,750	0	0	0	0	0	0	0	0	0	0	0	2,750
DBMS for client machine	72	0	350	144	504	0	0	0	0	0	0	0	0	576	0	576	1,080
LAN	376	0	376	0	376	0	0	0	0	0	0	0	0	1,504	0	1,504	1,880
Graphical software	42	0	252	420	672	0	0	0	0	0	0	0	0	168	0	168	840
Vaccine	39	0	39	0	39	0	0	0	0	0	0	0	0	195	0	195	234
Word perfect	38	0	0	152	152	0	0	0	0	0	0	0	0	190	0	190	342
Other software	61	0	305	305	610	0	0	0	0	0	0	0	0	244	0	244	854
SUB-TOTAL		0	1,942	3,281	5,223	0	0	0	0	0	0	0	0	2,925	0	2,925	5,148
(4) Furniture and Installation																	
Air conditioner	50	0	350	350	700	0	0	0	0	0	0	0	0	0	0	0	700
Furniture	100	0	0	500	500	0	0	0	0	0	0	0	0	0	0	0	500
SUB-TOTAL		0	350	850	1,200	0	0	0	0	0	0	0	0	0	0	0	1,200
(5) Staff training																	
Foreign expert	1,043	0	0	5,215	5,215	0	0	0	0	0	0	0	0	5,215	0	5,215	10,430
SUB-TOTAL		0	0	5,215	5,215	0	0	0	0	0	0	0	0	5,215	0	5,215	10,430
SUB-TOTAL		3,129	17,087	23,654	43,870	0	0	0	0	1,533	1,533	0	0	18,206	0	18,206	63,609
2. Training Center																	
(1) Computer Instrument																	
Computer (120 MB)	324	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Computer (100 MB)	324	0	0	1,296	1,296	0	0	0	0	0	0	0	0	0	0	0	1,296
Printer	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Digitizer	77	0	0	77	77	0	0	0	0	0	0	0	0	0	0	0	77
X - Y plotter	299	0	0	299	299	0	0	0	0	0	0	0	0	0	0	0	299
Optical disk device	204	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Optical system	1,533	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Photo copy machine	115	0	0	115	115	0	0	0	0	0	0	0	0	0	0	0	115
UPS	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Co-processor	77	0	0	77	77	0	0	0	0	0	0	0	0	0	0	0	77
Stabilizer and Spike suppressor	5	0	0	35	35	0	0	0	0	0	0	0	0	0	0	0	35
Buffer	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cable for LAN	2	0	0	200	200	0	0	0	0	0	0	0	0	0	0	0	200
Terminator	1	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	2
LAN board	16	0	0	64	64	0	0	0	0	0	0	0	0	0	0	0	64
SUB-TOTAL		0	0	2,165	2,165	0	0	0	0	0	0	0	0	0	0	0	2,165
(2) Software																	
Operation system	12	0	0	60	60	0	0	0	0	0	0	0	0	0	0	0	60
DBMS for server machine	319	0	0	319	319	0	0	0	0	0	0	0	0	0	0	0	319
DBMS for client machine	72	0	0	288	288	0	0	0	0	0	0	0	0	0	0	0	288
LAN	376	0	0	376	376	0	0	0	0	0	0	0	0	0	0	0	376
Graphical software	42	0	0	210	210	0	0	0	0	0	0	0	0	0	0	0	210
Vaccine	39	0	0	39	39	0	0	0	0	0	0	0	0	0	0	0	39
Word perfect	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other software	61	0	0	305	305	0	0	0	0	0	0	0	0	0	0	0	305
SUB-TOTAL		0	0	1,597	1,597	0	0	0	0	0	0	0	0	0	0	0	1,597
(3) Furniture and Installation																	
Air conditioner	50	0	0	50	50	0	0	0	0	0	0	0	0	0	0	0	50
Furniture	100	0	0	100	100	0	0	0	0	0	0	0	0	0	0	0	100
SUB-TOTAL		0	0	150	150	0	0	0	0	0	0	0	0	0	0	0	150
SUB-TOTAL		0	0	3,912	3,912	0	0	0	0	0	0	0	0	0	0	0	3,912
GRAND TOTAL		3,129	17,087	27,566	47,782	0	0	0	0	1,533	1,533	0	0	18,206	0	18,206	67,521

FIGURES

PHASE I: LONG TERM PROGRAMME

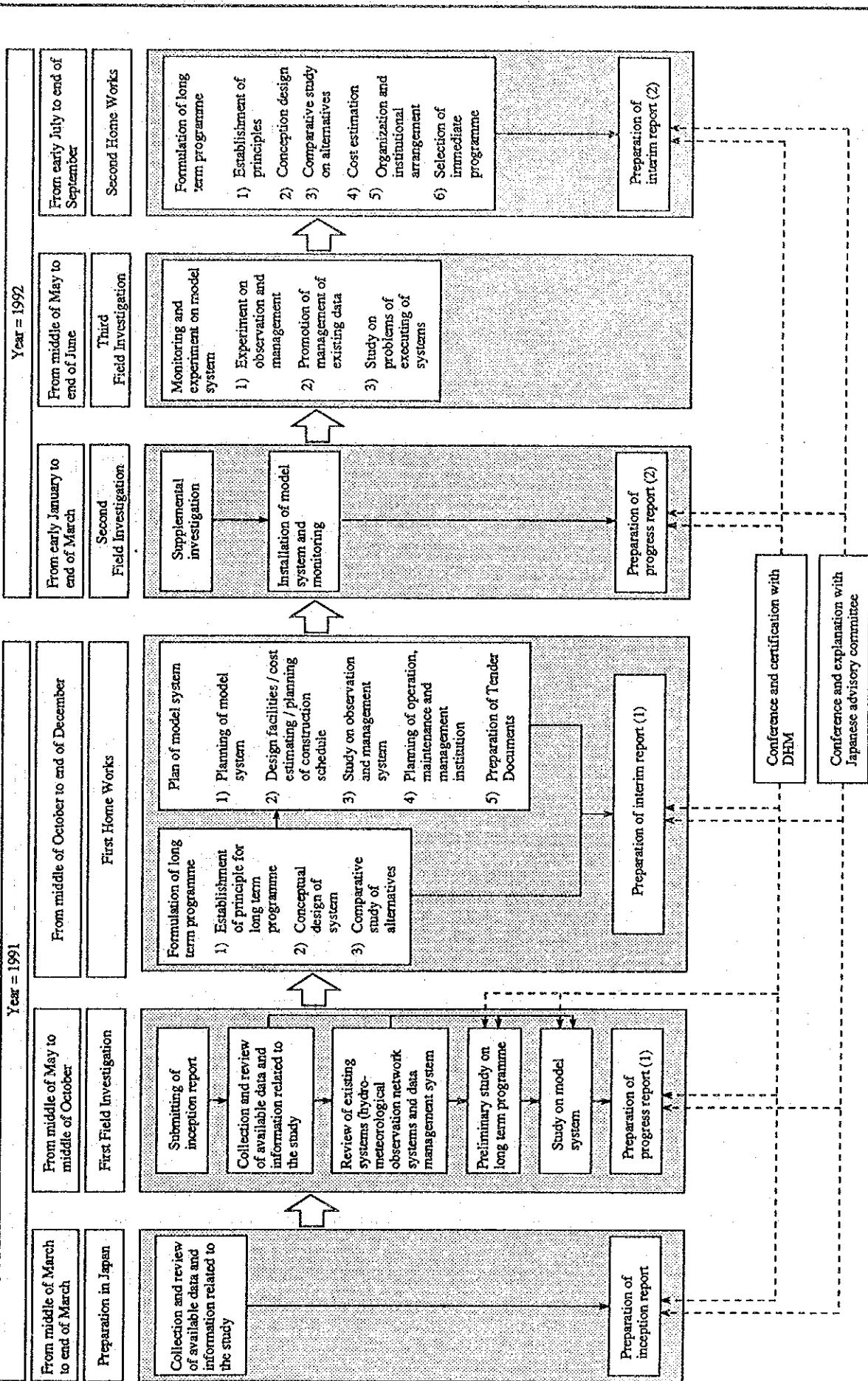


Fig. 1.1 OVERALL FLOW (1 / 2)

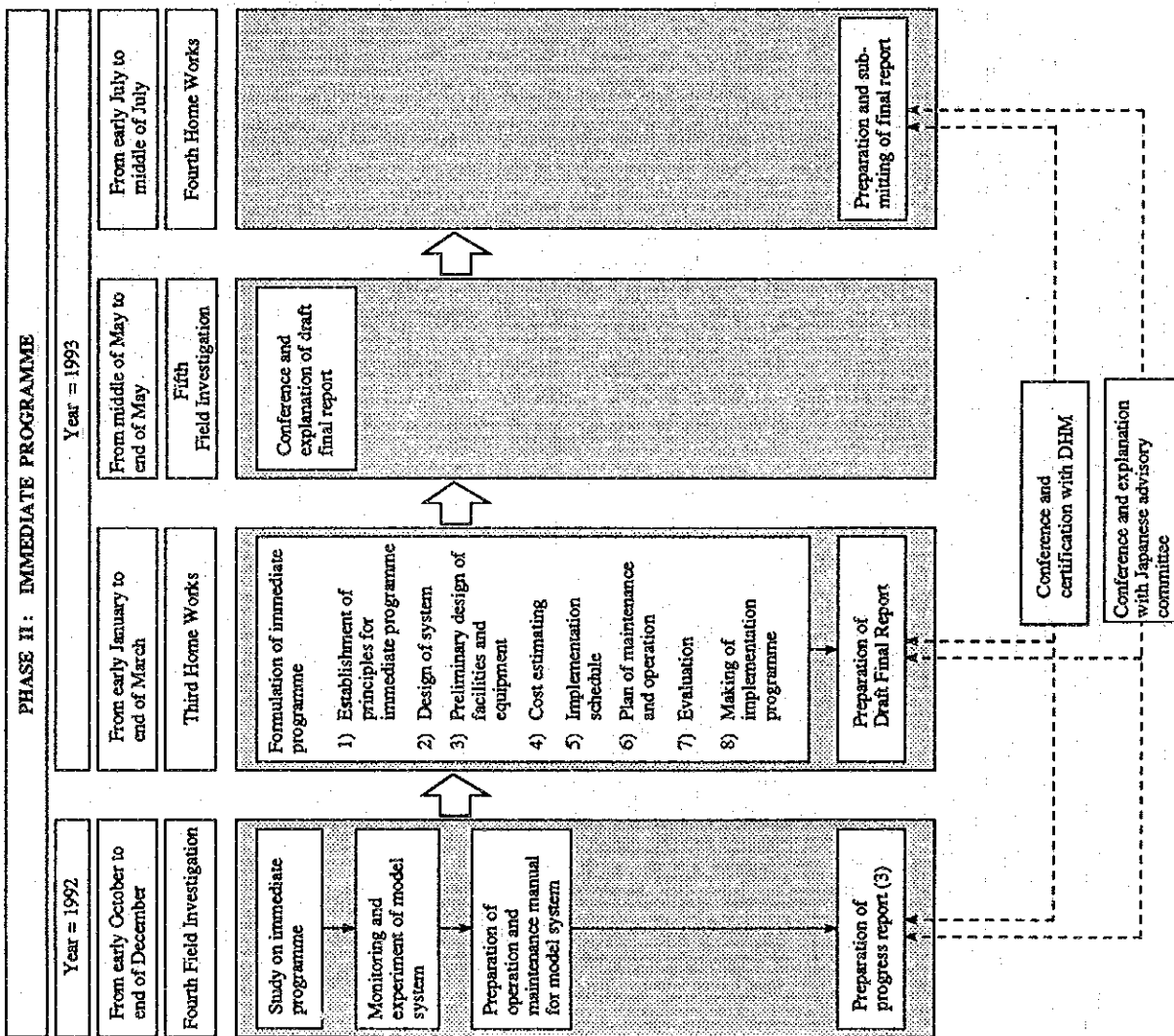


Fig. 1.1 OVERALL FLOW (2/2)

