

## ANNEX C

### WATER USE/ HYDROLOGY

## ANNEX-C

### WATER USE/HYDROLOGY

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### C.1 Data Collection

Karoon Watershed Management Office (KWMO) lists up 105 meteorological gauging stations, 48 discharge gauging stations and 12 sediment/water quality gauging stations in/near Karoon river basin. The major parts of these gauging stations have been identified and rainfall, discharge and meteorological data have been collected in KWMO. Identified gauging stations and period of collected data are shown in Table C-1-1, C-1-2, C-1-3, C-1-4.

### C.2 Meteorology and Hydrology

Iranian calendar is adopted as water year to process discharge data and water year begins from 1<sup>st</sup> Mehr and ends at 29<sup>th</sup> Esfand. Here, in Iranian calendar, 1<sup>st</sup> Farvardin falls on the day of vernal equinox. On the other hand, meteorological data are processed according to European calendar. Relation between Iranian and European calendar is identified as follows.

Season	Autumn			Winter		
Iranian	Mehr 30 days	Aban 30 days	Azar 30 days	Dey 30 days	Bahman 30 days	Esfand 29(30)days
European	22September ~21 October	22 October~ 20 November	21 November ~20Dec.	21 Dec. ~ 19 January	20 January~ 18 February	19 February ~19 March
Season	Spring			Summer		
Iranian	Farvardin 31 days	Ordivehesht 31 days	Khordad 31 days	Tir 31 days	Mordad 31 days	Shahrivar 31 days
European	20 March~ 19 April	20 April~ 20 May	21 May~ 20 June	21 June~ 21 July	22 July~ 21 August	22 August~ 21September

As to hydrology, relation between annual rainfall and runoff was analyzed based on data at representative gauging stations in the report prepared by MOA. And this report informed that annual runoff in upper Karoon basin could be calculated by following formula. And correlate coefficient between Q and R was calculated at 0.955.

$$Q = 0.239 \times (R \times A \times 1,000)^{1.097}$$

Here, Q : Annual Runoff (MCM)

R : Annual Rainfall (mm)

A : Catchment Area (km<sup>2</sup>)

### C.3 Water Use

The Study area can be divided into 27 plains. Data of domestic water use and irrigation are available by plains. Location of each plain is shown in Figure C-1-2. As to data of groundwater, data in several plains are available.

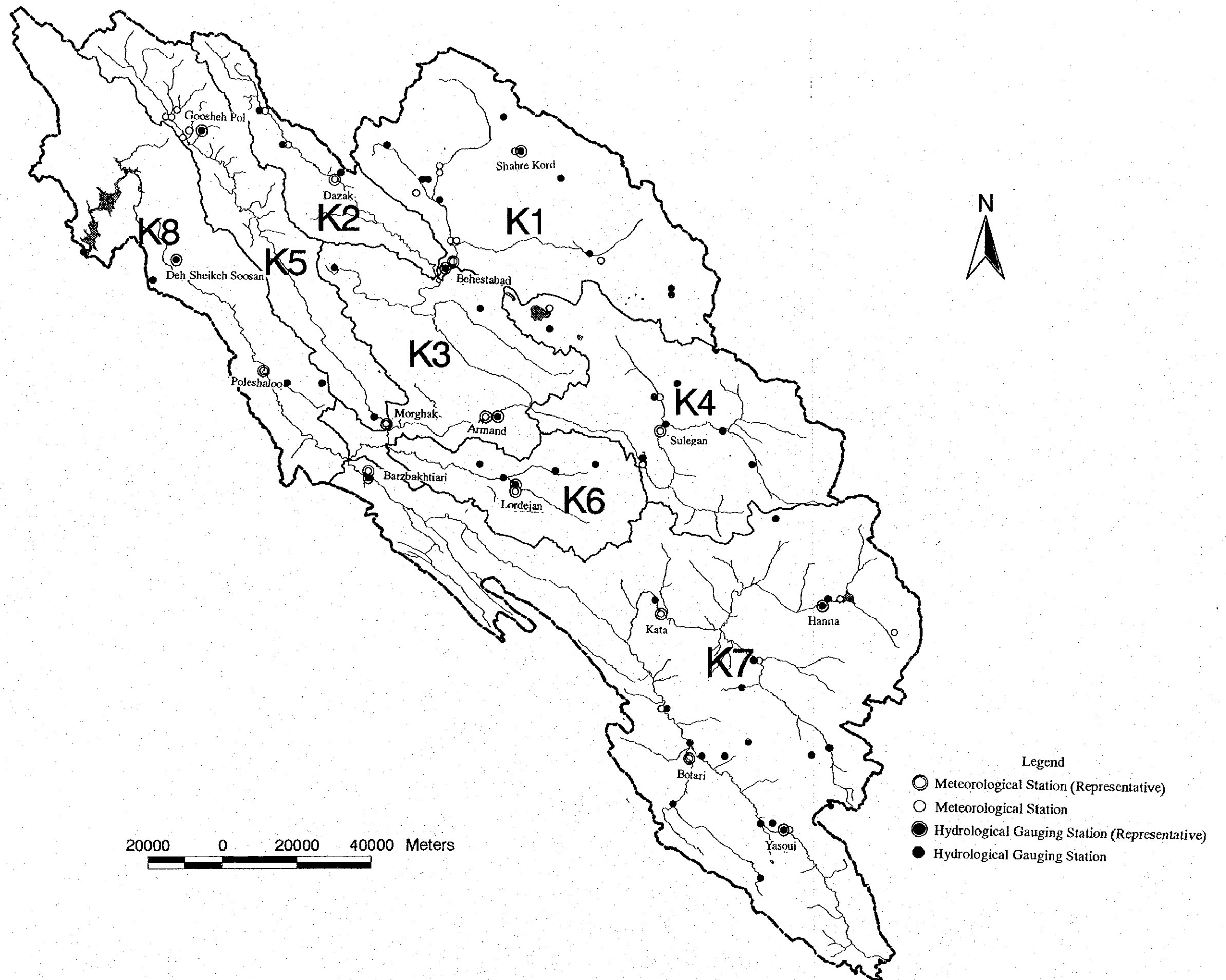


Figure C-1-1 Location Map of Meteorological and Hydrological Gauging Stations

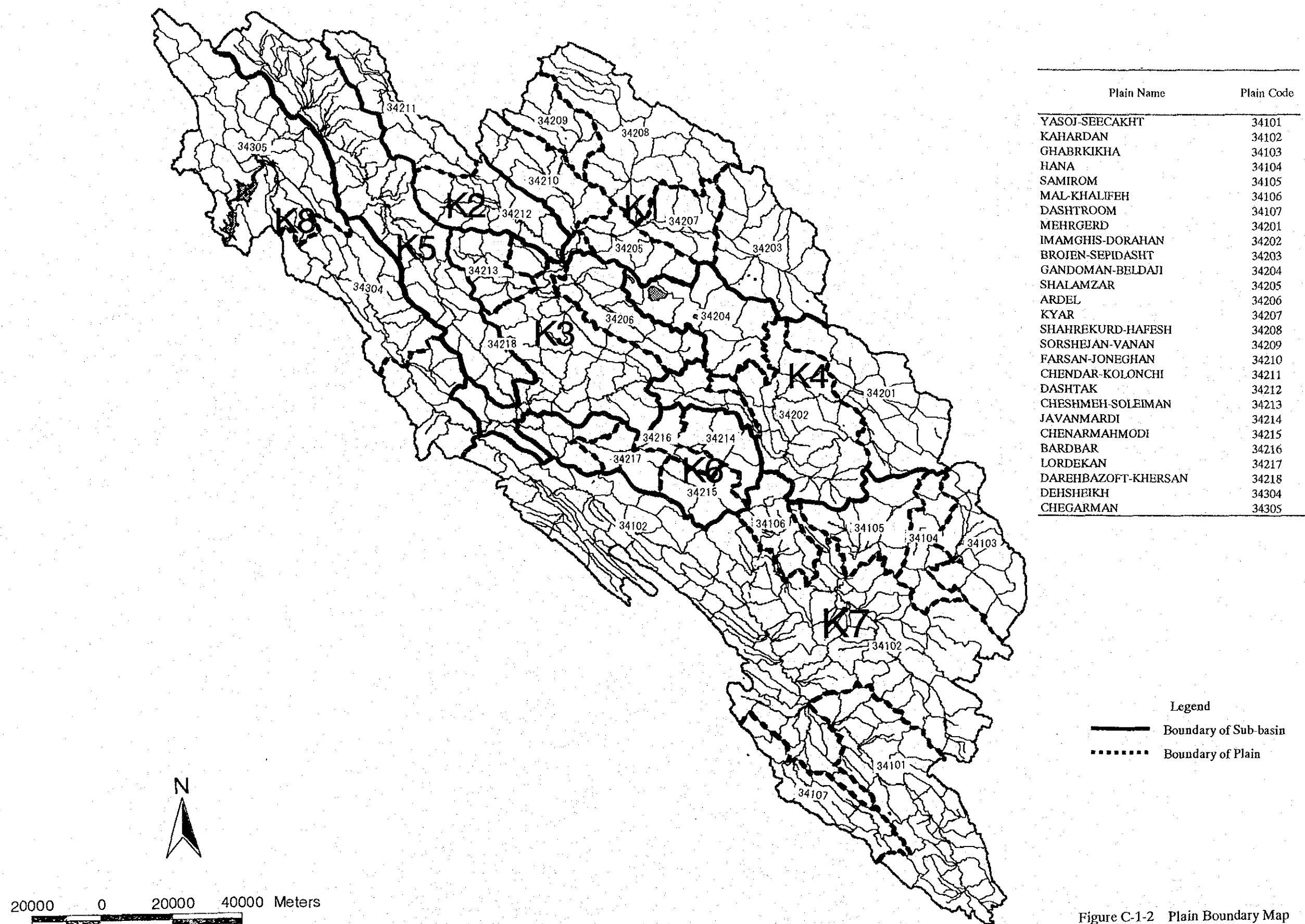
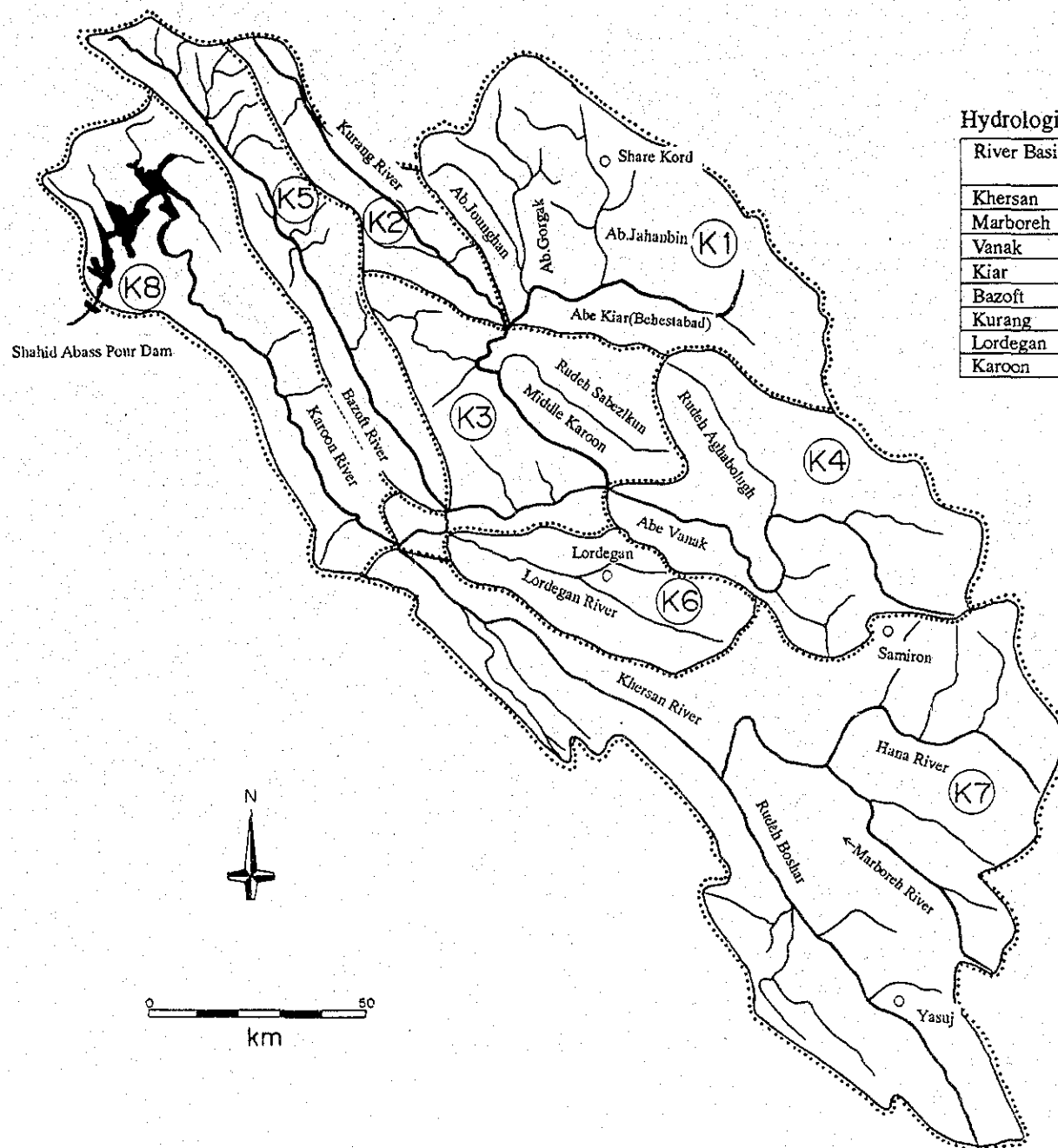