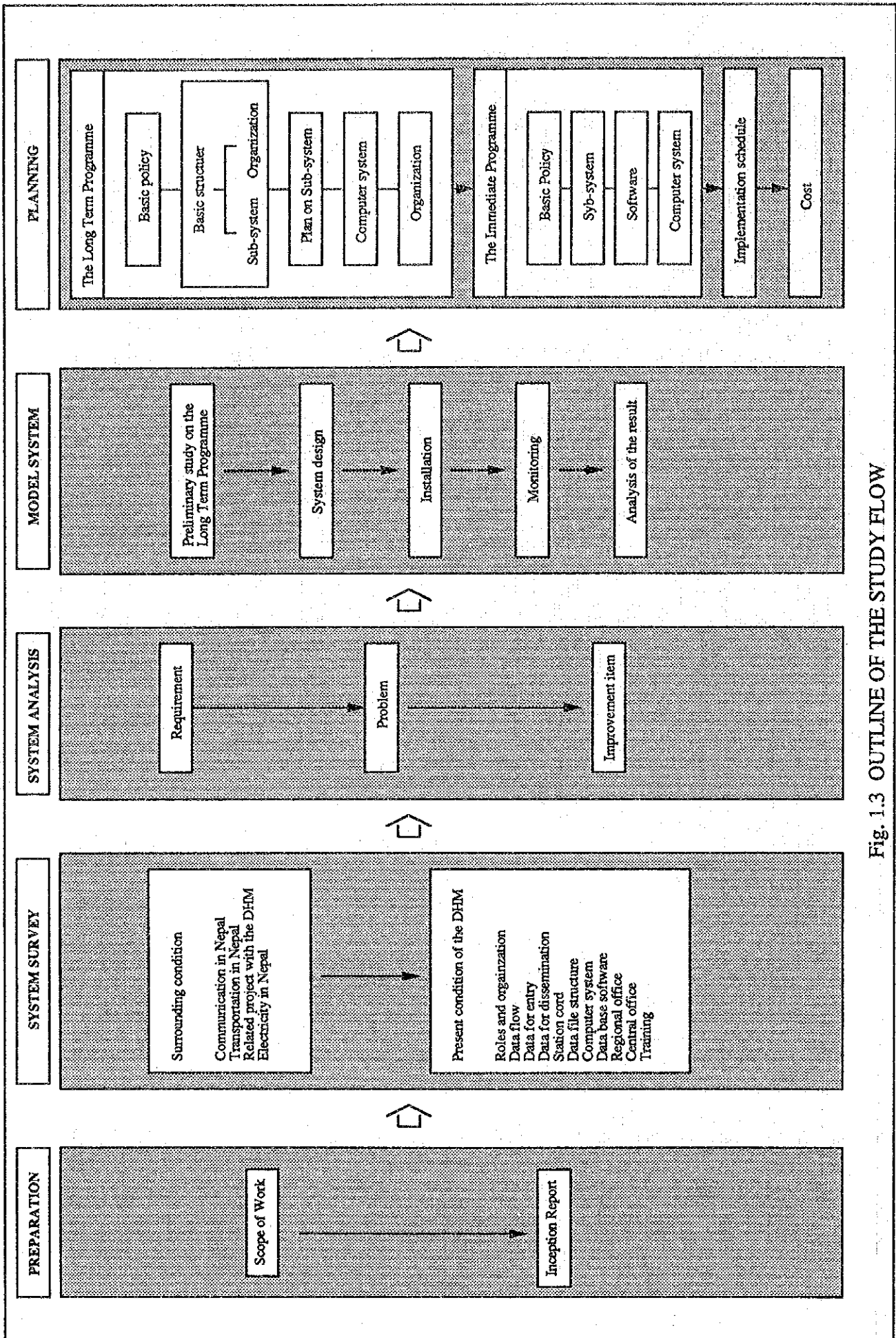


Fig. 1.3 OUTLINE OF THE STUDY FLOW

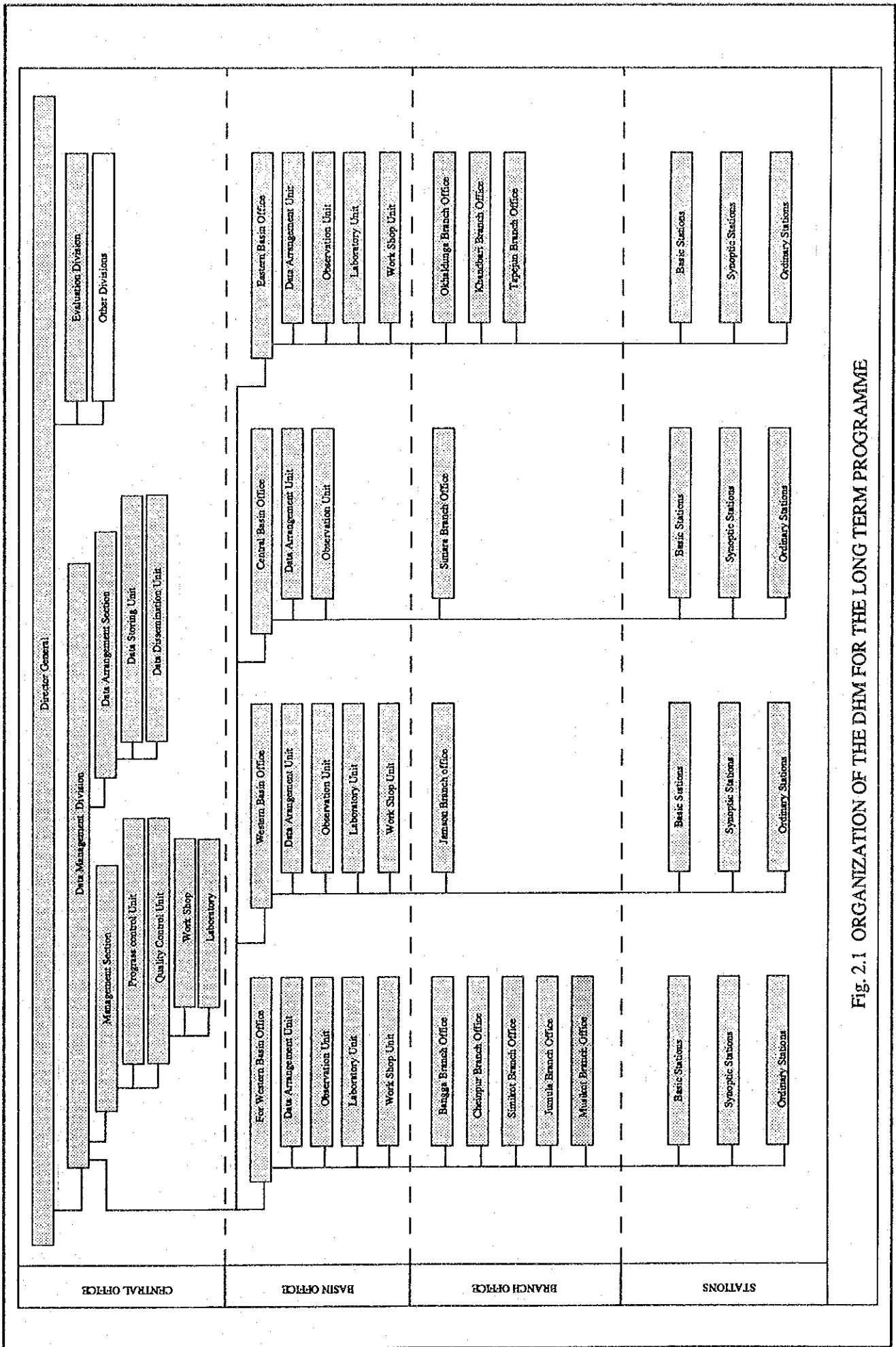


Fig. 2.1 ORGANIZATION OF THE DHM FOR THE LONG TERM PROGRAMME

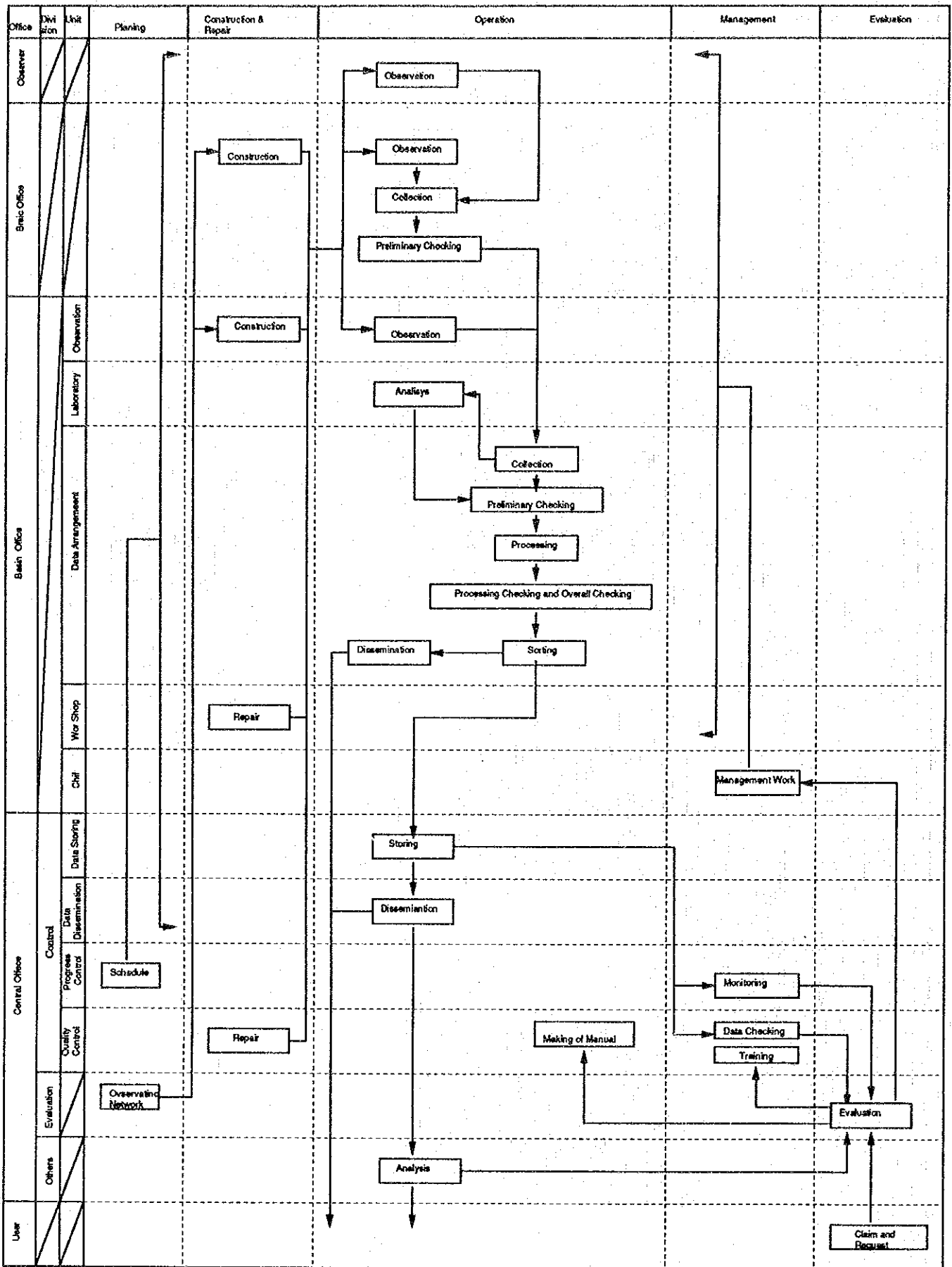


Fig. 2.2 ROLES OF EACH OFFICES IN THE DHM

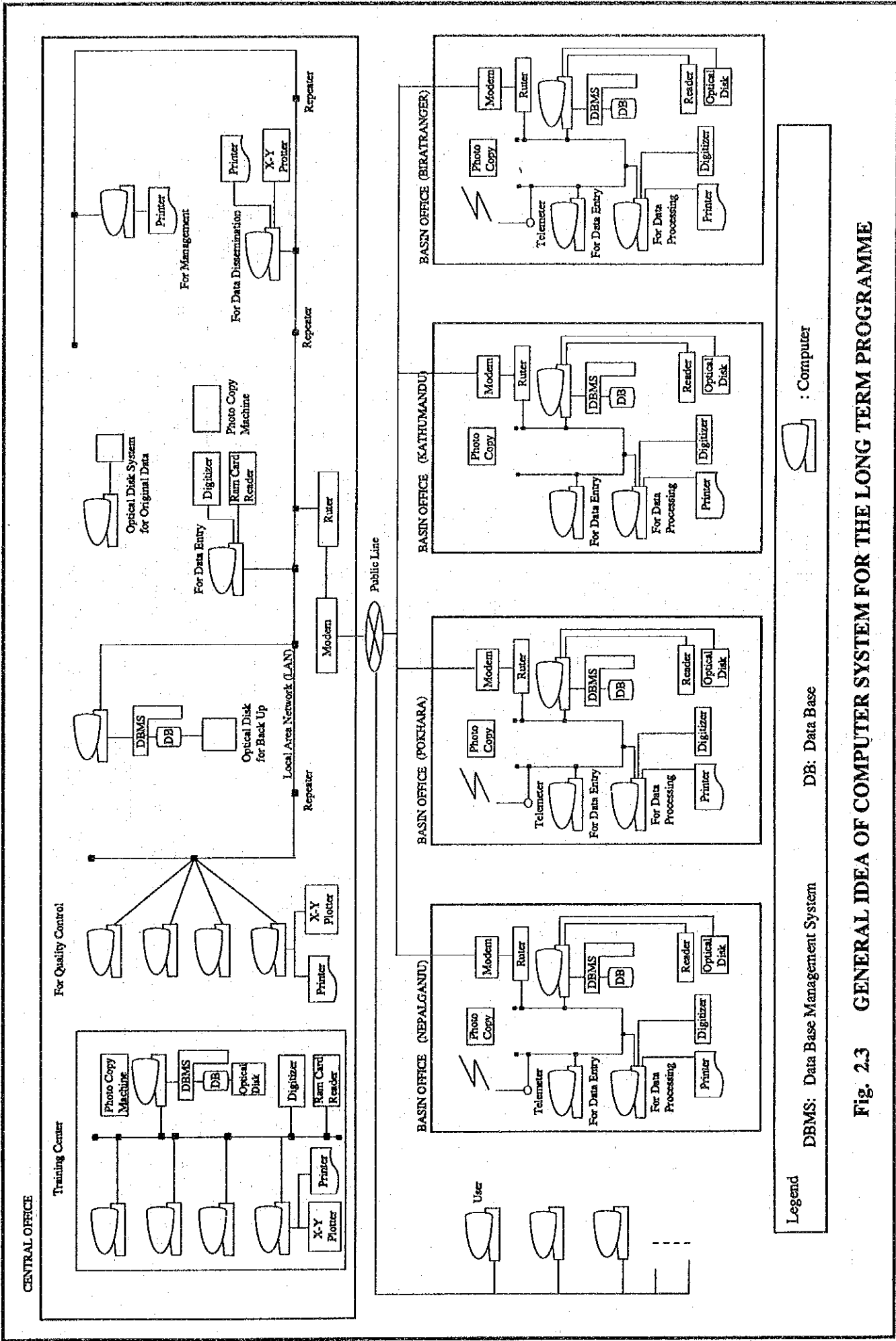