Figure C-1-2 Plain Boundary Map



Hydrological Characteristics in Major River Basin

River Basin	Catchment Area (km <sup>2</sup> )	Specific Runoff (m <sup>3</sup> /s/km <sup>2</sup> )	Annual Runoff (m <sup>3</sup> /s)
Khersan	9,070	0.0126	114
Marboreh	4,285	0.0095	41
Vanak	3,490	0.0051	18
Kiar	3,880	0.0058	23
Bazoft	2,180	0.0304	66
Kurang	1,224	0.0162	20
Lordegan	1,474	0.0063	9
Karoon	26,812	0.0132	354

Legend

- Boundary of Sub-basin
- River
- City/Town

Figure C-1-3 River Regime

Table C-1-1 List of Meteorological Stations

Station Name	Station Code	Coordinate		Province	T/ship	Station Type		Elev. (m)	Remarks
		Longitude	Latitude			Type	No.		
Karkhaneh-Ghand-Yasuj	341020	5134	3040	Kohgi.	Yasuj	Clima.	2	1,760	
YASUJ	341030	5141	3050	Kohgi.	Yasuj	Synop.	1	1,800	
KHAFR	341032	5129	3100	Esfahan	Semirom	S-R/G	3	2,200	
HANNA	341043	5144	3113	Esfahan	Semirom	Evap.	5	2,350	
YASUJ	341522	5136	3039	Kohgi.	Yasuj	Evap.	5	1,800	
Shah-mokhtar	341526	5132	3040	Kohgi.	Yasuj	Evap.	5	1,750	
DARSHAHI	341534	5122	3050	Kohgi.	Yasuj	S-R/G	3	1,570	
Deh-Bozorg-e-Sisakit	341536	5130	3052	Kohgi.	Yasuj	S-R/G	3	2,300	
BOTARI	341538	5120	3052	Kohgi.	Yasuj	S-R/G	3	1,560	
Dasht Room	341542	5132	3032	Kohgi.	Yasuj	Evap.	5	2,100	
PATAVEH	341544	5116	3057	Kohgi.	Yasuj	S-R/G	3	1,530	
Dehkadeh-Shahid	341545	5144	3051	Kohgi.	Yasuj	R/G	4	2,200	
HANNA	341547	5143	3112	Esfahan	Semirom	Clima.	2	2,300	
KATA	341548	5114	3113	Esfahan	Semirom	Clima.	2	1,550	
BARZ	341549	5025	3131	Chahal	Lordegan	R/G	4	880	
Alooni	341597	5104	3133	Chahal	Lordegan	R/G	4		
Sadeh	341606	5210	3043	Fars		Evap.	5	2,160	
Khak Daneh	341663	5131	3104	Esfahan	Semirom	R/G	4	1,870	
Tang Zardaloo	341675	5126	3138	Esfahan	Semirom	R/G	4	2,210	
Pole Karik	341747	5126	3050	Kohgi.	Yasuj	R/G	4		
Deh Kohneh	341763	5151	3031	Kohgi.	Yasuj	R/G	4		
Pirashgof	341773	5117	3043	Kohgi.	Yasuj	R/G	4		
Sad-Kouhrang	342037	5007	3227	Chahal	Farsan	R/G	4	2,600	
LORDJAN	342055	5048	3131	Chahal	Lordegan	Evap.	5	1,700	
Mehrgerd	342059	5131	3133	Esfahan	Semirom	Clima.	2	2,350	
Gordbisheh	342061	5112	3134	Chahal	Bourgen	S-R/G	3	1,850	
ADL	342064	5103	3204	Esfahan	Semirom	Clima.	2	2,280	
Emam-gheis	342067	5118	3145	Chahal	Bourgen	Clima.	2	2,300	
Edalat-organ	342072	5056	3153	Chahal	Bourgen	Clima.	2	2,500	
NAGHAN	342073	5044	3156	Chahal	Ardal	R/G	4	2,150	
BOROJEN	342075	5117	3159	Chahal	Bourgen	Synop.	1	2,220	
Shahre-kord	342083	5051	3219	Chahal	Shahrekord	R/G	4	2,051	
DOOZAK	342094	5058	3215	Chahal	Farsan	Clima.	2	2,050	
Chalshotor	342110	5048	3224	Chahal	Farsan	Clima.	2	2,078	
Koohrang	342112	5007	3227	Chahal	Farsan	Synop.	1	2,650	
FARSAN	342234	5035	3215	Chahal	Farsan	R/G	4	2,001	
Semirom-olia	342240	5135	3125	Esfahan	Semirom	Clima.	2	2,500	
Rahim-abad	342450	5019	3202	Chahal	Farsan	R/G	4	2,450	
Dezak	342525	5020	3216	Chahal	Farsan	R/G	4	2,176	
Mehrgerd	342551	5131	3133	Esfahan	Semirom	Evap.	5	2,500	
AHVAZ	342552	4841	3120	Khuzes.	Ahvaz	R/G	4		
SOLGAN	342553	5116	3139	Esfahan	Semirom	Evap.	5	2,200	
BOROJEN	342555	5117	3158	Chahal	Bourgen	Evap.	5	2,140	
Godare-Kabk	342557	5114	3143	Chahal	Bourgen	R/G	4	2,100	
Shahre-kord	342559	5051	3219	Chahal	Shahrekord	Synop.	1	2,060	
Pol-e-shalu	342578	5008	3145	Chahal	Ardal	R/G	4	700	
Baba-heidar	342601	5028	3220	Chahal	Farsan	R/G	4	2,200	
Tounel-e-Voroudi	342603	5006	3225	Chahal	Farsan	R/G	4	2,380	
MARBOREH	342605	5010	3220	Chahal	Farsan	R/G	4	2,350	
ARMAND	342607	5047	3140	Chahal	Lordegan	R/G	4	1,110	
MORGHAK	342609	5026	3140	Chahal	Ardal	R/G,Evap.	4,5	950	
LORDJAN	342611	5050	3130	Chahal	Lordegan	Clima.	2	1,650	
Monje-Lordjan	342613	5044	3133	Chahal	Lordegan	Evap.	5	1,450	
Goosheh Pol	342662	4956	3222	Chahal	Farsan	R/G	4		
Rakaat Naalkonan	342701	5011	3145	Khuzes.	Izeh	S-R/G	3	840	
Deh dozd	342702	5017	3145	Khuzes.	Izeh	R/G	4		
Zarrin Derakht	342756	5057	3132	Chahal	Lordegan	R/G	4	1,750	
Behesht-abad	342820	5038	3202	Chahal	Shahrekord	R/G,Evap.	4,5	1,670	
Farsan	342826	5034	3215	Chahal	Farsan	R/G	4		
Sad Karoon	343014	4926	3228	Khuzes.	Masjed S.	R/G	4	545	MOE/MOM
Izeh	343069	4952	3150	Khuzes.	Izeh	Synop.	1	764	
Ghal-eh-Tal	343224	4953	3138	Khuzes.	Izeh	R/G	4	800	MOE/MOM
Deh bahrami	343547	4946	3137	Khuzes.	Izeh	R/G	5	850	
Barand-Gerd	343576	4950	3143	Khuzes.	Izeh	Evap.	5	850	
LALY	343577	4906	3220	Khuzes.	Out	R/G	4	390	
Deh-Sheikh-Soosan	343579	4952	3203	Khuzes.	Masjed S.	Evap.	5	700	
Sad-e-Karun	343592	4936	3204	Khuzes.	Masjed S.	Evap.	5	370	Shahid Abbaspoor Dam
Malagha	343598	4958	3138	Khuzes.	Izeh	R/G	4		
Zard Fahreh	343668	4948	3200	-	Out	-			
Pole Lali	343677	4903	3217	Khuzes.	Out	R/G	4	150	

Station Type No. : 1 = Synop (synoptic), 2 = Clima (climatology), 3 = S-R/G (storage rain gauge), 4 = R/G (rain gauge), 5 = Evap. (evaporation)



Table C-1-2 List of Discharge Gauging Stations

Station Name	Station Code	River Name	Prov.	T/ship	Longitude	Latitude	Elevation (m)	Catchment Area (km <sup>2</sup> )
DEHKADESHAHI	34110	Marboreh	Esfahan	Semirom	5144	3051	2220	200
POLTCHOGHONDAR	34112	Hana	Esfahan	Semirom	5146	3113	2310	695
YASOOJ	34114	Boshr	Kohgi.	Yasui	5137	3039	1850	803
SHAHMOKHTAR	34115	Boshr	Kohgi.	Yasui	5132	3040	1730	1187
DARSHAHI	34117	Boshr	Kohgi.	Yasui	5132	3050	1570	1609
BOTARI	34118	Kabkian	Kohgi.	Yasui	5120	3052	1560	885
BOTARI	34119	Boshr	Kohgi.	Yasui	5120	3052	1555	2520
BARZBAKHTIARI	34121	Khersan	Khuzes.	Izeh	5025	3132	815	8900
POL_MEHRABAN	34124	Mehrabanchay	Kohgi.	Yasui	5134	3042	1800	
LORDEJAN	34210	Lordegan	Chahal	Lordegan	5050	3129	1580	351
TANGZARDALOU	34211	Kasgan	Esfahan	Semirom	5126	3138	2210	1045
GODARKABK	34212	Aghbolagh	Chahal	Bourgen	5115	3143	2160	588
SHAHREKORD	34214	Kharrood	Chahal	Shahrekord	5050	3219	2150	495
BABAHYEIDAR	34215	Sarab	Chahal	Farsan	5028	3220	2150	91
KOUHRANG DAM	34217	Ab Kohrang	Chahal	Farsan	5007	3225	2400	291
MARBORAN	34218	Marboreh	Chahal	Farsan	5011	3220	2310	34
ARMAND	34219	Karoon	Chahal	Lordegan	5045	3140	1050	9900
GHOSHEHPOL	34220	Abe Turkey	Chahal	Farsan	4953	3221	1700	83
POLESHALOO	34222	Karoon	Khuzes.	Izeh	5008	3145	700	24210
POLEMARI	34224	Chaghakhor	Chahal	Shahrekord	5056	3156	2275	128
KOHESOKHTEH	34226	Kiar	Chahal	Shahrekord	5040	3206	1920	2950
DAZAK	34227	Birgan	Chahal	Farsan	5019	3215	2150	563
ZARINDERAKHT	34228	Khanmirza	Chahal	Lordegan	5057	3132	1750	397
OUTSADEKARO	34310	Karoon	Khuzes.	Masjed S.	4936	3204	368	25850
POLEKAREHBAS	34230	Ab Vanak	Chahal	Bourgen	5112	3133		
BOYENEH	34234	Sharmak	Chahal	Farsan	4951	3224		
TANGDEHNO	34236	Kiar	Chahal	Shahrekord	5105	3203		
GERDBISHEH	34237	Gerdhisheh	Chahal	Bourgen	5112	3134	1810	124
GHIRKIKHA	34122	CheshmehKikha	Esfahan	Semirom	5155	3108		
BOYENEH	34238	Bazoft	Chahal	Farsan	4950	3224		
TASHNAVI	34232	Tashnavi	Chahal	Farsan	4954	3222		
DEHCHESHMEH	34231	Cheshmehpirghar	Chahal	Farsan	5033	3213		
KERIK	34116	Kerik	Kohgi.	Yasui	5126	3050	1670	128
PATAVEH	34120	Garmrood	Kohgi.	Yasui	5115	3057	1480	2800
SOLEGAN	34213	Solegan	Chahal	Bourgen	5115	3138	2070	1992
BEHESHTABAD	34216	Behesht abad	Chahal	Ardal	5038	3202	1670	3825
MORGHAK	34221	Bazoft	Chahal	Lordegan	5028	3139	860	2355
TANGEHDARKESH	34225	Chonghan	Chahal	Farsan	5039	3206	1920	910
POLJONEGHAN	34240	Gargak	Chahal	Farsan	5037	3217		
SLAHKALK	34242	Garmab	Chahal	Farsan	5037	3216		
BOYENEH	34233	Shangi	Chahal	Farsan	4952	3225		
KHAKDANEH	34111	Marboreh	Esfahan	Semirom	5132	3104	1870	801
KATA	34113	Marboreh	Kohgi.	Yasui	5115	3111	1600	4015

C-7

[illegible]

Table C-1-4 Data Collecting Period of Discharge

[illegible]

\*Operation of 34222 Station was started in 1933.