Fig. 2.3 GENERAL IDEA OF COMPUTER SYSTEM FOR THE LONG TERM PROGRAMME

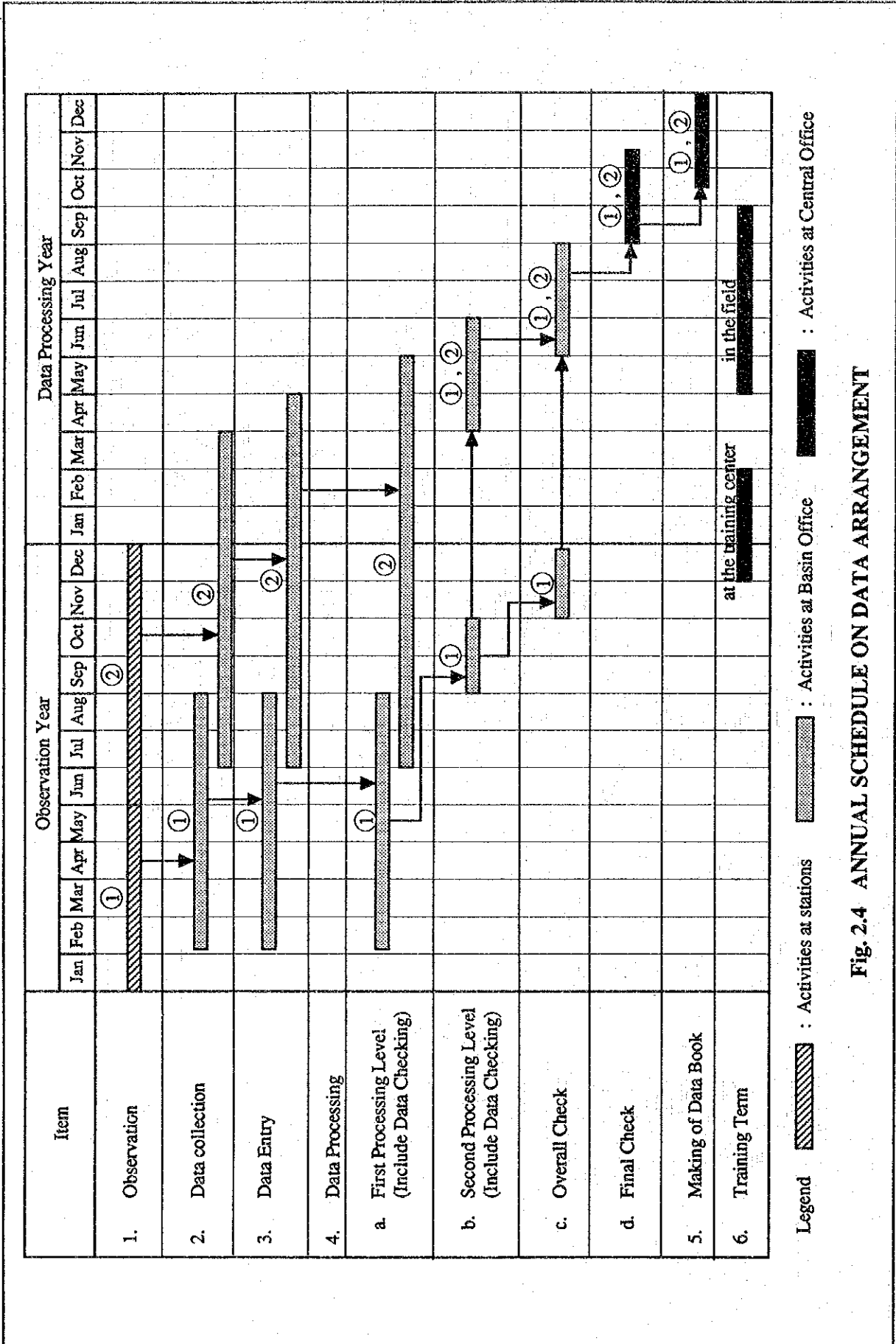


Fig. 2.4 ANNUAL SCHEDULE ON DATA ARRANGEMENT

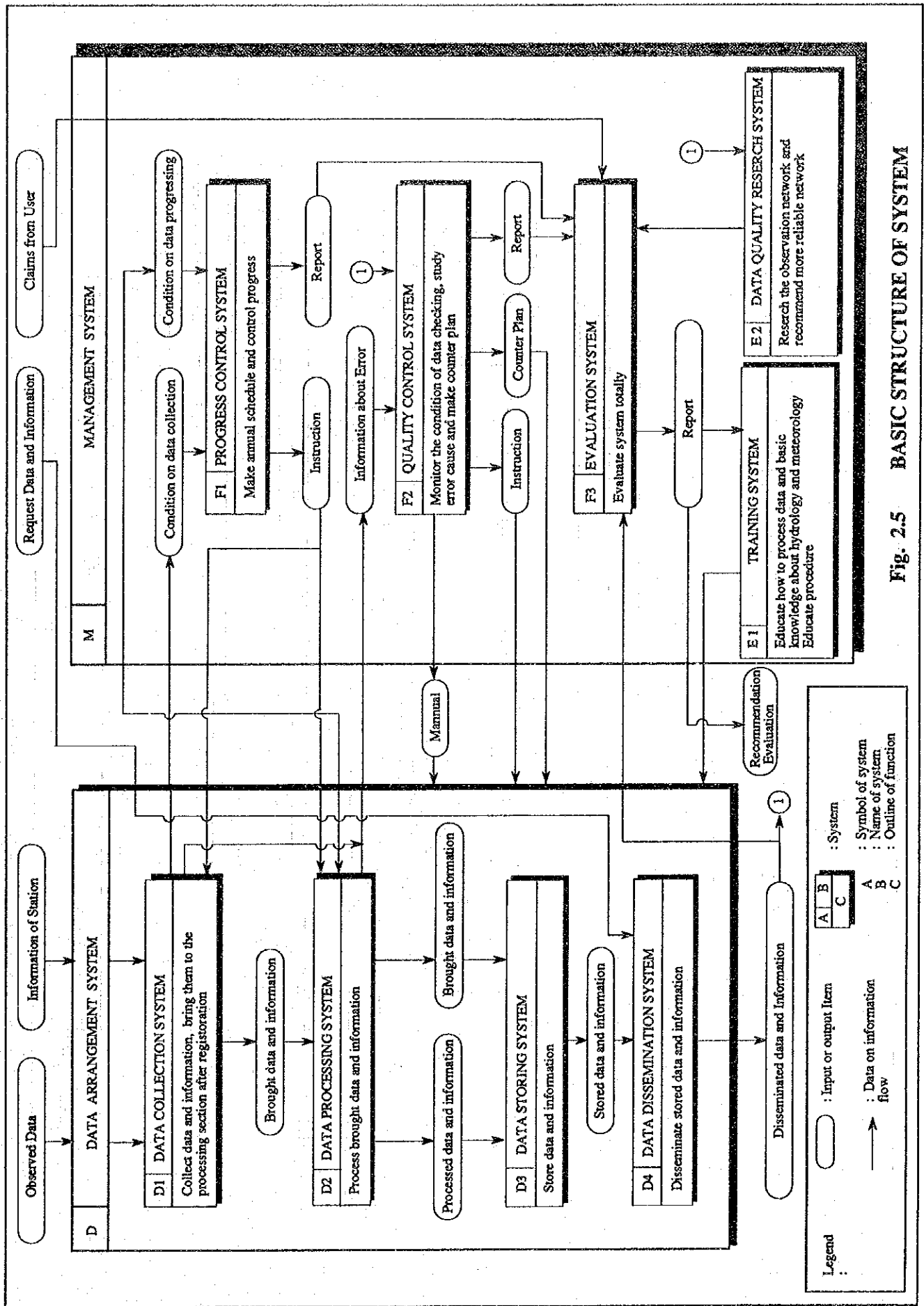


Fig. 2.5 BASIC STRUCTURE OF SYSTEM

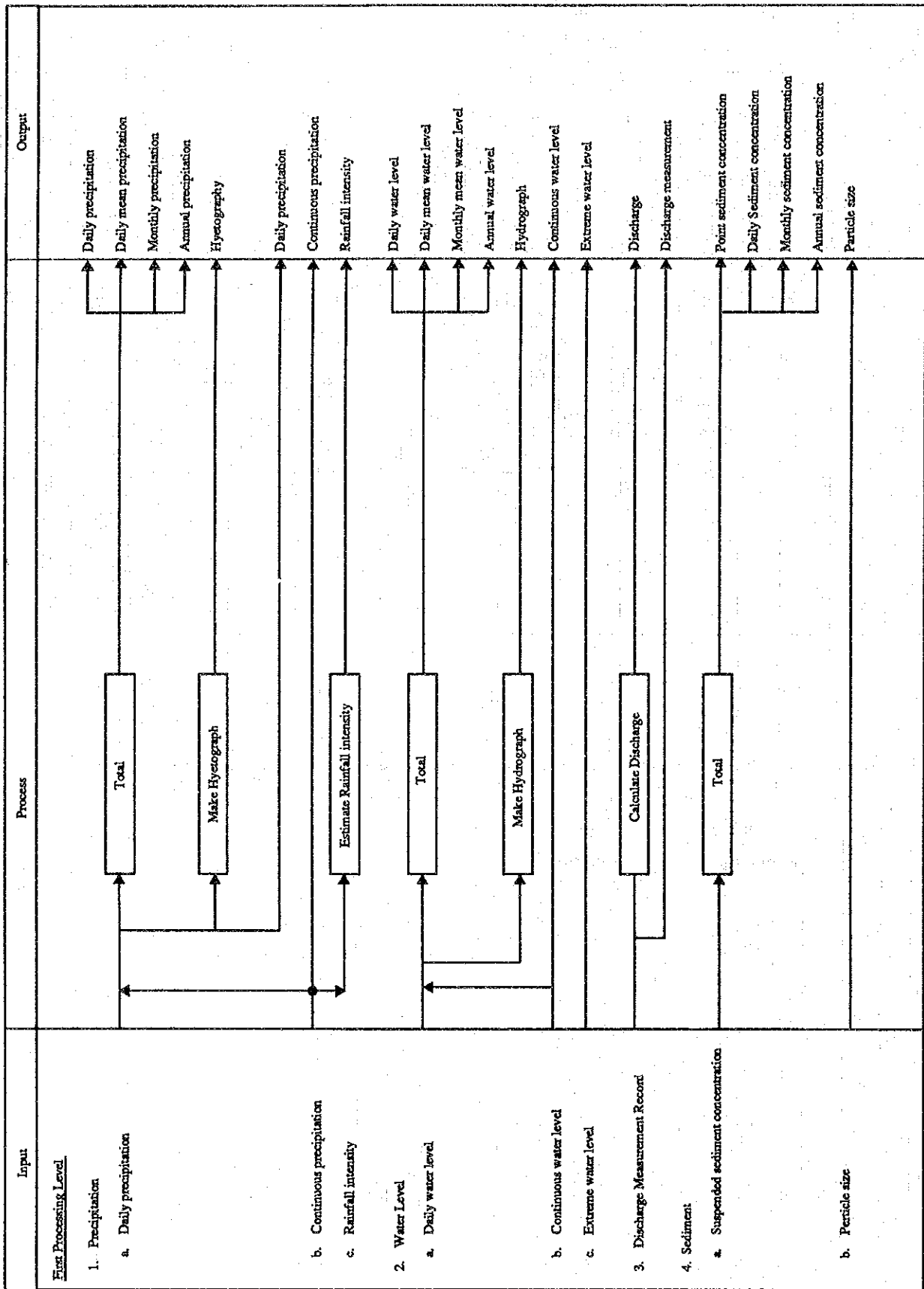


Fig. 2.6 OUTLINE OF DATA PROCESSING (1 / 4)

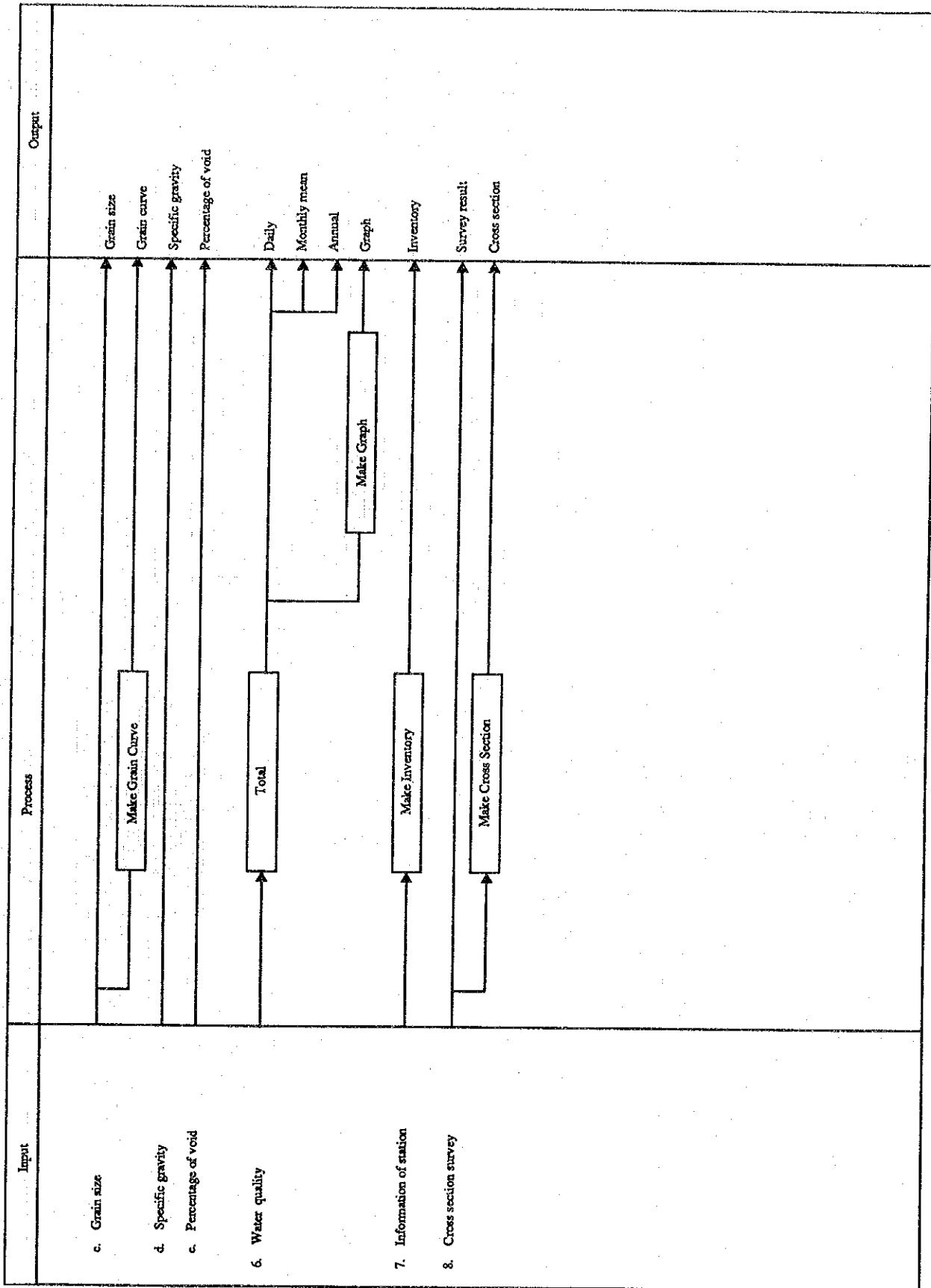


Fig. 2.6 OUTLINE OF DATA PROCESSING (2 / 4)

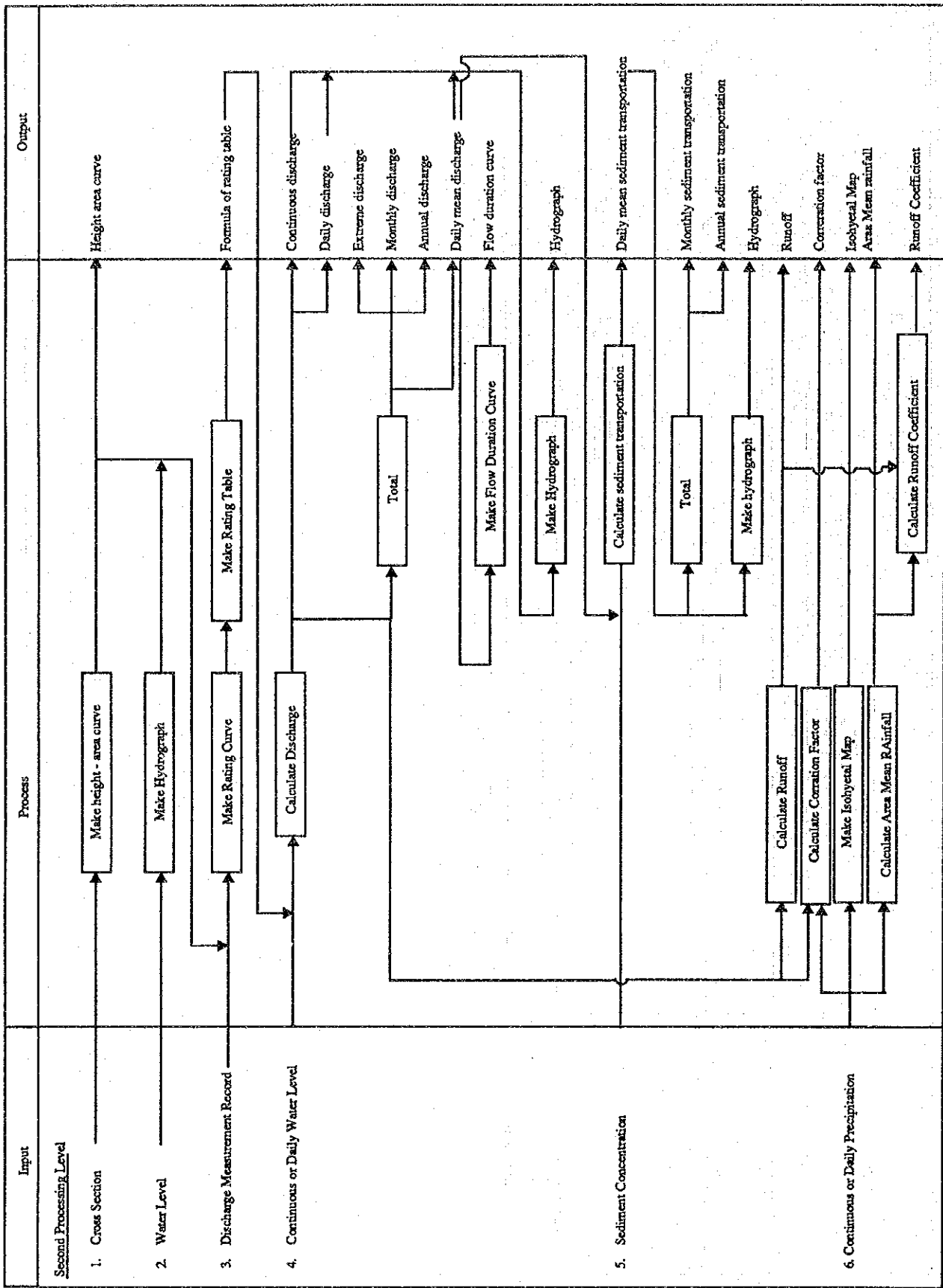


Fig. 2.6 OUTLINE OF DATA PROCESSING (3 / 4)

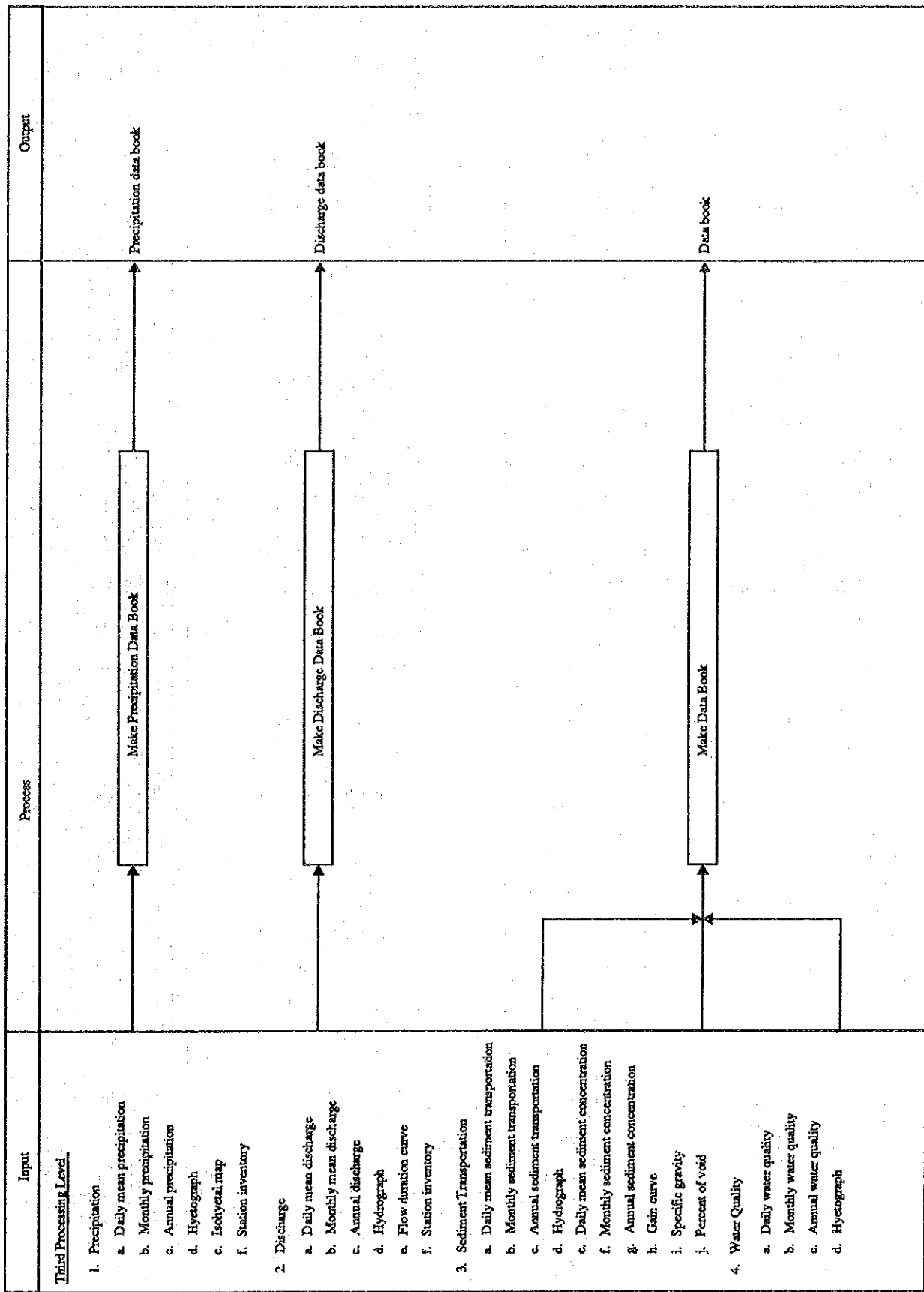


Fig. 2.6 OUTLINE OF DATA PROCESSING (4 / 4)