Table C-2-1 Summary of Meteorological Conditions

Station Name	Station Code	Coordinate		Annual Rainfall (mm)	Mean Max. Daily Rainfall (mm)	Mean Max. Temperature (°C)	Mean Min. Temperature (°C)	Mean Annual Evaporation (mm)
		Longitude	Latitude					
Karkhaneh-Ghand-Yasuj	341020	5134	3040	831		21.1	3.3	
YASOYI	341030	5141	3050	906		21.7	8.0	
KHAFR	341032	5129	3100	247		28.4	9.5	
HANNA	341043	5144	3113	326		18.7	1.8	
YASOUJ	341522	5136	3039	885	73.3			1435
Shah-mokhtar	341526	5132	3040	722	68.6			
DARSHAHI	341534	5122	3050	558	55.4			
Deh-Bozorg-e-Sisaki	341536	5130	3052	832	67.7			
BOTARI	341538	5120	3052	481	49.7			
Dasht Room	341542	5132	3032	971	92.1			1317
PATAVEH	341544	5116	3057	515	47.8			1465.2
Dehkadeh-Shahid	341545	5144	3051	522	77.0			
HANNA	341547	5143	3112	344	43.6			1762.0
KATA	341548	5114	3113	540	52.5			
BARZ	341549	5025	3131	644	70.1			
Aloomi	341597	5104	3133	543	56.6			
Sadeh	341606	5210	3043	513	56.5			1277.3
Khak Daneh	341663	5131	3104	354	55.0			
Tang Zardaloo	341675	5126	3138	330	43.0			
Abchirak	341686	5041	3024	540	59.2			3027.0
Pole Karik	341747	5126	3050	620	62.2			
Deh Kohneh	341763	5151	3031	844	90.8			
Pirashgoft	341773	5117	3043	809	71.6			
Sad-Kouhrang	342037	5007	3227	946				
LORDJAN	342055	5048	3131	521		23.7	6.2	
Mehrgerd	342059	5131	3133	420		17.3	1.8	
Gordbiseh	342061	5112	3134	669				
ADL	342064	5103	3204	408		19.0	1.5	
Emam-ghois	342067	5118	3145	571		18.3	1.9	
Edalat-organ	342072	5056	3153	560		16.9	2.6	
NAGHAN	342073	5044	3156	709				
BOROQIEN	342075	5117	3159	378		17.1	2.5	
Shahre-kord	342083	5051	3219	319		20.3	3.5	
DOOZAK	342094	5058	3215					
Chalshotor	342110	5048	3224	331		18.1	-0.2	
Koohrang	342112	5007	3227	1438		15.9	1.4	
FARSAN	342234	5035	3215					
Semirom-olia	342240	5135	3125	388		17.8	3.7	
Rahim-abad	342450	5019	3202					
Dezak	342525	5020	3216	827	78.1			1258.2
Mehrgerd	342551	5131	3133	302	38.0			1274.8
AHVAY	342552	4841	3120	235	40.2			2261.6
SOLGAN	342553	5116	3139	1703	57.1			1381.2
BOROUJEN	342555	5117	3158	224	32.5			1063.0
Godare-Kabk	342557	5114	3143					
Shahre-kord	342559	5051	3219	331	37.9			
Pol-e-shalu	342578	5008	3145	776	73.6			2140.5
Baba-heidar	342601	5028	3220	841	65.3			
Tounel-e-Voroudi	342603	5006	3225					
MARBOREH	342605	5010	3220	744	57.3			
ARMAND	342607	5047	3140	620	64.1			
MORGHAK	342609	5026	3140	508	49.7			1841.0
LORDJAN	342611	5050	3130	580	59.7			
Monje-Lordjan	342613	5044	3133					1509.5
Goosheh Pol	342662	4956	3222	1474	115.2			
Rakaat Naalkonan	342701	5011	3145	703	50.2			
Deh dozd	342702	5017	3145	557	43.8			
Zarrin Derakht	342756	5057	3132	635	63.6			
Behesht-abad	342820	5038	3202	621	51.1			2414.2
Farsan	342826	5034	3215	526	54.5			
Sad Karoon	343014	4926	3228					
IZEH	343069	4952	3150	450		27.5	12.8	
Ghal-eh-Tal	343224	4953	3138	716				
Deh bahrami	343547	4946	3137	640	72.6			2281.4
Barand-Gerd	343576	4950	3143	672	78.5			1609.6
LALY	343577	4906	3220	545	59.7			2931.1
Deh-Sheikh-Soosan	343579	4952	3203	916	93.3			1763.5
Sad-e-Karun	343592	4936	3204	579	65.5			1884.8
Malagha	343598	4958	3138	859	67.8			
Zard Faluch	343668	4948	3200	560	49.6			
Pole Lali	343677	4903	3217	409	48.6			

Table C-2-2 Mean Monthly Rainfall

UNIT : mm

Station Code	Station Name	Longitude	Latitude	Elevation	Duration	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	Total
341020	KARKHANEH-GHAND-YASOUJ	5134	3040	1760	1974-78	91	64	158	257	73	104	78	5	0	0	2	0	831
341030	YASOYJ	5141	3050	1800	1985-93	21	44	234	167	199	158	61	21	0	0	1	2	906
341032	KHAFR	5129	3100	2200	1963-94	5	20	52	55	45	39	21	7	0	2	1	0	247
341043	HANNA	5144	3113	2350	1956-96	9	28	66	61	49	51	45	13	0	3	1	0	326
342037	SAD-KOUHRANG	5007	3227	2600	1966-77	6	133	117	232	172	118	147	11	9	0	0	0	946
342055	LORDJAN	5048	3131	1700	1956-94	14	49	94	111	85	95	51	18	1	1	0	0	521
342059	MEHRGERD	5131	3133	2350	1962-93	17	36	74	80	65	78	47	19	2	2	0	0	420
342061	GORDBISHEH	5112	3134	1850	1963-93	23	74	108	118	110	122	78	30	3	4	0	0	669
342064	ADL	5103	3204	2280	1963-96	16	42	59	71	62	84	49	23	1	2	0	0	408
342067	EMAM-GHEIS	5118	3145	2300	1956-96	15	53	98	89	94	112	73	31	2	2	1	0	571
342072	EDALAT-ORGAN	5056	3153	2500	1970-96	18	61	98	80	94	94	68	27	2	17	1	0	560
342073	NAGHAN	5044	3156	2150	1963-93	22	65	132	130	112	130	79	34	1	1	1	0	709
342075	BOROOJEN	5117	3159	2220	1960-93	13	27	80	57	54	67	41	27	3	7	1	2	378
342083	SHAHRE-KORD	5051	3219	2051	1954-93	8	29	59	59	52	55	39	16	0	2	0	0	319
342092	NAGHSH-BAHRAM	5037	3212	1030	1974-80	59	23	204	208	63	68	28	7	0	0	5	0	665
342110	CHALSHOTOR	5048	3224	2078	1963-83	22	35	66	62	37	54	39	15	1	0	1	0	331
342112	KOOHRANG	5007	3227	2650	1956-93	58	159	219	239	230	275	159	75	2	13	2	7	1438
342240	SAMIROM-OLIA	5135	3125	2500	1963-93	10	33	82	84	65	62	34	13	1	2	1	0	388
343069	IZEH	4952	3150	764	1962-93	28	82	39	89	63	33	70	15	0	0	0	32	450
343079	GHAL-EH-ZARRASS	4921	3209	700	1963-93	23	42	82	103	84	91	56	27	1	2	2	2	517
343224	GHAL-EH-TAL	4953	3138	800	1963-93	32	77	125	140	107	121	77	29	1	4	1	1	716

Table C-2-3 Maximum Daily Rainfall

UNIT : mm/day

Station Name	Sta.Code	1345	1346	1347	1348	1349	1350	1351	1352	1353	1354	1355	1356	1357	1358	1359	1360	1361	1362	1363	1364	1365	1366	1367	1368	1369	1370	1371	1372	1373	1374	1375	Average	
YASOU	341522						100.0	44	62.5	63.5	64	53.5	92	108	71	68	55.5	73	68	68	67.5	97.2	81.5	55	63.5	64.3	118	90	44.2	107	72	54.5	73.3	
Shah-mokhtar	341526		30	49.5	50	71	64.5	49	48.5	84	55	38	91	104	82	56	48.5	36	72	50.5	-	89.5	81	56	56.5	59	125.5	106.5	65	133	79	59	68.6	
DARSHAHI	341534						52	48	50	41	44	33	72	95	67	38	30	53	51	52.5	-	58	52	38.5	60	42	58	73	28	100	94	54	55.4	
Deh-Bozorg-e-Sisakut	341536										73	75	90	65	80	65	45	85	60	55	-	110	73	40	75	45	61	105	39	70	72	39	67.7	
BOTARI	341538		50	37	31	91	40	30	40	50	46	41	60	58	76	41	36	50	68	45	-	73	43	33	54	44	32	68	29	85	52	38	49.7	
Dasht Room	341542																		75	94	91	123	68	68	96	102	134	115	51	113	75	85	92.1	
PATAVEH	341544						47	38	48	45	64.5	35	68	70.5	49	39	38.5	31.5	38	33	41	56	33.5	33	54	51.5	49.5	70.5	24.5	91.5	49	44	47.8	
Dehkadeh-Shahid	341545	84	209	200	40	-	120	70	80	105	150	46	150	90	91	43	30	40	62	50	48	41	68	31	50	48	64	74	37	110	42	37	77.0	
HANNA	341547										59	57	50	-	-	-	-	50	-	36	43.5	63	46	24	31	29.5	36	42.5	19.5	78	41	34.5	43.6	
KATA	341548							40	28.5	42	60	27	54	29	50	70	80	50	50	50	-	104	52	28	66	52	46	54	46	102	44	35	52.5	
BARZ	341549					89	52	80	72	54	76	34	54	72	55	50	52	44	77	70	65	105	92	44	130	83	85.5	74	58	87	73.5	64	70.1	
Aloeni	341597																				38.5	97	47	34	80	47.5	51	60	64.5	75	46	38.5	56.6	
Sadeh	341606																						36	50	46	57.5	43	70.5	99	44	84	36.5	55.5	56.5
Khak Daneh	341663																	58	47	55	49	66											55.0	
Tang Zardalo	341675																		51	29	44	57	37	23	46	37	63	68	23.5	56	25	43	43.0	
Abchirak	341686																			92	55.5	61	59	35	55.5	72.5	51.5	56.5	34	73.5	67.5	55.5	59.2	
Pole Karik	341747																			39	-	93	51	38	58	51	79	78	33	101	63	62	62.2	
Deh Kohnah	341763																			15.5	-	94	85	65	90	118	86	106.5	62.5	122	160	85.5	90.8	
Pinashgof	341773																		52	50	-	50	69	47	90	78	86	104	56	102	102	45	71.6	
Dezak	342525																			65	70.5	89.5	91.5	51	108	78	78	104.5	83	77	73	46	78.1	
Mehrgerd	342551						33	30	34	44	81	15	-	-	-	-	-	-	-	-	-	31.5	50	20	68	28	46	37.9	21.9	-	-	30	38.0	
AHVAZ	342552	24.5	37.5	45	73.5	30	22.7	41.5	24.5	59	19.8	35.5	31.6	49	89	41	26	60.3	63	29.5	51.2	47	28	15.5	24.2	34	28	52	59	30.2	20.5	53	40.2	
SOLGAN	342553												50	50	60	90	50	-	50	70	42	50	47	47	60	47	31	114	37	74	53	62	57.1	
BOROWEN	342555						40	50	32	25	28	23	17	30	30	45	17	18.5	16	30	36	35.5	28	15	80	32	35.7	54	28.3	42.5	-	24	32.5	
Shahre-kord	342559											19	40	34	60	50	24	26	29	30.5	46	51	-	-	-	-	39	62	30	41.5	30.5	32	37.9	
Pol-e-shalu	342578	39	51	90	59	90	51	53	73	102	71	61	86	102	65	77.5	59.7	49	75.6	95	69.5	111	62.5	44	135	121.5	53	68.5	47	71.5	72	76	73.6	
Baba-heidar	342601											30	50	61	58	64	90	72.5	71	64	66.5	91.5											65.3	
MARBOREH	342605							104	-	52.5	-	41	87	-	-	46	38	61	39	47													57.3	
ARMAND	342607					93	70.5	42	56	90	92	28	69	54	80	57	50	55	48	55	63	110	56	48	83	75	52	93	38	72	44	57	64.1	
MORGHAK	342609					60	56	59	62	62	83	37	52	49	47	53	44	34	38	40	43	65	47	24	70	70	36	53	25	49	43	42	49.7	
LORDJAN	342611				46.5	50	59.5	44	53	71	56	39	50	73	60	-	50	80	55	52	55	77	59	29	120	85	47.5	59	58	82	55	46	59.7	
Goosheh Pol	342662																				163	158	185	80	161	102	90	118	64	92	84	85	115.2	
Raknat Naikonan	342701																									21	-	69	41.5	64	55.5			50.2
Deh dozd	342702																											41.2	59.5	29	50	43	40	43.8
Zamin Derakht	342756																					58	80	60	50	105	48	75	65	41	80	56	45	63.6
Behesht-abad	342820																		38	26	54	61	39	38.5	90	75	50	55	35	56	46	52	51.1	
Farsan	342826																					80	50	45	83	63	64	71	30	47	24	43	54.5	
Deh bahmani	343547																	47	45	83	46	128	67	31.5	170	81	52	81	69	65	72	51	72.6	
Barand-Gerd	343576						57.5	54	68.5	134	45.5	85.5	97.5	87.5	119	70.5	66.3	46.5	37	83	83	140	62	29.5	149	101	59	82	61	73.5	92.5	56.5	78.5	
LALY	343577																68	58	53	36	58	70.5	75	54	35	87.5	45	54	72	42	76	59.5	71.5	59.7
Deh-Sheikh-Soosan	343579																155	75	70	49	100	75	150.5	112	57	102	107	70	110	95	72	96	91	93.3
Godar-e-Landar	343588	27	41.5	70	48.3	66.5	55.5	60	127	75	70	51.5	41.5	45	235	58	57.5	87	62.5	72.5	97.5	110	41.5	67	155	65.4	55.5	91	62.5	27	90	83	74.1	
Sad-e-Karun	343592				66	50	71	73.5	50.5	70	65	48.5	51	38	100	52	63.5	104.3	38	70	84	86	58.5	58	49.5	113	54	57					65.5	
Bolnghan	343598																											62	77	56	68	83	61	67.8
Zard Fahreh	343668																		50	44	37	58	-	50	64	52	41	50	50	56	50	45	48	49.6
Pole Lali	343677																		42	41	-	45	57	70	13	22	45	48	80	32	70	60	55	48.6