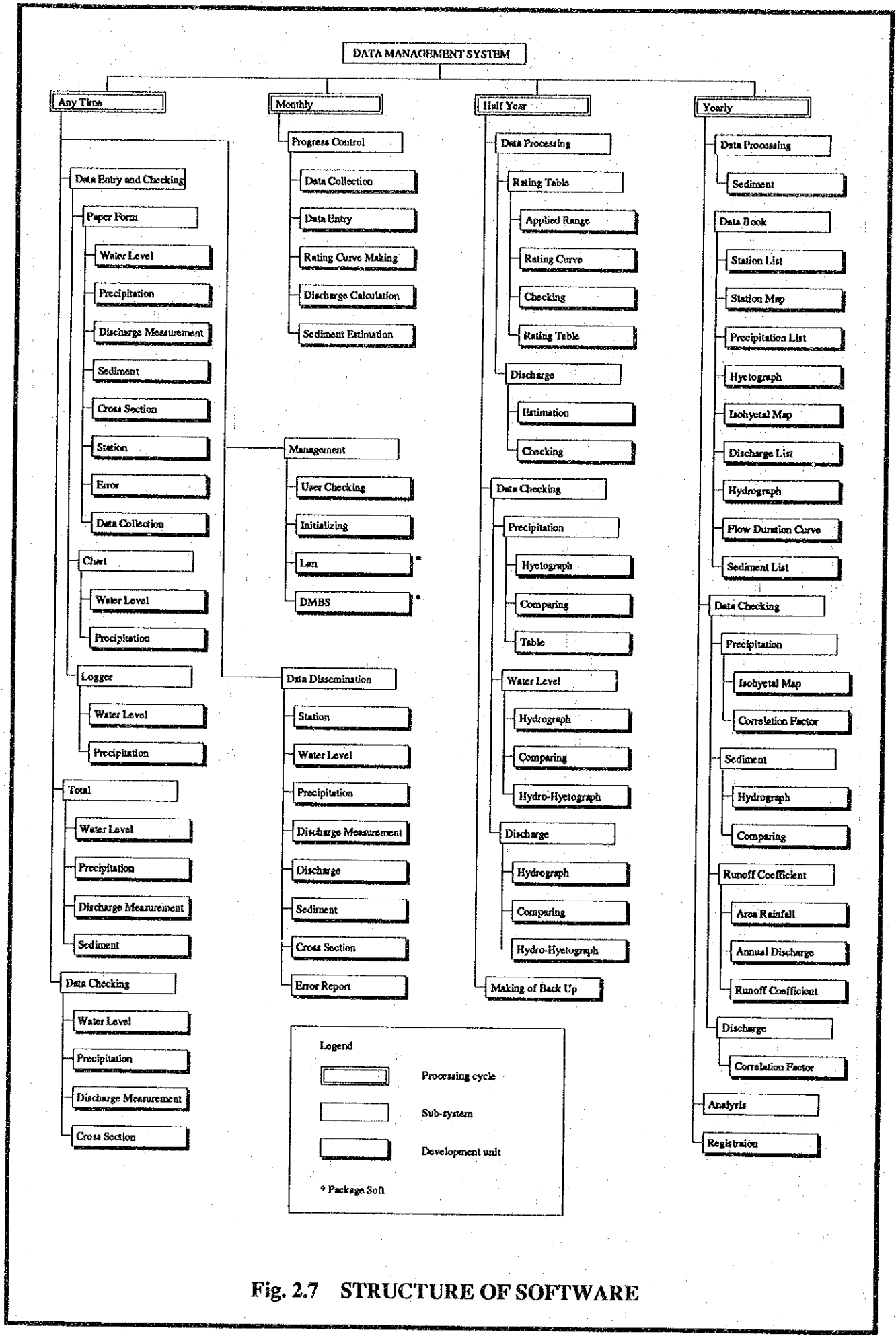
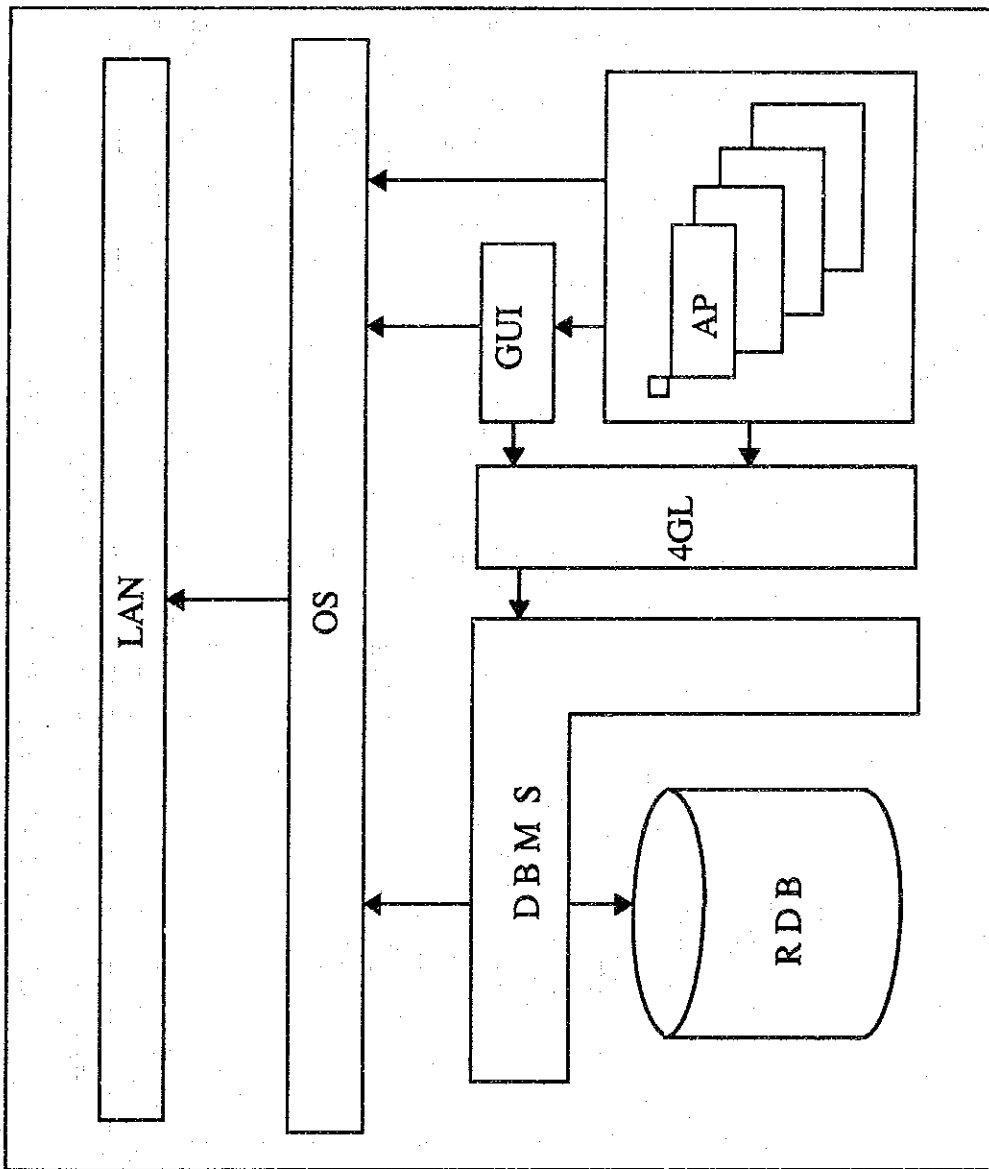


Fig. 2.7 STRUCTURE OF SOFTWARE



Legend	
RDB	: Relational Data Base
DBMS	: Data Base Management System
4GL	: 4th Generation Language
AP	: Application Software
GUI	: Graphic User Interface
OS	: Operating System
LAN	: Local Area Network

Fig. 2.8 GENERAL IDEA FOR DATA BASE

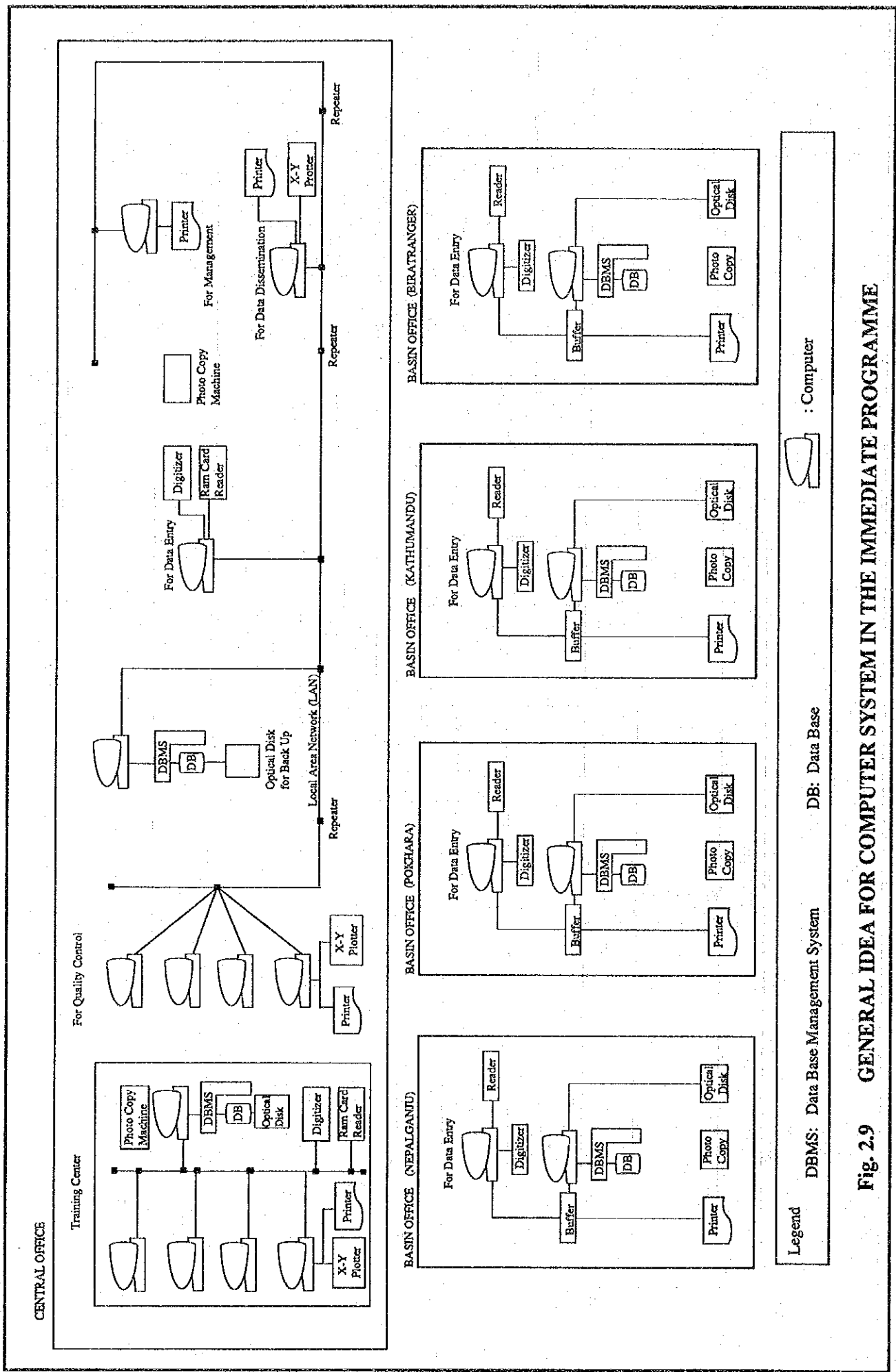
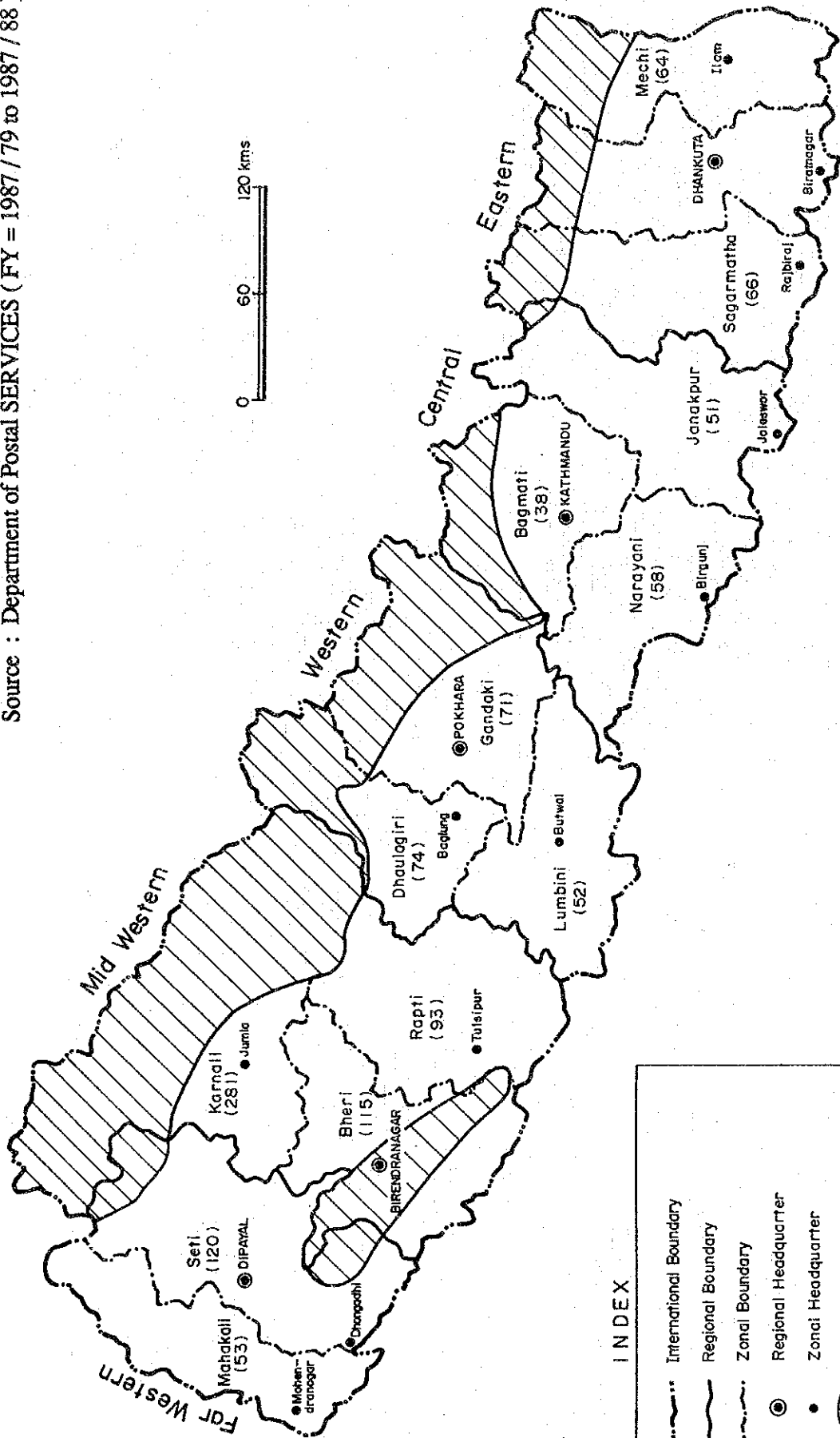


Fig. 2.9 GENERAL IDEA FOR COMPUTER SYSTEM IN THE IMMEDIATE PROGRAMME

Source : Department of Postal SERVICES (FY = 1987 / 79 to 1987 / 88)



INDEX

- International Boundary
- Regional Boundary
- Zonal Boundary
- Regional Headquarter
- Zonal Headquarter
- ▨ Low Post Office Density Area
- () Post Office Density (km² / number)

Fig. 3.2 DISTRIBUTION OF POST OFFICE IN NEPAL

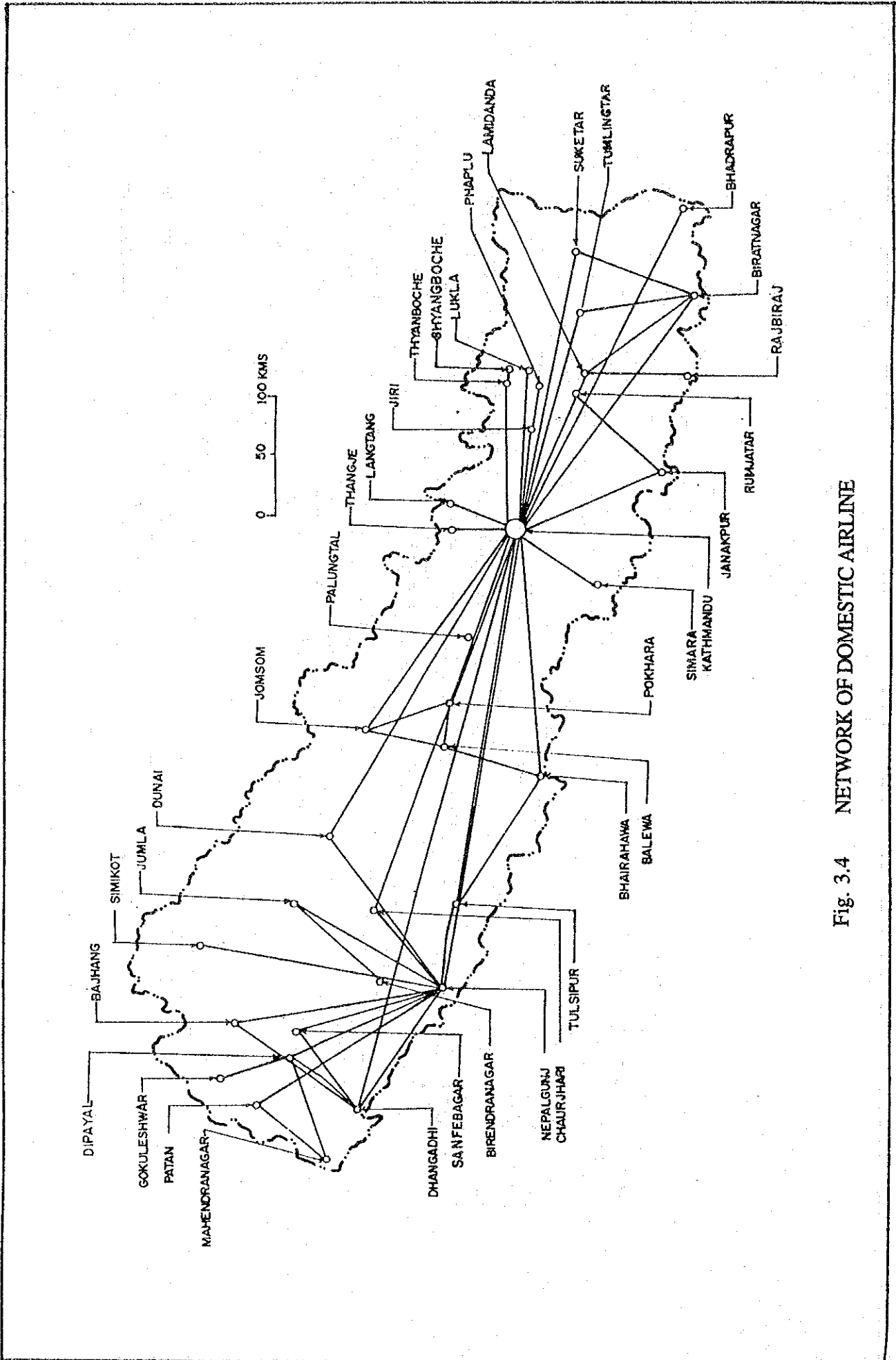


Fig. 3.4 NETWORK OF DOMESTIC AIRLINE

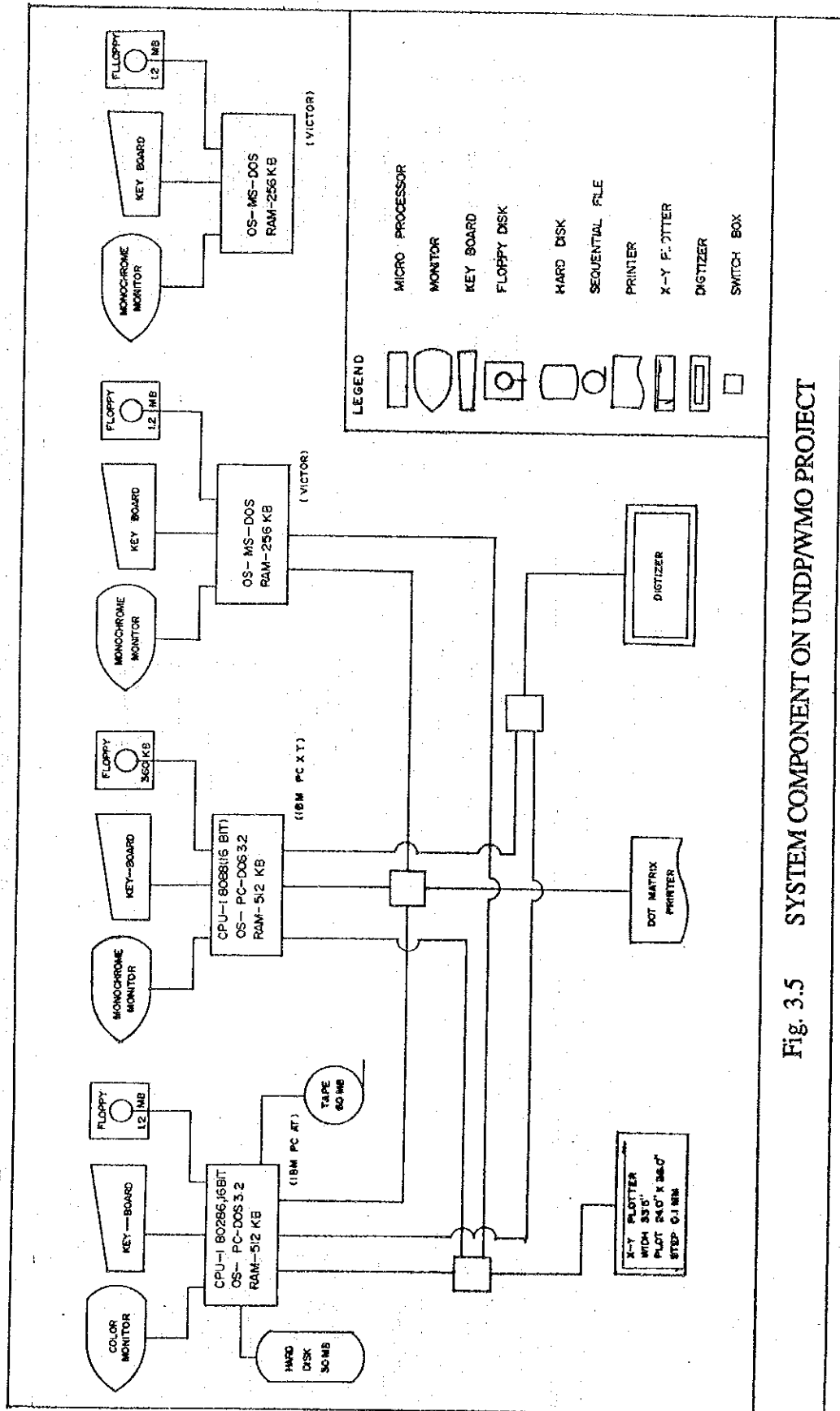


Fig. 3.5 SYSTEM COMPONENT ON UNDP/WMO PROJECT

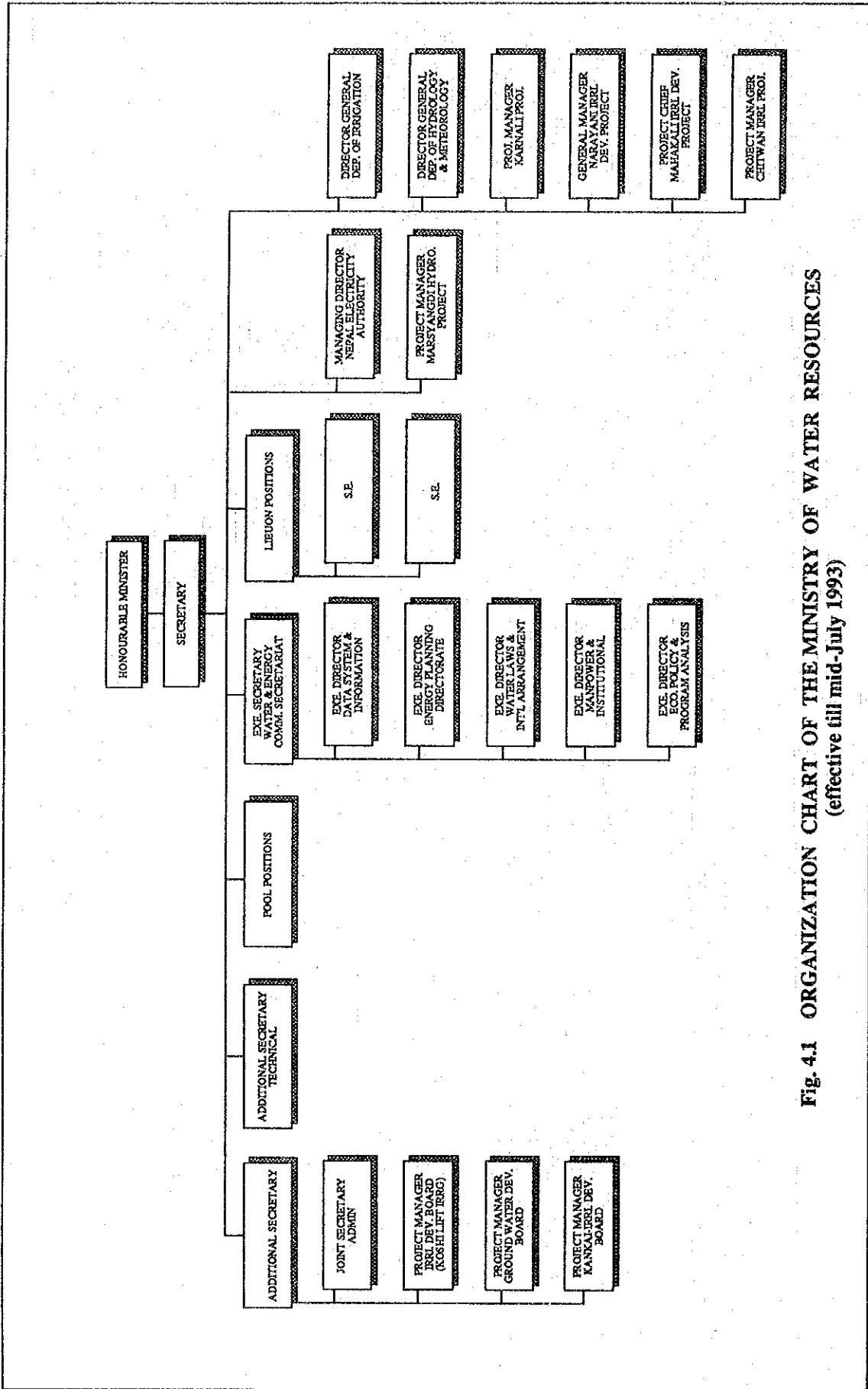


Fig. 4.1 ORGANIZATION CHART OF THE MINISTRY OF WATER RESOURCES
 (effective till mid-July 1993)

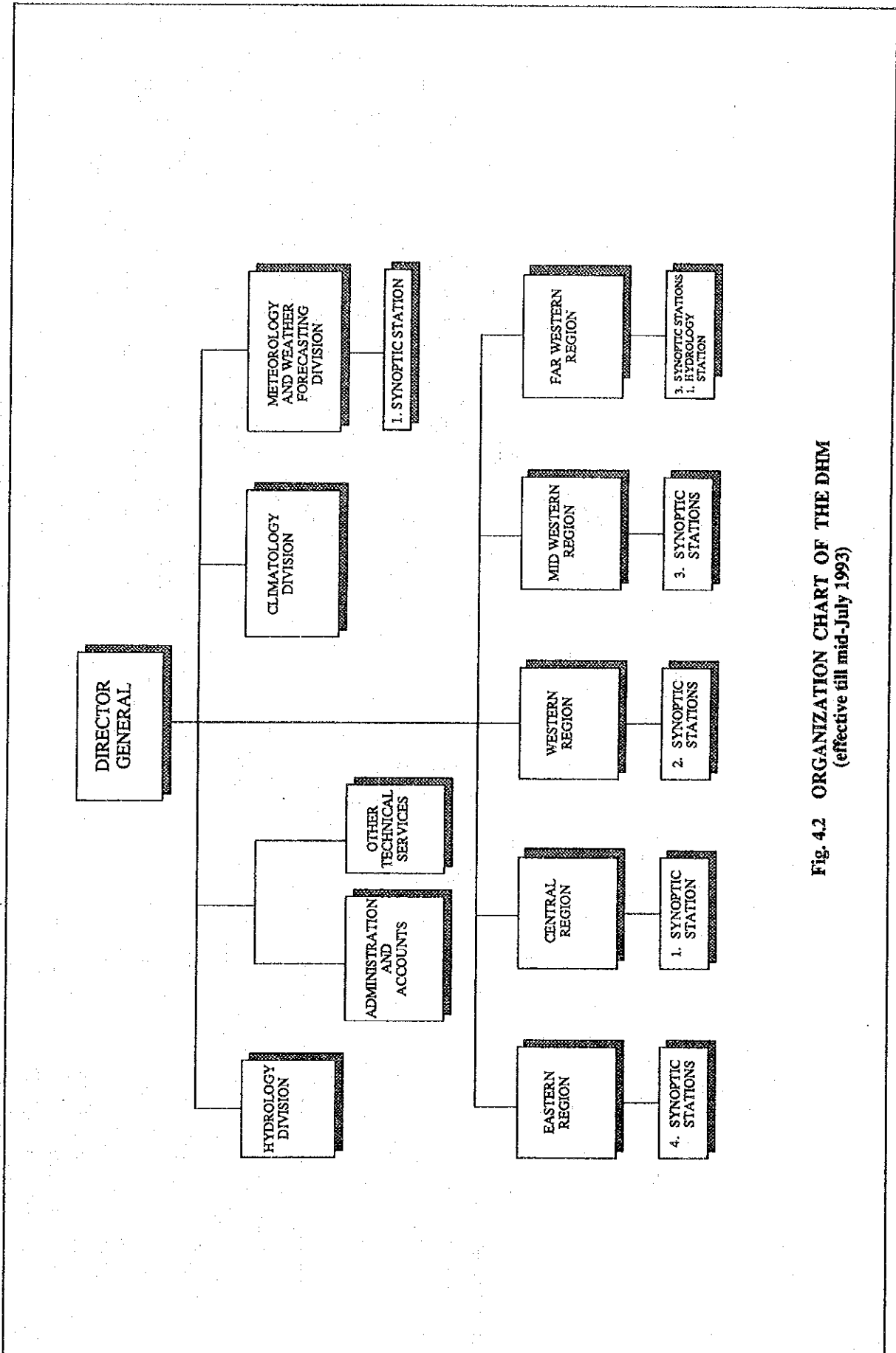


Fig. 4.2 ORGANIZATION CHART OF THE DHM
(effective till mid-July 1993)