Table C-2-4 (1) Monthly Rainfall at Representative Stations

YEAR	Yasouj Station												UNIT : mm	
	MEH	ABA	AZA	DEY	BAH	ESF	FAR	ORD	KHO	TIR	MOR	SHAH	Avg	Total
1971	0.0	186.5	143.0	179.5	200.0	390.0	219.5	67.5	4.0	0.0	0.0	0.0	115.8	1390.0
1972	0.0	5.5	120.5	78.0	30.5	140.5	86.0	5.0	0.0	5.0	0.0	0.0	39.3	471.0
1973	2.0	0.0	27.0	241.8	269.0	139.5	115.5	15.7	0.0	0.0	0.0	0.0	67.5	810.5
1974	13.0	0.0	176.3	134.5	194.0	126.0	97.6	144.4	0.0	0.0	0.0	0.0	73.8	885.8
1975	0.0	72.0	177.5	237.0	413.0	242.5	125.0	47.0	1.0	0.0	33.0	0.0	112.3	1348.0
1976	0.0	51.0	35.5	304.5	101.0	44.5	128.0	30.0	3.0	0.0	4.5	0.0	58.5	702.0
1977	0.0	263.5	165.5	273.0	70.0	152.0	61.0	17.5	0.0	0.0	0.0	0.0	83.5	1002.5
1978	9.0	83.0	275.0	173.0	155.0	49.0	63.0	40.5	7.5	0.0	0.0	0.0	71.3	855.0
1979	0.5	6.5	283.7	108.0	361.5	297.5	128.0	18.0	0.0	0.0	0.0	0.0	100.3	1203.7
1980	0.0	12.5	193.5	139.0	202.5	140.5	184.0	37.5	0.0	0.0	0.0	0.0	75.8	909.5
1981	10.0	47.0	59.0	120.5	198.5	280.5	117.5	25.5	2.0	0.0	0.0	0.0	71.7	860.5
1982	46.5	229.5	86.5	199.0	96.5	129.5	58.0	31.0	0.0	0.0	0.0	0.0	73.0	876.5
1983	0.0	2.5	24.0	82.0	82.0	69.5	226.5	29.5	0.0	0.0	1.5	0.0	43.1	517.5
1984	14.5	127.0	32.5	165.0	99.0	46.0	39.5	1.5	0.0	0.0	0.0	0.0	43.8	525.0
1985	0.0	117.0	147.0	45.0	91.5	97.0	224.5	114.0	0.0	0.0	0.0	3.5	70.0	839.5
1986	0.0	102.4	333.5	52.7	97.8	221.5	104.1	0.0	4.6	0.0	0.0	0.0	76.4	916.6
1987	9.1	31.9	49.5	249.5	191.2	136.8	28.4	88.1	0.0	0.0	0.0	0.0	65.4	784.5
1988	0.0	14.5	84.3	149.3	92.7	131.7	44.4	34.3	0.6	0.0	0.0	0.0	46.0	551.8
1989	0.0	167.5	250.9	109.7	221.1	19.9	34.8	2.0	0.0	1.0	0.0	0.0	67.2	806.9
1990	0.0	6.5	77.6	190.4	73.2	219.5	114.6	0.0	0.0	0.0	0.0	0.0	56.8	681.8
1991	83.0	0.0	452.6	178.2	163.8	229.6	88.4	116.4	6.4	0.0	0.0	0.6	109.9	1319.0
1992	0.0	0.4	262.8	259.7	231.1	442.1	71.9	117.6	0.0	0.0	0.0	0.4	115.5	1386.0
1993	3.0	49.0	16.5	50.9	62.7	102.4	66.7	30.3	0.0	0.0	0.0	0.0	31.8	381.5
1994	12.0	280.5	294.5	127.0	254.5	90.0	86.0	50.5	18.5	0.0	0.0	0.0	101.1	1213.5
1995	19.5	0.0	96.5	282.0	200.5	291.0	220.5	34.0	0.0	4.0	0.0	0.0	95.7	1148.0
1996	2.0	5.5	54.5	96.5	24.0	91.2	285.5	59.0	2.0	0.5	0.0	0.0	51.7	620.7
Avg	8.6	71.6	150.8	162.5	160.6	166.2	116.1	44.5	1.9	0.4	1.5	0.2	73.7	884.9
Max	83.0	280.5	452.6	304.5	413.0	442.1	285.5	144.4	18.5	5.0	33.0	3.5	115.8	1390.0
Min	0.0	0.0	16.5	45.0	24.0	19.9	28.4	0.0	0.0	0.0	0.0	0.0	31.8	381.5

Table C-2-4 (2) Monthly Rainfall at Representative Stations

YEAR	Hanna Station												UNIT : mm	
	MEH	ABA	AZA	DEY	BAH	ESF	FAR	ORD	KHO	TIR	MOR	SHAH	Avg	Total
1975	0.0	0.0	37.3	31.0	170.5	120.0	100.5	1.0	0.0	0.0	6.0	0.0	38.9	466.3
1976	0.0	25.0	15.0	179.0	9.5	0.0	57.5	0.0	0.0	2.0	0.0	19.0	25.6	307.0
1977	5.5	109.5	45.0	164.0	16.0	62.0	3.5	22.0	0.0	0.0	0.0	0.0	35.6	427.5
1982	20.0	161.0	11.0	37.0	7.0	38.0	32.5	17.0	0.0	0.0	0.0	0.0	27.0	323.5
1984	4.0	64.0	26.5	52.5	44.0	0.0	21.0	5.0	0.0	0.0	0.0	0.0	18.1	217.0
1985	0.0	17.0	91.5	23.0	23.5	42.5	130.0	58.5	0.0	0.0	1.5	1.0	32.4	388.5
1986	0.0	47.5	193.0	27.0	40.5	64.5	43.0	0.0	0.0	0.0	16.5	0.0	36.0	432.0
1987	3.5	39.0	16.5	97.5	88.5	69.0	18.5	47.0	0.0	0.0	0.0	0.0	31.6	379.5
1988	0.0	6.5	16.0	52.5	43.5	39.0	19.5	17.5	0.0	0.0	0.0	0.0	16.2	194.5
1989	0.0	103.5	96.0	22.5	64.0	11.0	17.0	2.5	0.0	2.5	1.5	0.0	26.7	320.5
1990	0.0	1.5	26.0	63.0	39.5	84.5	50.5	0.0	0.0	0.0	0.0	0.0	22.1	265.0
1991	30.0	0.0	118.5	68.0	22.0	64.5	17.5	47.5	0.0	0.0	0.0	2.5	30.9	370.5
1992	0.0	0.8	47.3	88.6	114.7	147.6	16.6	46.2	0.0	0.0	0.0	0.0	38.5	461.8
1993	0.0	44.5	2.5	0.0	26.0	34.5	31.0	17.5	0.0	0.0	0.0	0.0	13.0	156.0
1994	2.5	147.5	102.5	57.5	109.5	35.5	43.5	18.5	22.0	0.0	0.0	0.0	44.9	539.0
1995	12.0	0.0	34.0	60.0	58.0	87.5	55.5	18.0	0.0	0.0	0.0	8.0	27.8	333.0
1996	3.0	0.0	27.5	9.5	0.0	41.0	141.0	38.5	1.5	2.0	0.0	0.0	22.0	264.0
Avg	4.7	45.1	53.3	60.7	51.6	55.4	47.0	21.0	1.4	0.4	1.5	1.8	28.7	343.9
Max	30.0	161.0	193.0	179.0	170.5	147.6	141.0	58.5	22.0	2.5	16.5	19.0	44.9	539.0
Min	0.0	0.0	2.5	0.0	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	13.0	156.0

Table C-2-4 (3) Monthly Rainfall at Representative Stations

YEAR	Barz Station												UNIT : mm	
	MEH	ABA	AZA	DEY	BAH	ESF	FAR	ORD	KHJ	TIR	MOR	SHAH	Avg	Total
1970	0.0	0.0	240.0	15.9	95.1	58.8	115.3	33.0	0.0	0.0	0.0	0.0	46.5	558.1
1971	0.0	80.0	96.0	82.0	91.0	83.5	119.5	67.5	0.0	0.0	0.0	0.0	51.6	619.5
1972	0.0	45.0	162.0	36.7	50.0	66.5	36.0	3.0	0.0	0.0	11.0	0.0	34.2	410.2
1973	0.0	0.0	4.0	145.0	120.0	147.0	49.0	4.0	0.0	0.0	0.0	0.0	39.1	469.0
1974	0.0	0.0	175.0	137.0	133.0	97.0	41.0	76.0	0.0	0.0	0.0	0.0	54.9	659.0
1975	0.0	50.0	107.0	235.0	249.0	167.0	60.0	36.0	9.0	0.0	0.0	0.0	76.1	913.0
1976	0.0	11.0	17.0	198.0	48.0	49.0	90.0	21.0	3.0	0.0	0.0	0.0	36.4	437.0
1977	0.0	104.0	160.0	100.0	45.0	49.0	6.0	15.0	0.0	0.0	0.0	0.0	39.9	479.0
1978	0.0	37.0	213.0	101.0	148.0	25.0	57.0	27.0	21.0	0.0	0.0	0.0	52.4	629.0
1979	0.0	18.0	213.0	61.0	249.0	187.0	101.0	30.0	0.0	0.0	0.0	0.0	71.6	859.0
1980	0.0	18.0	43.0	104.0	135.0	52.0	122.0	0.0	0.0	0.0	0.0	0.0	39.5	474.0
1981	15.0	14.0	94.0	108.0	111.0	176.0	34.0	16.0	5.0	0.0	0.0	0.0	47.8	573.0
1982	20.0	130.0	70.0	187.0	44.0	88.0	58.0	41.0	0.0	0.0	0.0	0.0	53.2	638.0
1983	0.0	6.0	52.0	89.0	29.0	66.0	161.0	43.0	0.0	0.0	0.0	0.0	37.2	446.0
1984	0.0	94.0	28.0	149.0	86.2	42.0	50.0	22.0	0.0	0.0	0.0	0.0	39.3	471.2
1985	0.0	16.0	141.0	10.0	108.5	83.5	172.5	107.0	0.0	0.0	0.0	1.0	53.3	639.5
1986	0.0	47.5	354.0	94.5	77.0	182.5	83.0	0.0	0.0	0.0	9.0	0.0	70.6	847.5
1987	12.5	61.5	38.5	166.0	119.0	281.5	26.0	52.0	0.0	0.0	0.0	0.0	63.1	757.0
1988	0.0	98.5	41.0	131.5	84.0	88.5	54.5	35.0	0.0	0.0	0.0	0.0	44.4	533.0
1989	0.0	110.5	237.0	71.5	116.0	71.0	50.0	0.0	0.0	0.0	0.0	0.0	54.7	656.0
1990	0.0	1.5	39.0	159.5	57.5	202.5	159.5	0.0	0.0	0.0	0.0	0.0	51.6	619.5
1991	92.5	0.0	223.0	127.5	103.0	272.5	103.5	76.5	1.5	0.0	0.0	0.0	83.3	1000.0
1992	0.0	20.0	170.5	200.0	196.5	307.5	48.5	115.5	0.0	0.0	0.0	0.0	88.2	1058.5
1993	0.0	53.5	34.5	82.5	101.5	78.0	76.0	58.5	0.0	0.0	0.0	0.0	40.4	484.5
1994	12.5	235.0	327.0	81.5	71.5	81.5	33.0	27.5	9.0	0.0	0.0	0.0	73.2	878.5
1995	3.5	0.0	76.5	227.5	118.0	195.5	135.0	44.0	0.0	0.0	0.0	0.0	66.7	800.0
1996	1.5	0.0	45.5	110.0	11.5	86.5	197.0	25.0	1.0	0.0	0.0	0.0	39.8	478.0
Avg	5.8	46.3	126.0	118.9	103.6	121.7	82.9	36.1	1.8	0.0	0.7	0.0	53.7	644.0
Max	92.5	235.0	354.0	235.0	249.0	307.5	197.0	115.5	21.0	0.0	11.0	1.0	88.2	1058.5
Min	0.0	0.0	4.0	10.0	11.5	25.0	6.0	0.0	0.0	0.0	0.0	0.0	34.2	410.2



YEAR	MEH	ABA	AZA	DEY	BAH	ESF	FAR	ORD	KHO	TIR	MOR	SHAH	Avg	Total
1958	3.0	8.2	75.4	51.1	32.7	33.5	19.8	9.7	0.0	0.0	0.0	0.0	19.5	233.4
1959	0.2	1.0	40.0	57.0	25.8	48.7	32.8	3.0	0.0	0.0	0.0	0.0	17.4	208.5
1961	0.0	90.0	135.0	130.0	148.0	35.0	225.0	16.0	0.0	0.0	0.0	0.0	64.9	779.0
1962	0.0	25.4	81.6	0.0	163.4	69.0	58.0	75.0	0.0	0.0	0.0	0.0	39.4	472.4
1963	0.0	17.0	131.0	49.0	49.0	124.4	45.0	10.0	0.0	0.0	0.0	0.0	35.5	425.4
1964	0.0	59.0	89.5	181.2	113.0	-	74.0	20.0	0.0	0.0	0.0	0.0	48.8	-
1965	60.5	40.0	17.2	66.5	80.0	104.7	33.0	17.0	0.0	0.0	0.0	0.0	34.9	418.9
1966	114.0	0.0	91.0	101.0	18.3	78.0	102.0	39.2	0.0	0.0	0.0	0.0	45.3	543.5
1967	0.0	166.0	34.0	130.0	20.4	115.0	263.0	10.7	0.0	0.0	0.0	0.0	61.6	739.1
1968	2.4	82.0	36.2	22.6	58.6	130.9	67.6	19.0	0.0	0.0	0.0	0.0	34.9	419.3
1969	0.0	0.0	-	63.9	97.2	55.2	236.0	4.0	0.0	0.0	0.0	0.0	41.5	-
1970	0.0	54.0	41.5	27.0	69.0	110.0	11.0	79.0	0.0	0.0	7.0	0.0	33.2	398.5
1971	1.4	35.0	89.0	73.0	82.0	111.0	116.0	0.0	0.0	10.0	0.0	0.0	43.1	517.4
1972	0.0	22.0	22.0	154.0	127.0	84.0	15.0	10.0	0.0	4.0	0.0	0.0	36.5	438.0
1973	0.0	0.0	0.0	92.0	117.0	24.1	29.9	22.5	0.0	19.0	0.0	0.0	25.4	304.5
1974	0.0	71.3	422.4	-	299.5	283.0	137.0	150.0	0.0	33.0	0.0	0.0	126.9	-
1975	73.0	43.0	114.0	162.5	18.0	90.0	107.2	18.0	0.0	0.0	0.0	0.0	52.1	625.7
1976	77.5	148.0	188.4	155.0	83.2	109.1	17.6	2.5	0.0	0.0	0.0	0.0	65.1	781.3
1977	0.0	71.5	147.7	127.2	73.5	163.5	14.0	146.2	40.4	0.0	2.0	0.0	65.5	786.0
1978	13.0	18.6	68.9	149.4	246.4	147.9	85.2	24.0	0.0	0.0	0.0	0.0	62.8	753.4
1979	5.0	25.8	55.7	91.7	139.0	96.0	130.8	14.5	0.0	0.0	0.0	0.0	46.5	558.5
1980	0.0	91.2	12.5	81.2	84.2	131.5	10.0	9.0	0.0	0.0	0.0	0.0	35.0	419.6
1981	62.5	162.0	38.0	128.5	63.4	115.5	57.7	35.2	0.0	0.0	0.0	0.0	55.2	662.8
1982	0.0	3.7	35.8	86.3	51.0	216.8	36.0	59.2	0.0	0.0	0.0	0.0	40.7	488.8
1983	7.9	48.0	59.5	77.5	57.5	63.0	16.0	4.0	0.0	0.0	0.0	0.0	27.8	333.4
1984	0.0	14.2	135.2	12.0	53.0	151.0	175.4	103.2	0.0	0.0	0.0	0.0	53.7	644.0
1985	0.0	197.9	121.4	47.0	47.0	184.0	76.0	0.0	0.0	5.0	5.4	0.0	57.0	683.7
1986	45.0	14.0	70.2	61.0	99.0	134.0	67.0	0.0	0.0	0.0	0.0	0.0	40.9	490.2
1987	0.0	70.0	122.0	70.0	108.0	84.0	27.0	14.0	0.0	0.0	0.0	0.0	41.3	495.0
1988	0.0	0.0	238.0	87.0	90.0	46.0	22.0	2.0	0.0	0.0	0.0	0.0	40.4	485.0
1989	0.0	8.0	52.0	114.0	95.0	126.0	12.0	0.0	3.0	0.0	0.0	0.0	34.2	410.0
1990	57.0	0.0	255.0	76.0	92.0	82.0	83.0	63.0	0.0	0.0	6.0	0.0	59.5	714.0
1991	0.0	22.0	211.0	160.0	152.0	236.0	0.0	53.0	0.0	0.0	7.0	0.0	70.1	841.0
1993	14.0	296.0	109.0	46.0	69.0	84.0	64.0	25.0	33.0	0.0	0.0	0.0	61.7	740.0
1994	4.0	0.0	67.0	49.0	131.0	46.0	96.5	16.0	0.0	0.0	4.0	0.0	34.5	413.5
1995	6.0	10.0	34.0	143.0	136.0	212.0	-	-	-	-	-	-	90.2	-
Avg	13.7	55.9	105.6	90.6	101.4	122.8	65.8	33.6	2.9	2.7	1.2	0.0	50.9	596.3
Max	77.5	296.0	422.4	162.5	299.5	283.0	236.0	150.0	40.4	33.0	7.0	0.0	126.9	841.0
Min	0.0	0.0	0.0	12.0	18.0	24.1	0.0	0.0	0.0	0.0	0.0	0.0	25.4	304.5

YEAR	MEH	ABA	AZA	DEY	BAH	ESF	FAR	ORD	KHO	TIR	MOR	SHAH	Avg	Total
1976	0.0	31.0	32.5	58.0	14.0	14.0	82.0	25.0	6.5	0.0	0.5	0.0	22.0	263.5
1977	15.0	107.0	98.5	19.0	34.5	97.5	5.5	8.5	0.0	0.0	0.0	0.0	32.1	385.5
1978	0.0	38.0	75.0	67.0	47.5	29.0	43.0	60.5	10.5	0.0	0.0	11.0	31.8	381.5
1979	0.0	9.0	84.0	34.0	124.5	153.5	36.5	7.0	0.0	0.0	0.0	0.0	37.4	448.5
1980	0.0	28.0	29.0	84.5	74.0	26.5	67.5	14.5	0.0	0.0	0.0	0.0	27.0	324.0
1981	19.5	5.0	31.0	38.5	52.5	77.5	48.0	7.0	11.5	0.0	0.0	0.0	24.2	290.5
1982	12.0	71.5	46.5	97.5	27.0	36.5	17.0	18.0	0.0	0.0	0.0	0.0	27.2	326.0
1983	0.0	4.5	6.0	47.0	25.5	80.5	66.0	43.5	0.0	0.0	4.0	0.0	23.1	277.0
1984	5.5	39.0	19.0	46.0	38.0	10.5	41.0	6.5	0.0	0.0	0.0	0.0	17.1	205.5
1985	0.0	20.5	76.0	11.0	36.5	56.5	87.5	66.0	2.5	0.0	0.0	0.0	29.7	356.5
1986	0.0	41.5	143.5	53.0	29.5	67.0	39.0	11.5	0.0	0.0	0.0	0.0	32.1	385.0
1991	22.5	6.0	159.0	55.0	39.0	80.0	36.5	45.5	0.0	0.0	0.0	0.0	37.0	443.5
1992	0.0	0.5	45.0	64.7	73.5	122.5	11.5	78.5	23.0	0.0	0.0	0.0	34.9	419.2
1993	0.0	46.0	4.5	18.8	37.5	33.5	38.5	9.3	0.0	0.0	0.0	0.0	15.7	188.1
1994	9.0	98.0	78.5	18.5	40.5	20.0	25.5	18.0	30.5	0.0	0.0	0.0	28.2	338.5
1995	0.0	0.0	24.5	49.5	49.0	100.5	88.5	30.0	0.0	0.0	0.0	2.0	28.7	344.0
1996	0.0	0.0	16.5	66.0	0.0	34.0	87.0	6.0	8.5	0.0	0.0	0.0	18.2	218.0
Avg	4.9	32.1	57.0	48.7	43.7	61.1	48.3	26.8	5.5	0.0	0.3	0.8	27.4	329.1
Max	22.5	107.0	159.0	97.5	124.5	153.5	88.5	78.5	30.5	0.0	4.0	11.0	37.4	448.5
Min	0.0	0.0	4.5	11.0	0.0	10.5	5.5	6.0	0.0	0.0	0.0	0.0	15.7	188.1

Table C-2-4 (6) Monthly Rainfall at Representative Stations

Armand Station

UNIT : mm

YEAR	MEH	ABA	AZA	DEY	BAH	ESF	FAR	ORD	KHO	TIR	MOR	SHAH	Avg	Total
1970	0.0	0.0	171.0	44.5	92.5	40.5	105.5	30.0	0.0	0.0	0.0	0.0	40.3	484.0
1971	0.0	91.0	105.0	63.0	113.0	117.0	114.5	56.9	0.0	0.0	0.0	0.0	55.0	660.4
1972	0.0	34.5	129.5	38.5	46.0	106.0	43.5	1.0	0.0	0.0	0.0	0.0	33.3	399.0
1973	0.0	0.0	27.0	158.5	163.0	142.0	39.0	1.5	6.0	0.0	0.0	0.0	44.8	537.0
1974	0.0	0.0	196.5	145.0	80.0	84.0	43.0	91.0	0.0	0.0	0.0	0.0	53.3	639.5
1975	0.0	58.0	130.5	297.5	240.0	150.0	93.0	28.0	0.0	0.0	0.0	0.0	83.1	997.0
1976	0.0	22.0	37.0	147.0	43.0	17.0	47.0	19.0	0.0	0.0	0.0	0.0	27.7	332.0
1977	0.0	85.8	136.0	124.0	58.0	148.0	11.0	78.0	0.0	0.0	0.0	0.0	53.4	640.8
1978	0.0	41.0	156.0	117.0	1390.0	29.0	91.0	2420.0	14.0	0.0	0.0	0.0	354.8	4258.0
1979	0.0	11.0	168.0	48.0	337.0	155.0	98.0	0.0	0.0	0.0	0.0	0.0	68.1	817.0
1980	0.0	24.0	78.0	117.0	134.0	66.0	109.0	0.0	0.0	0.0	0.0	0.0	44.0	528.0
1981	30.0	0.0	70.0	159.0	110.0	111.0	47.0	7.0	0.0	0.0	0.0	0.0	44.5	534.0
1982	38.0	131.0	75.0	179.0	54.0	98.0	20.0	36.0	0.0	0.0	0.0	0.0	52.6	631.0
1983	0.0	6.0	63.0	105.0	45.0	113.0	143.0	51.0	0.0	0.0	0.0	0.0	43.8	526.0
1984	0.0	98.0	21.0	143.0	82.0	46.0	67.0	22.0	0.0	0.0	0.0	0.0	39.9	479.0
1985	0.0	19.0	125.0	26.0	102.0	78.0	229.0	120.0	0.0	0.0	0.0	0.0	58.3	699.0
1986	0.0	44.0	313.0	76.0	103.0	183.0	87.0	0.0	0.0	0.0	4.0	0.0	67.5	810.0
1987	12.0	66.0	50.0	182.0	135.0	163.0	27.0	82.0	0.0	0.0	0.0	0.0	59.8	717.0
1988	0.0	79.0	61.0	101.0	105.0	63.0	53.0	17.0	0.0	0.0	0.0	0.0	39.9	479.0
1989	0.0	109.0	223.0	75.0	113.0	36.0	28.0	0.0	0.0	0.0	0.0	0.0	48.7	584.0
1990	0.0	8.0	44.0	127.0	70.0	186.0	138.0	0.0	0.0	0.0	0.0	0.0	47.8	573.0
1991	78.0	0.0	204.0	96.0	91.0	185.0	84.0	57.0	0.0	0.0	0.0	2.0	66.4	797.0
1992	0.0	4.0	142.0	225.0	149.0	283.0	41.0	118.0	5.0	0.0	0.0	0.0	80.6	967.0
1993	0.0	38.0	42.0	76.0	60.0	73.0	70.0	43.0	0.0	0.0	0.0	0.0	33.5	402.0
1994	10.0	213.0	234.0	93.0	69.0	75.0	28.0	54.0	0.0	0.0	0.0	0.0	64.7	776.0
1995	7.0	0.0	71.0	84.0	114.0	152.0	126.0	18.0	0.0	0.0	0.0	0.0	47.7	572.0
1996	4.0	0.0	43.0	100.0	0.0	96.0	179.0	26.0	0.0	0.0	0.0	0.0	37.3	448.0
Avg	6.6	43.8	115.4	116.6	151.8	110.9	80.1	125.1	0.9	0.0	0.1	0.1	62.6	751.4
Max	78.0	213.0	313.0	297.5	1390.0	283.0	229.0	2420.0	14.0	0.0	4.0	2.0	354.8	4258.0
Min	0.0	0.0	21.0	26.0	0.0	17.0	11.0	0.0	0.0	0.0	0.0	0.0	27.7	332.0