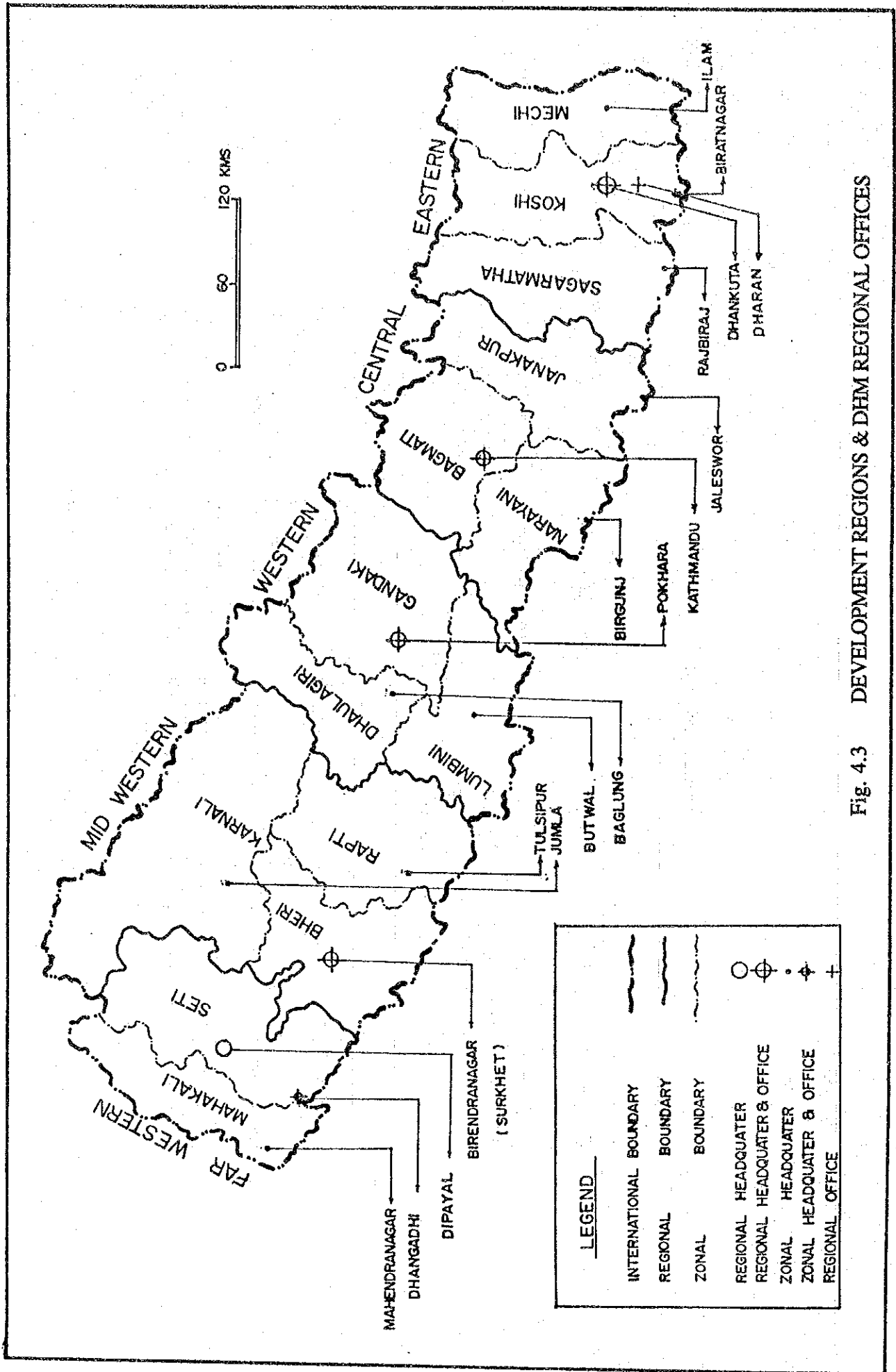


Fig. 4.3 DEVELOPMENT REGIONS & DHM REGIONAL OFFICES

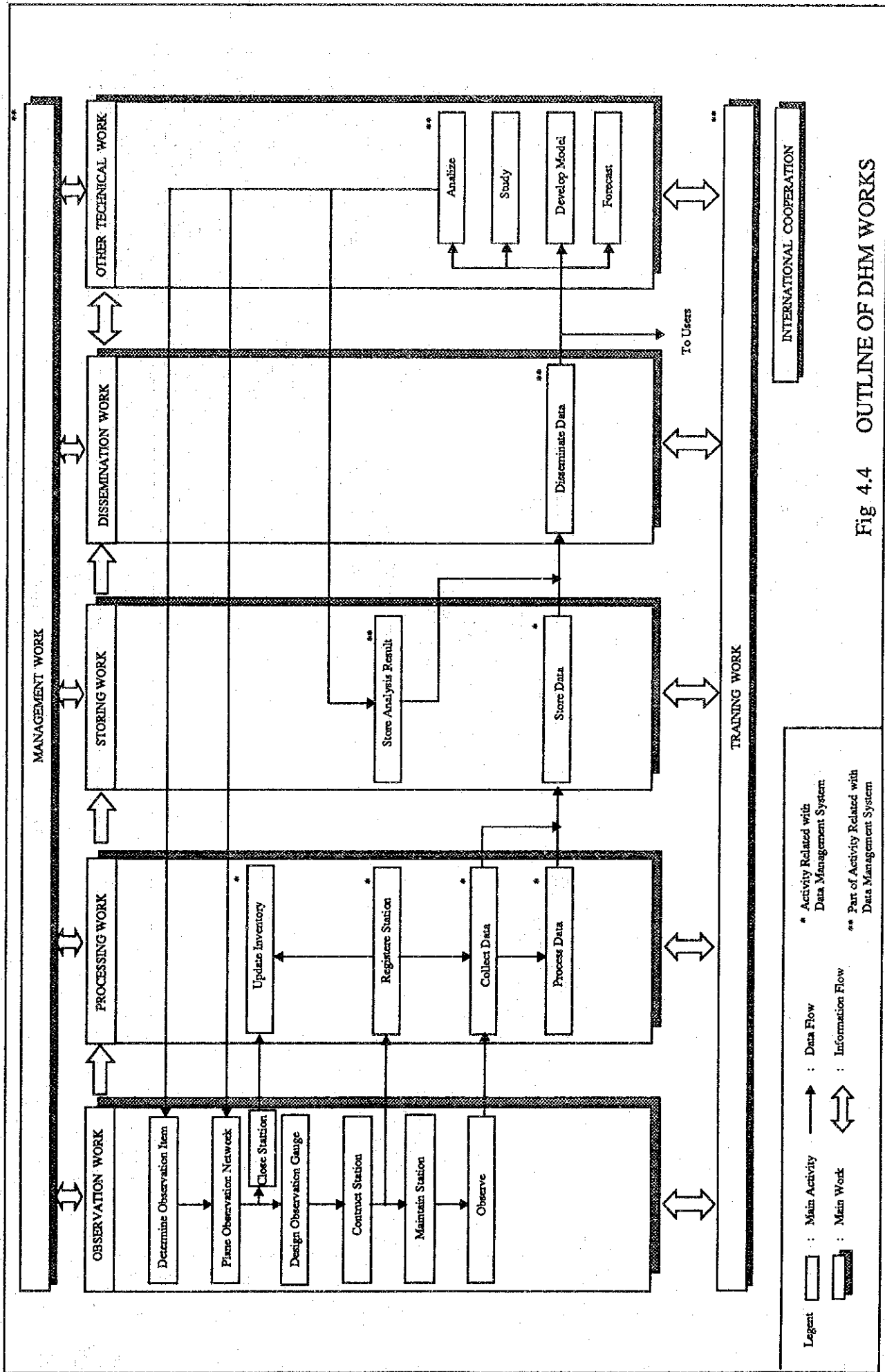


Fig 4.4 OUTLINE OF DHM WORKS

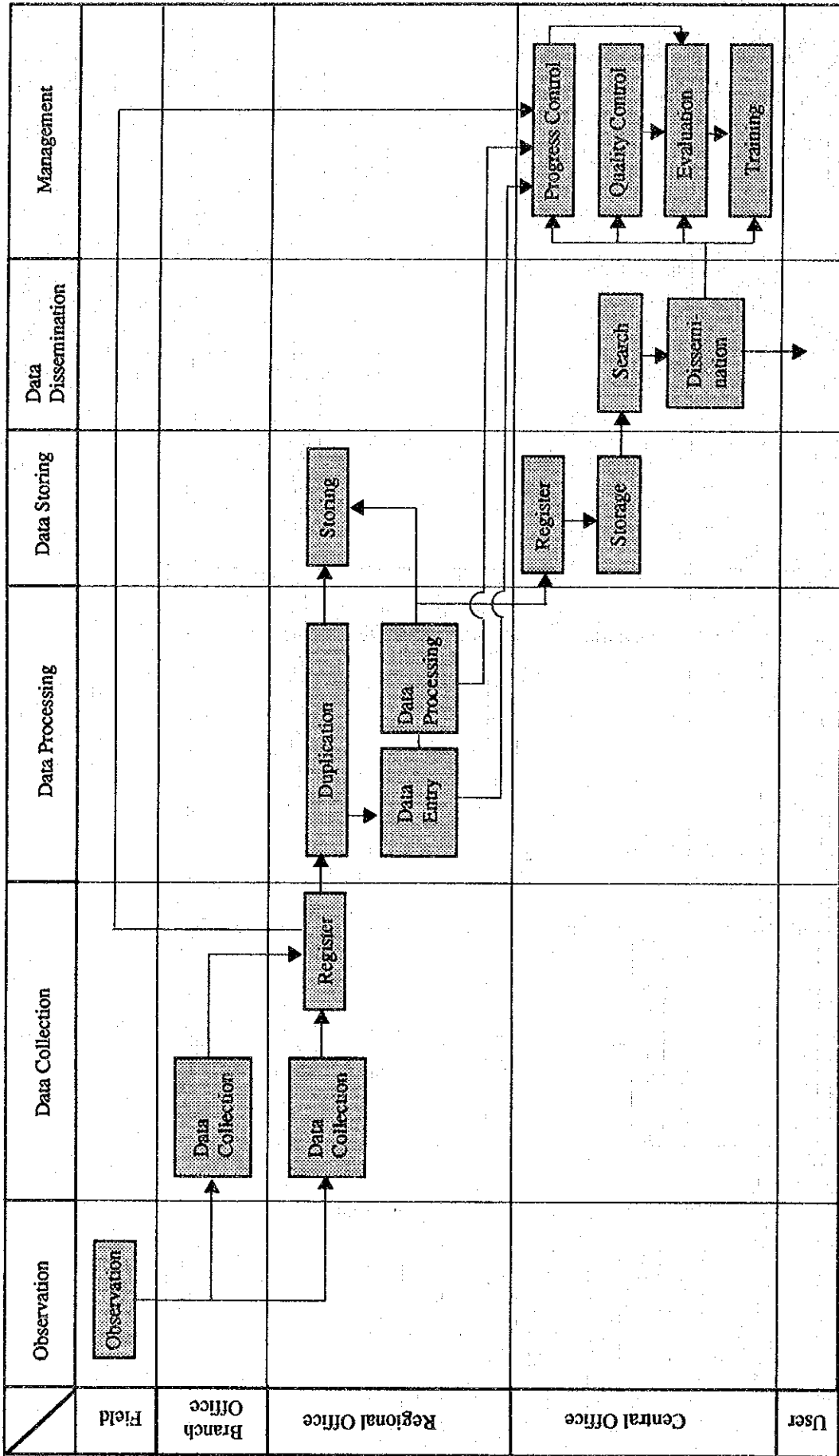
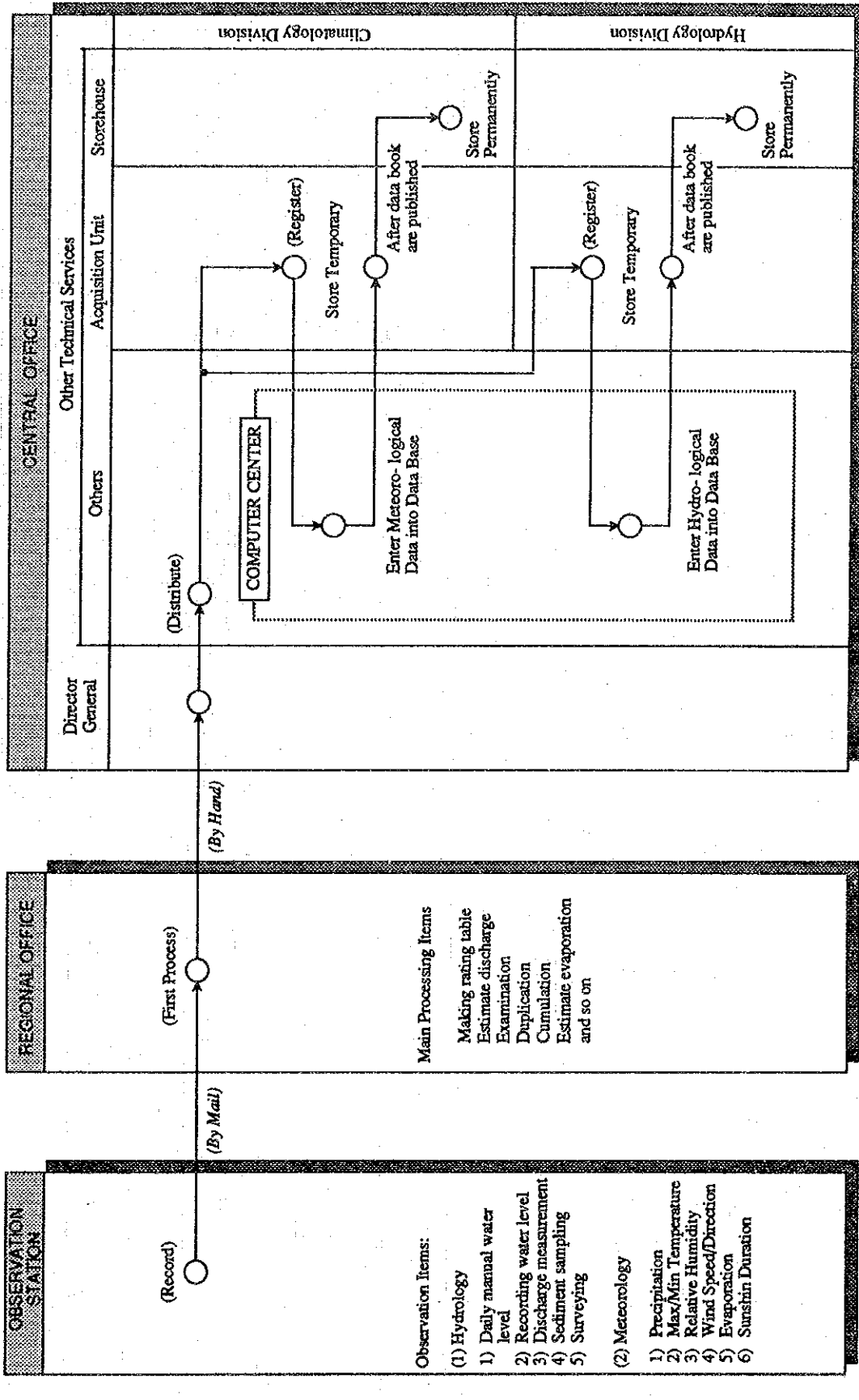


Fig 4.5 PRESENT WORK FLOW