Table C-2-4 (7) Monthly Rainfall at Representative Stations

Lordjan Station

UNIT : mm

YEAR	MEH	ABA	AZA	DEY	BAH	ESF	FAR	ORD	KHO	TIR	MOR	SHAH	Avg	Total
1969	0.0	66.5	27.0	58.0	48.5	93.0	22.0	16.0	0.0	0.0	0.0	0.0	27.6	331.0
1970	0.0	0.0	49.5	61.5	94.5	26.5	105.5	19.0	0.0	0.0	0.0	0.0	29.7	356.5
1971	0.0	82.0	70.5	131.4	125.8	62.0	88.0	34.5	0.0	0.0	0.0	0.0	49.5	594.2
1972	0.0	18.4	126.0	37.4	34.0	85.0	39.5	6.5	0.0	0.0	0.0	0.0	28.9	346.8
1973	0.0	0.0	21.1	85.5	236.0	102.0	57.0	0.0	0.0	0.0	0.0	0.0	41.8	501.6
1974	8.0	2.0	161.0	112.0	89.5	94.0	42.5	90.5	0.0	0.0	0.0	0.0	50.0	599.5
1975	0.0	6.5	91.0	178.8	167.5	135.0	91.5	37.0	0.0	0.0	0.0	0.0	58.9	707.3
1976	0.0	33.0	37.0	136.0	88.0	0.0	88.0	22.5	0.0	0.0	0.0	0.0	33.7	404.5
1977	0.0	171.0	108.0	75.0	64.0	113.5	22.0	17.0	0.0	0.0	0.0	0.0	47.5	570.5
1978	0.0	47.0	129.0	121.0	157.0	28.0	57.0	10.0	0.0	0.0	0.0	0.0	45.8	549.0
1979	0.0	0.0	227.0	60.0	240.0	140.0	74.0	48.0	0.0	0.0	0.0	0.0	65.8	789.0
1980	26.0	9.0	81.0	94.0	106.0	174.0	49.5	12.5	0.0	0.0	0.0	0.0	46.0	552.0
1981	38.5	145.5	135.5	176.5	45.5	99.5	67.0	34.5	0.0	0.0	0.0	0.0	61.9	742.5
1982	0.0	6.5	42.0	93.0	33.5	105.0	134.5	77.5	0.0	0.0	0.0	0.0	41.0	492.0
1983	0.0	101.5	34.5	137.5	82.0	48.5	54.5	29.0	0.0	0.0	0.0	0.0	40.6	487.5
1984	0.0	24.0	120.0	20.5	112.0	50.0	198.0	107.0	0.0	0.0	0.0	7.0	53.2	638.5
1985	0.0	48.0	294.0	50.0	91.8	160.0	103.0	0.0	0.0	0.0	16.0	0.0	63.6	762.8
1986	14.0	54.5	37.0	141.5	121.5	146.0	25.5	64.0	0.0	0.0	0.0	0.0	50.3	604.0
1987	0.0	67.5	42.5	80.5	80.0	100.0	41.5	30.5	0.0	0.0	0.0	0.0	36.9	442.5
1988	0.0	105.5	222.0	90.5	119.0	48.0	32.0	0.0	0.0	0.0	0.0	0.0	51.4	617.0
1989	0.0	9.5	41.0	119.5	78.0	178.0	119.5	0.0	0.0	0.0	0.0	0.0	45.5	545.5
1990	91.0	0.0	205.5	105.0	84.0	166.0	70.0	57.0	3.0	0.0	0.0	0.0	65.1	781.5
1991	0.0	2.0	157.5	176.0	145.0	249.0	28.5	86.5	0.0	0.0	0.0	0.0	70.4	844.5
1992	0.0	62.5	29.5	67.0	64.0	92.5	73.5	43.5	0.0	3.5	0.0	0.0	36.3	436.0
1993	15.0	231.6	330.0	69.0	89.0	64.5	58.5	43.5	21.0	0.0	0.0	0.0	76.8	922.1
1994	2.0	0.0	73.0	152.5	90.0	140.0	131.0	38.0	0.0	0.0	0.0	0.0	52.2	626.5
1995	4.0	0.0	44.5	83.0	4.5	73.5	175.0	21.0	0.0	0.0	0.0	0.0	33.8	405.5
Avg	7.4	47.9	108.8	100.5	99.7	102.7	75.9	35.0	0.9	0.1	0.6	0.3	48.3	579.6
Max	91.0	231.6	330.0	178.8	240.0	249.0	198.0	107.0	21.0	3.5	16.0	7.0	76.8	922.1
Min	0.0	0.0	21.1	20.5	4.5	0.0	22.0	0.0	0.0	0.0	0.0	0.0	27.6	331.0

Table C-2-4 (8) Monthly Rainfall at Representative Stations

Gooshch Pol Station

UNIT : mm

YEAR	MEH	ABA	AZA	DEY	BAH	ESF	FAR	ORD	KHO	TIR	MOR	SHAH	Avg	Total
1985	0.0	98.5	554.0	135.0	262.0	226.0	232.0	360.0	0.0	0.0	0.0	5.0	156.0	1872.5
1986	0.0	121.5	513.5	168.5	222.0	526.0	180.0	33.0	0.0	0.0	0.0	0.0	147.0	1764.5
1987	156.0	258.0	147.5	543.5	353.5	532.0	62.5	96.0	0.0	0.0	0.0	0.0	179.1	2149.0
1988	0.0	94.5	217.5	442.5	205.0	177.5	101.0	87.5	0.0	0.0	0.0	0.0	110.5	1325.5
1989	0.0	215.0	351.5	133.0	264.0	220.0	101.0	18.0	0.0	0.0	0.0	0.0	108.5	1302.5
1990	0.0	9.0	24.0	277.5	225.0	293.0	285.0	0.0	0.0	0.0	0.0	0.0	92.8	1113.5
1991	81.5	17.5	505.0	277.5	250.0	220.5	148.0	139.0	0.0	0.0	0.0	0.0	136.6	1639.0
1992	0.0	89.0	261.0	379.0	234.0	500.5	135.0	348.5	0.0	0.0	0.0	0.0	162.3	1947.0
1993	0.0	223.5	100.5	121.5	161.5	191.0	128.0	126.5	0.0	0.0	0.0	0.0	87.7	1052.5
1994	38.0	314.0	444.0	185.0	96.5	153.0	121.0	90.5	0.0	0.0	4.0	6.5	121.0	1452.5
1995	0.0	0.0	147.5	159.5	117.5	349.0	309.0	59.5	0.0	0.0	0.0	0.0	95.2	1142.0
1996	0.0	13.0	81.0	218.0	80.5	214.5	283.5	33.5	8.5	0.0	0.0	0.0	77.7	932.5
Avg	23.0	121.1	278.9	253.4	206.0	300.3	173.8	116.0	0.7	0.0	0.3	1.0	122.9	1474.4
Max	156.0	314.0	554.0	543.5	353.5	532.0	309.0	360.0	8.5	0.0	4.0	6.5	179.1	2149.0
Min	0.0	0.0	24.0	121.5	80.5	153.0	62.5	0.0	0.0	0.0	0.0	0.0	77.7	932.5

Table C-2-4 (9) Monthly Rainfall at Representative Stations

Beheshtabad Station

UNIT : mm

YEAR	MEH	ABA	AZA	DEY	BAH	ESF	FAR	ORD	KHO	TIR	MOR	SHAH	Avg	Total
1983	0.0	15.0	49.0	65.0	68.0	113.0	141.0	51.0	0.0	0.0	0.0	0.0	41.8	502.0
1984	0.0	87.0	22.0	141.0	58.0	52.0	39.5	11.0	0.0	0.0	0.0	0.0	34.2	410.5
1985	0.0	30.0	158.5	9.0	139.0	92.0	170.5	112.0	0.0	0.0	2.0	2.0	59.6	715.0
1986	0.0	49.5	193.5	110.0	69.5	161.0	80.0	7.5	0.0	0.0	6.0	0.0	56.4	677.0
1987	7.0	98.5	76.0	199.0	117.0	163.0	21.0	52.5	0.0	0.0	0.0	0.0	61.2	734.0
1988	0.0	102.0	43.5	117.5	66.0	40.0	37.0	26.5	0.0	0.0	0.0	0.0	36.0	432.5
1989	0.0	73.5	189.0	59.0	63.5	42.0	28.0	0.0	0.0	0.0	0.0	0.0	37.9	455.0
1990	0.0	5.0	27.0	109.5	98.0	119.0	163.0	0.0	0.0	0.0	0.0	0.0	43.5	521.5
1991	82.0	8.0	234.0	94.0	87.5	208.0	60.0	57.0	0.0	0.0	0.0	0.0	69.2	830.5
1992	0.0	16.0	176.0	175.5	143.0	293.5	43.5	121.0	0.0	0.0	0.0	0.1	80.7	968.6
1993	0.0	42.0	33.0	44.5	108.5	80.0	78.0	52.0	0.0	1.5	0.0	0.0	36.6	439.5
1994	13.5	210.0	176.0	65.0	76.0	49.5	51.0	39.5	35.0	0.0	0.0	0.0	59.6	715.5
1995	5.0	0.0	50.5	119.5	104.0	251.0	197.0	53.5	0.0	0.0	0.0	0.0	65.0	780.5
1996	3.5	0.0	48.5	85.5	4.0	119.0	224.0	16.0	10.5	1.5	0.0	0.0	42.7	512.5
Avg	7.9	52.6	105.5	99.6	85.9	127.4	95.3	42.8	3.3	0.2	0.6	0.2	51.8	621.0
Max	82.0	210.0	234.0	199.0	143.0	293.5	224.0	121.0	35.0	1.5	6.0	2.0	80.7	968.6
Min	0.0	0.0	22.0	9.0	4.0	40.0	21.0	0.0	0.0	0.0	0.0	0.0	34.2	410.5

Table C-2-4 (10) Monthly Rainfall at Representative Stations

Deh-Sheikh - Soosan Station UNIT : mm

YEAR	MEH	ABA	AZA	DEY	BAH	ESF	FAR	ORD	KHO	TIR	MOR	SHAH	Avg	Total
1980	6.3	156.3	180.9	406.1	272.8	181.8	124.1	26.1	1.0	0.0	1.1	0.0	113.0	1356.5
1981	0.0	61.0	67.0	169.5	288.0	257.0	54.0	7.5	18.0	0.0	0.0	0.0	76.8	922.0
1982	48.0	121.0	94.0	247.0	155.0	71.5	66.0	97.0	0.0	0.0	0.0	0.0	75.0	899.5
1983	0.0	0.0	124.0	89.0	56.0	75.0	155.0	18.0	0.0	0.0	0.0	0.0	43.1	517.0
1984	3.0	142.5	85.5	193.5	118.5	39.5	43.5	7.5	0.0	0.0	0.0	0.0	52.8	633.5
1985	0.0	61.0	258.5	45.0	197.0	179.5	149.0	169.0	0.0	0.0	0.0	0.0	88.3	1059.0
1986	0.0	217.5	442.5	110.5	91.0	322.0	110.5	3.0	0.0	0.0	39.0	0.0	111.3	1336.0
1987	11.0	120.0	93.5	442.5	155.0	273.0	25.5	39.5	0.0	0.0	0.0	0.0	96.7	1160.0
1988	0.0	79.5	83.0	203.0	35.9	118.0	39.3	31.8	0.0	0.0	0.0	0.0	49.2	590.5
1989	0.0	88.5	302.0	142.2	175.0	81.0	42.5	0.7	0.0	0.0	0.0	0.0	69.3	831.9
1990	0.0	4.2	13.0	222.5	87.0	281.0	210.0	0.0	0.0	0.0	0.0	0.0	68.1	817.7
1991	59.5	3.0	285.5	149.5	172.5	256.0	66.0	67.5	1.0	0.0	0.0	0.0	88.4	1060.5
1992	0.0	59.0	318.0	296.5	281.5	205.0	119.0	280.0	0.0	0.0	0.0	0.0	129.9	1559.0
1993	0.0	165.0	74.0	101.5	63.0	115.0	46.5	41.0	0.0	0.0	0.0	0.0	50.5	606.0
1994	13.5	233.5	298.0	109.5	99.0	93.5	82.5	41.5	7.0	0.0	0.0	0.0	81.5	978.0
1995	4.5	0.0	66.0	208.0	293.0	270.5	194.5	18.0	2.0	0.0	0.0	0.0	88.0	1056.5
1996	0.0	0.0	121.0	182.0	21.5	109.5	259.0	34.0	0.0	0.0	0.0	0.0	60.6	727.0
Avg	8.6	88.9	171.0	195.2	150.7	172.3	105.1	51.9	1.7	0.0	2.4	0.0	79.0	947.7
Max	59.5	233.5	442.5	442.5	293.0	322.0	259.0	280.0	18.0	0.0	39.0	0.0	129.9	1559.0
Min	0.0	0.0	13.0	45.0	21.5	39.5	25.5	0.0	0.0	0.0	0.0	0.0	43.1	517.0