DEPARTMENT OF HYDROLOGY & METEOROLOGY



Note : Only Western Regional Office has computer and enters data into it. Then the data is sent to Headquarters by floppy disk.
 Legend → Data Flow ○ Activity

Fig. 4.6 PRESENT DATA FLOW

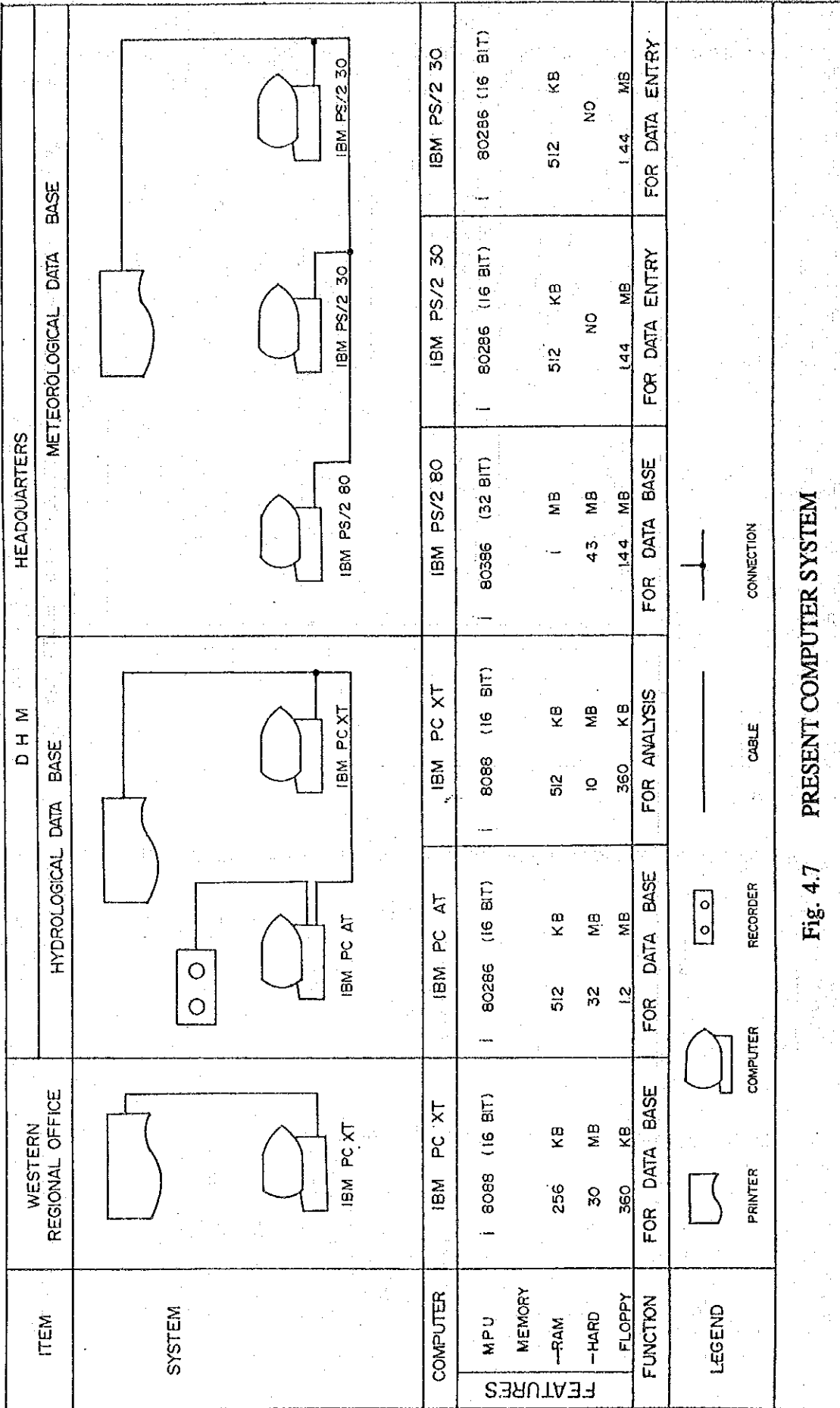


Fig. 4.7 PRESENT COMPUTER SYSTEM