Table C-2-5 Monthly Temperature

Maximum Monthly Temperature															
Station Name	Station Code	Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Average
Karkhaneh-Ghand-Yasuj	341020	1976-78	6.6	10.6	14.3	18.8	26.2	33.3	35.5	34.4	31.1	16.1	14.8	11.7	21.1
YASOYJ	341030	1987-94	8.0	9.5	13.0	19.9	26.0	32.2	34.9	34.1	30.4	24.0	16.9	11.6	21.7
KHAJR	341032	1965-93	14.2	16.5	21.3	26.0	33.6	39.0	41.3	40.1	36.9	31.0	23.5	16.9	28.4
HANNA	341043	1963-93	5.1	8.1	12.1	17.3	22.8	28.5	31.5	30.3	24.8	20.3	14.6	8.6	18.7
LORDJAN	342055	1962-93	9.6	11.5	16.2	21.3	28.1	34.6	37.1	36.2	32.5	26.4	18.9	12.1	23.7
Mehrgerd	342059	1964-93	3.7	5.5	10.4	14.1	21.1	27.5	31.0	28.8	25.3	20.1	13.3	6.8	17.3
ADL	342064	1965-94	4.2	6.4	11.7	17.6	23.1	29.6	32.3	31.9	27.9	21.3	14.4	8.0	19.0
Emam-gheis	342067	1963-94	3.7	5.8	10.6	16.2	22.1	28.6	31.9	31.5	27.7	21.3	13.8	6.7	18.3
Edalat-organ	342072	1965-94	3.8	5.6	9.5	14.6	20.6	26.6	30.0	28.2	25.3	19.2	12.0	7.2	16.9
BOROOJEN	342075	1988-94	3.3	4.8	10.0	16.6	21.8	28.3	31.7	30.6	26.2	20.0	13.3	7.9	17.1
Shahre-kord	342083	1962-94	4.9	7.4	12.7	18.4	24.5	31.3	34.1	33.4	29.7	22.8	15.2	8.6	20.3
Naghsh-bahram	342092	1965-93	13.5	16.1	20.1	25.8	33.0	39.5	41.5	40.3	37.6	30.8	21.0	17.2	28.0
Chalshotor	342110	1965-93	1.4	4.2	10.6	16.9	22.8	29.9	32.9	30.8	28.0	21.2	12.8	5.5	18.1
Koohrang	342112	1962-94	0.3	2.7	6.9	12.2	20.0	26.9	30.7	30.0	26.2	19.3	12.2	3.4	15.9
Semirom-olia	342240	1965-93	3.5	6.0	10.6	16.8	21.5	28.1	30.8	29.5	26.2	20.3	13.8	7.0	17.8
IZEH	343069	1966-94	15.1	13.3	17.5	26.4	28.6	38.2	40.0	40.8	37.6	26.3	20.8	16.9	26.8
Mean Monthly Temperature															
Station Name	Station Code	Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Average
Karkhaneh-Ghand-Yasuj	341020	1976-78	0.8	3.7	7.5	11.4	16.5	21.0	23.2	22.0	18.5	9.6	7.9	4.4	12.2
YASOYJ	341030	1987-94	3.0	4.4	8.0	13.6	18.6	23.5	26.8	26.0	22.0	16.2	10.3	5.9	14.9
KHAJR	341032	1965-93	6.9	9.0	12.8	17.0	23.8	28.2	30.8	29.7	26.1	20.4	14.0	8.5	18.9
HANNA	341043	1963-93	-2.5	0.6	5.3	9.9	14.5	18.9	21.7	20.5	15.5	10.9	6.0	1.1	10.2
LORDJAN	342055	1962-93	3.0	4.9	9.0	13.6	18.7	23.9	25.7	25.8	21.7	16.2	10.5	5.1	14.9
Mehrgerd	342059	1964-93	-2.2	-0.6	4.7	7.9	13.2	17.8	21.1	19.5	15.8	11.4	5.8	0.6	9.6
ADL	342064	1965-94	-2.6	-0.3	4.8	10.2	14.2	18.7	21.8	21.0	16.5	11.1	6.3	1.3	10.2
Emam-gheis	342067	1963-94	-3.1	-1.0	4.1	9.4	14.2	19.1	22.5	21.8	17.4	11.6	5.8	-0.1	10.1
Edalat-organ	342072	1972-95	-3.4	-0.8	3.2	8.7	13.5	18.6	21.9	20.4	17.1	11.1	5.4	0.8	9.7
BOROOJEN	342075	1988-94	-2.4	-0.4	4.3	9.7	14.1	18.7	22.1	20.9	16.4	11.1	6.3	1.8	9.8
Shahre-kord	342083	1962-94	-1.5	1.2	6.1	10.6	15.9	20.8	24.1	23.2	18.8	13.2	7.6	2.0	11.9
Naghsh-bahram	342092	1974-93	6.9	9.3	12.4	16.8	22.6	28.3	30.1	30.5	26.7	20.4	13.6	10.4	19.1
Chalshotor	342110	1971-93	-6.1	-3.3	3.1	9.0	13.2	18.5	22.1	20.1	16.3	10.6	4.8	-1.1	8.9
Koohrang	342112	1962-94	-6.6	-3.7	1.5	7.0	13.1	18.0	21.8	21.4	17.2	11.5	5.4	-2.5	8.7
Semirom-olia	342240	1965-93	-2.8	-0.4	5.2	10.4	14.4	20.2	22.8	21.4	18.0	12.6	6.4	1.1	10.8
IZEH	343069	1966-94	8.8	9.6	12.3	19.2	22.8	28.5	30.9	31.4	27.8	19.8	14.9	11.5	19.8
Minimum Monthly Temperature															
Station Name	Station Code	Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Average
Karkhaneh-Ghand-Yasuj	341020	1976-78	-4.9	-3.2	0.8	4.1	6.8	8.8	10.8	9.6	5.8	3.1	0.9	-2.9	3.3
YASOYJ	341030	1987-94	-2.1	-0.8	3.1	7.3	11.3	14.8	18.7	17.8	13.6	8.4	3.6	0.3	8.0
KHAJR	341032	1964-94	-0.4	1.5	4.3	7.9	14.0	17.5	20.3	19.3	15.2	9.7	4.4	0.2	9.5
HANNA	341043	1962-95	-10.1	-6.9	-1.4	2.4	6.2	9.3	11.8	10.7	6.3	1.6	-2.7	-6.3	1.8
LORDJAN	342055	1962-96	-3.6	-1.8	1.9	5.9	9.4	13.2	16.8	15.5	10.8	6.0	2.1	-1.8	6.2
Mehrgerd	342059	1964-93	-8.1	-6.8	-1.0	1.7	5.3	8.1	11.2	10.2	6.3	-2.7	-1.8	-5.5	1.8
ADL	342064	1965-94	-9.3	-7.0	-2.2	2.8	5.3	7.7	11.2	10.2	5.0	1.0	-1.8	-5.3	1.5
Emam-gheis	342067	1962-95	-10.0	-7.8	-2.4	2.6	6.2	9.6	13.1	12.1	7.0	2.0	-2.2	-6.9	1.9
Edalat-organ	342072	1972-95	-10.5	-7.2	-3.1	2.8	6.5	10.5	13.8	12.5	9.0	3.0	-1.1	-5.5	2.6
BOROOJEN	342075	1988-96	-8.1	-5.7	-1.5	2.8	6.3	9.0	12.6	11.3	6.6	2.2	-0.8	-4.4	2.5
Shahre-kord	342083	1962-96	-8.0	-5.1	-0.5	4.0	7.4	10.3	14.0	12.9	7.9	3.5	-0.1	-4.5	3.5
Naghsh-bahram	342092	1974-93	0.2	2.6	4.8	7.8	12.2	17.0	20.8	20.8	15.7	10.0	6.3	3.7	10.2
Chalshotor	342110	1971-93	-13.5	-10.7	-4.4	1.1	3.6	7.1	11.4	9.5	4.6	-0.1	-3.3	-7.8	-0.2
Koohrang	342112	1962-96	-13.5	-10.0	-4.0	1.8	6.1	9.0	12.9	12.7	8.3	3.7	-1.3	-8.3	1.4
Semirom-olia	342240	1964-93	-9.2	-6.9	-0.2	3.9	7.3	12.3	14.9	13.3	9.7	4.8	-0.9	-4.8	3.7
IZEH	343069	1964-96	2.6	5.9	7.2	12.0	16.9	18.8	21.8	21.9	18.1	13.4	9.0	6.1	12.8

Table C-2-6 Monthly Evaporation

Station Name	Station Code	Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
YASOUJI	341522	1972-96	43.26	54.26	118.82	131.46	194.03	266.24	310.80	292.83	330.03	160.12	95.69	52.10	2049.66
Dasht Room	341542	1983-96	68.17	61.80	106.02	118.37	175.54	235.84	252.34	258.38	230.28	182.18	119.22	73.00	1881.13
PATAVEH	341544	1978-96	66.64	69.19	89.14	126.63	168.19	249.06	312.90	318.87	298.18	181.21	128.10	85.03	2093.14
HANNA	341547	1975-96	46.40	69.75	132.53	164.85	265.46	362.78	374.12	381.41	320.09	214.51	117.10	68.16	2517.14
Sadeh	341686	1986-96	39.32	42.26	72.73	124.73	179.00	251.21	281.12	301.86	244.55	150.07	83.17	54.65	1824.67
Abchirak	341686	1983-96	145.20	152.14	189.13	263.66	360.73	497.70	548.65	519.07	873.36	350.24	254.02	170.40	4324.30
Dezak	342525	1986-96	3.00	3.00	2.90	3.10	181.58	293.09	340.84	347.73	305.60	192.31	99.76	24.53	1797.44
Mehrgerd	342551	1992-96	3.00	3.00	2.90	42.93	183.26	289.93	338.72	342.77	302.47	190.63	96.68	24.90	1821.19
AHVAV	342552	1964-86	62.46	73.88	127.80	343.41	311.55	453.85	507.02	471.49	398.97	260.69	136.83	82.92	3230.87
SOLGAN	342553	1980-96	39.60	3.00	41.25	105.86	194.68	255.44	312.05	314.16	275.08	192.66	145.99	93.43	1973.20
BOROUJE	342555	1971-94	5.25	0.20	1.93	99.82	176.52	223.94	275.28	255.57	215.08	143.90	85.64	33.70	1518.63
Pol-e-shalu	342578	1979-96	64.33	69.81	101.57	158.44	221.41	394.66	512.86	533.75	460.81	308.87	151.86	79.53	3057.90
MORGHAK	342609	1977-96	53.85	69.36	102.68	162.09	230.42	347.03	428.32	439.77	355.93	234.53	117.48	88.61	2630.07
Monje-Lordjan	342613	1969-96	44.87	50.73	77.17	132.60	189.08	299.95	361.38	343.39	297.78	195.10	108.28	56.05	2156.38
Beheshi-abad	342820	1982-96	17.80	82.65	119.80	189.49	295.39	475.09	553.29	531.46	555.68	341.07	187.45	99.62	3448.80
Deh bahrami	343547	1982-96	91.47	91.69	116.85	179.63	285.78	443.43	485.20	483.36	428.75	327.38	208.56	117.02	3259.12
Barand-Gerd	343576	1970-96	45.16	56.60	84.08	118.46	199.70	331.50	391.60	378.26	312.36	211.41	110.19	60.04	2299.37
LALY	343577	1980-96	52.26	58.12	95.62	214.83	423.99	670.26	774.44	761.15	533.09	344.70	183.92	74.86	4187.25
Deh-Sheikheh-Sa	343579	1980-96	36.02	40.69	65.55	97.39	172.05	329.48	443.21	488.67	408.17	254.52	126.69	56.91	2519.35
Godar-e-Landar	343588	1966-89	59.50	63.15	97.74	157.21	280.40	430.98	478.03	457.49	379.52	277.35	156.44	86.28	2924.07
Sad-e-Karun	343592	1971-96	61.48	69.41	92.56	145.63	214.36	358.58	483.82	457.76	363.08	230.39	135.23	80.31	2692.62

Table C-2-7 Summary of Discharge Conditions

Station Name	Station Code	River Name	Year	Catchment Area (km <sup>2</sup> )	Mean Annual Runoff (m <sup>3</sup> /s)	Mean Maximum Daily Runoff (m <sup>3</sup> /s)	Maximum Daily Runoff (m <sup>3</sup> /s)	Instantaneous Maximum Runoff (m <sup>3</sup> /s)	Mean Minimum Daily Runoff (m <sup>3</sup> /s)	Minimum Daily Runoff (m <sup>3</sup> /s)
DEHKADESHAHID	34110	MARBOREH	1961-1995	200.0	5.3	65.0	91.6	147.0	8.5	0.6
POLTCHOGHONDAR	34112	HANA	1963-1995	695.0	1.6	7.6	19.1	20.7	0.5	0.2
YASOOJ	34114	BOSHAH	1974-1987	803.0	14.7	129.2	186.5	230.0	2.3	1.6
SHAHMOKHTAR	34115	BOSHAH	1961-1995	1187.0	22.2	261.3	807.0	1048.0	2.7	1.2
DARSHAHI	34117	BOSHAH	1963-1992	1609.0	26.4	210.4	935.0	1090.0	6.5	1.9
BOTARI	34118	KABKIAN	1963-1995	885.0	16.2	201.4	607.0	845.0	3.5	0.4
BOTARI	34119	BOSHAH	1963-1992	2520.0	42.9	1254.0	1981.0	1981.0	7.6	2.2
BARZBAKHTIARI	34121	KHERSAN	1957-1995	8900.0	112.0	762.9	1957.0	2776.0	38.4	23.0
LORDEJAN	34210	LORDEJAN	1963-1995	351.0	2.2	2.8	3.9	-	1.7	1.1
TANGZARDALOU	34211	KASGAN	1963-1995	1045.0	4.3	54.2	150.8	286.5	0.7	0.4
GODARKABK	34212	AGHBOLAGH	1963-1992	588.0	3.8	41.7	67.0	92.2	0.4	0.1
SHAHREKORD	34214	KHARROOD	1964-1990	495.0	1.0	-	-	-	-	-
BABAHYEIDAR	34215	SARAB	1964-1986	91.0	1.5	26.8	36.0	36.0	0.1	0.1
KOUHRANG DAM	34217	ABEKOHANG	1964-1974	291.0	15.8	-	-	-	-	-
MARBORAN	34218	MARBOREH	1970-1984	34.0	3.3	11.0	16.6	16.6	0.5	0.1
ARMAND	34219	KAROON	1957-1995	9900.0	100.9	572.0	2050.0	-	35.0	22.0
GHOSHEHPOL	34220	ABETURKY	1964-1995	83.0	3.8	22.4	27.9	32.8	0.9	0.5
POLESHALOO	34222	KAROON	1933-1995	24210.0	320.4	1609.6	3676.0	4564.0	104.4	70.0
POLEMARI	34224	CHAGHAKHOR	1987-1995	128.0	1.2	3.4	4.8	-	0.1	0.0
KOHESOKHTEH	34226	KIAR	1963-1995	2950.0	7.9	61.9	124.0	137.9	1.2	0.1
DAZAK	34227	BIRGAN	1984-1995	563.0	9.1	136.9	370.0	543.0	1.9	1.0
ZARINDERAKHT	34228	KHANMIRZA	1963-1995	397.0	1.3	23.8	65.0	93.0	0.1	0.0
OUTSADEKARO	34310	KAROON	1969-1994	25850.0	378.8	1528.4	3763.0	4740.0	124.8	0.0
POLELALI	34312	KAROON	1964-1992	31833.0	540.6	2138.5	4060.0	5680.0	142.5	15.0
GHELOGIR	34314	MORGHAB	1990-1995	480.0	16.0	224.7	413.0	476.0	0.9	0.7
TANG_E DOULAB	34315	SHOURANDIKA	1990-1995	370.0	6.4	286.0	388.0	512.0	0.1	0.1
POLEKAREHBAS	34230	ABVANAK	1993-1995	-	16.5	102.0	147.1	-	2.1	2.0
GERDBISHEH	34237	GERDBISHEH	1993-1995	124.0	1.3	13.2	23.3	-	0.6	0.6
POLBARDEGAN	34241	GHAHAGHACH	1993-1995	-	0.2	0.8	1.3	-	0.0	0.0
TANGEKHARAJI	34223	ABJAHANBIN	1993-1995	-	11.9	62.2	66.2	-	0.7	0.0
KERIK	34116	KERIK	1963-1992	128.0	2.7	11.2	18.7	43.0	1.0	0.2
PATAVEH	34120	GARMROOD	1963-1995	2800.0	48.3	428.4	863.0	1312.0	12.7	2.1
SOLEGAN	34213	SOLEGAN	1963-1997	1992.0	10.2	214.9	1504.0	1942.0	7.5	0.3
BEHESHTABAD	34216	BEHESHTABAD	1963-1992	3825.0	22.2	167.1	242.1	282.1	3.1	1.6
MORGHAK	34221	BAZOFT	1963-1995	2355.0	71.5	696.7	1817.0	2284.0	16.3	13.0
TANGEHDARKESH	34225	CHONGHAN	1963-1995	910.0	9.0	86.6	143.9	182.6	0.3	0.1
GODARLANDAR	34311	KAROON	1958-1993	27630.0	320.4	1788.5	3754.0	5134.0	129.6	61.0
SHAHKALK	34242	GARMAB	1994-1995	-	1.0	7.8	-	-	-	-
KHAKDANEH	34111	MARBOREH	1964-1988	801.0	10.2	129.3	203.4	398.0	4.1	3.9
KATA	34113	MARBOREH	1961-1995	4015.0	38.1	226.5	670.0	810.0	11.6	8.6

Table C-2-8(1) Monthly Discharge at Representative Stations

YEAR	Botari Station											Unit : CMS	Avg
	10	11	12	1	2	3	4	5	6	7	8	9	
1963							11.7	5.9	2.3	2.1	2.7	3.0	-
1964	3.8	2.3	3.6	6.0	4.9	12.4	19.2	12.9	8.4	7.1	5.3	4.5	7.5
1965	3.8	2.5	3.5	6.0	25.6	29.1	11.7	6.5	4.7	4.6	3.3	3.2	8.7
1966	4.2	3.3	4.1	6.2	8.2	14.7	14.1	14.2	8.2	6.0	4.2	4.2	7.6
1967	3.7	2.4	3.5	6.4	12.0	20.3	24.1	17.6	10.1	7.7	5.5	5.0	9.9
1968	4.2	3.9	12.0	7.5	9.8	32.5	50.4	30.9	17.2	11.7	8.5	7.2	16.3
1969	4.7	4.0	5.9	8.6	48.5	32.9	11.3	7.3	5.4	4.0	3.9	4.1	11.7
1970	6.5	7.7	7.6	9.0	10.9	14.9	21.3	14.3	7.1	4.1	4.0	4.0	9.3
1971	4.1	4.0	10.0	7.3	8.8	14.0	101.2	28.9	16.0	13.1	10.0	8.8	18.8
1972	4.1	5.6	12.4	13.5	15.4	29.0	17.0	9.7	6.3	5.3	5.8	4.4	10.7
1973	6.9	7.1	7.7	6.8	9.3	21.1	36.1	19.2	10.7	7.9	5.9	4.5	11.9
1974	4.5	2.1	3.9	5.0	7.3	44.5	18.2	29.5	15.9	19.8	7.8	5.9	13.7
1975	4.7	4.7	11.0	22.0	11.7	41.7	64.8	42.0	23.3	13.6	9.6	7.7	21.4
1976	5.4	5.5	8.1	16.5	64.0	53.6	27.2	14.7	7.9	5.7	5.6	3.9	18.2
1977	7.1	6.5	5.9	10.8	8.7	32.8	29.6	14.4	10.1	7.0	5.0	3.8	11.8
1978	4.2	20.8	24.9	14.2	36.4	33.8	43.8	16.7	11.3	8.8	6.5	5.6	18.9
1979	5.0	5.3	30.4	15.0	34.9	28.7	59.7	31.6	17.1	9.3	7.6	6.2	20.9
1980	5.5	4.2	12.4	13.5	82.3	77.8	35.8	20.4	8.7	3.7	5.6	6.1	23.0
1981	5.8	4.8	5.4	9.3	29.6	42.1	66.8	24.1	13.6	8.3	8.9	8.2	18.9
1982	5.7	4.5	4.2	3.6	10.9	58.1	45.0	27.0	8.6	6.3	5.4	5.4	15.4
1983	3.9	9.3	9.2	16.7	15.6	33.2	39.2	10.7	5.8	4.2	4.0	3.6	12.9
1984	4.1	3.7	3.3	3.5	5.0	8.4	14.2	7.2	5.4	4.4	3.6	2.8	5.5
1985	3.7	6.6	7.2	12.6	36.0	14.0	46.4	34.9	14.0	7.9	6.6	6.3	16.3
1986	3.5	3.2	12.1	12.1	8.3	17.0	43.5	22.3	12.1	8.9	8.0	6.8	13.1
1987	4.7	4.4	45.9	23.1	19.3	53.2	25.6	19.8	10.5	7.1	5.9	5.0	18.7
1988	5.4	5.6	5.2	16.1	36.7	62.7	29.1	14.5	6.5	5.7	4.3	4.0	16.3
1989	4.6	4.6	5.0	6.1	6.4	41.6	26.0	15.3	8.8	6.9	6.0	5.3	11.4
1990	4.2	8.0	37.9	16.5	47.3	36.8	34.8	11.7	8.5	6.6	5.0	4.9	18.5
1991	5.3	4.9	5.3	11.8	32.5	55.9	72.1	43.8	20.6	11.9	8.5	5.9	23.2
1992	5.6	4.7	48.5	33.6	21.0	74.8	75.7	47.4	26.4	18.1	11.5	9.8	31.4
1993	7.0	6.1	10.1	41.5	53.8	134.0	19.9	8.4	6.5	4.6	4.0	3.8	25.0
1994	8.6	8.6	8.5	8.5	9.5	21.5	51.2	22.8	14.1	10.8	8.7	7.6	15.0
1995	3.9	28.5	64.3	43.5	81.9	48.9	61.8	50.7	29.6	21.0	9.1	5.9	37.4
1996	8.4	7.4	7.8	16.1	29.7	80.1							-
Avg	5.1	6.3	13.5	13.6	25.5	39.9	37.8	21.1	11.6	8.3	6.2	5.4	16.2
Max	8.6	28.5	64.3	43.5	82.3	134.0	101.2	50.7	29.6	21.0	11.5	9.8	37.4
Min	3.5	2.1	3.3	3.5	4.9	8.4	11.3	5.9	2.3	2.1	2.7	2.8	5.5

Table C-2-8(2) Monthly Discharge at Representative Stations

Barzbakhtiari Station UNIT : CMS

YEAR	10	11	12	1	2	3	4	5	6	7	8	9	Avg
1957							133.7	88.8	72.3	59.0	46.6	40.6	-
1958	57.7	56.6	99.1	72.2	81.7	112.6	261.7	119.7	89.4	68.1	50.6	41.7	92.6
1959	37.5	36.0	56.3	45.9	69.6	81.2	109.7	83.5	59.7	47.3	34.1	30.4	57.6
1960	37.2	36.0	36.0	38.3	40.2	54.6	193.3	162.4	105.2	73.7	53.4	42.9	72.8
1961	29.8	29.1	35.4	35.7	106.2	161.5	79.4	167.7	93.7	62.7	44.7	37.5	73.6
1962	38.9	37.0	50.5	57.3	92.1	88.8	48.9	94.8	68.9	45.9	32.4	27.7	56.9
1963	33.9	34.6	34.9	29.2	33.8	44.9	123.1	68.5	54.3	36.4	27.9	24.9	45.5
1964	27.0	27.0	28.6	27.5	30.5	84.4	174.6	133.7	102.4	70.5	55.1	42.0	66.9
1965	24.8	23.8	25.9	27.5	145.5	169.1	126.2	88.2	69.6	45.3	33.8	30.2	67.5
1966	34.9	37.9	35.1	35.3	78.5	118.3	139.7	159.8	100.3	68.1	46.0	34.6	74.0
1967	31.4	31.4	33.6	65.2	71.3	153.7	223.6	172.3	118.6	83.0	56.7	43.0	90.3
1968	36.6	38.1	75.4	47.8	51.0	171.5	378.6	244.2	146.6	113.0	83.1	64.3	120.9
1969	38.7	41.0	51.3	61.6	433.2	211.2	95.1	77.2	62.5	45.1	35.3	30.6	98.6
1970	54.2	62.2	51.2	57.3	66.6	88.4	82.0	109.6	70.5	49.4	40.5	36.0	64.0
1971	31.5	31.5	31.5	42.0	39.0	73.3	526.6	297.2	186.6	125.5	99.9	66.0	129.2
1972	33.6	43.8	53.3	57.3	66.4	159.3	132.7	87.0	67.6	52.0	43.6	25.6	68.5
1973	55.3	50.9	56.7	49.7	57.2	160.7	269.7	166.6	116.5	84.3	58.5	45.8	97.7
1974	34.0	32.3	32.5	37.0	51.7	259.7	237.5	213.8	150.9	105.1	76.1	57.5	107.3
1975	44.3	41.9	69.7	105.7	84.8	212.8	492.7	384.3	251.9	179.2	150.0	94.5	176.0
1976	50.5	53.3	65.8	128.1	487.1	357.4	152.8	116.2	93.3	74.9	61.1	52.1	141.1
1977	75.7	73.3	71.4	80.8	84.4	134.7	265.9	191.6	152.9	115.4	82.6	61.1	115.8
1978	51.0	123.8	127.2	505.3	219.5	279.7	141.1	135.1	115.5	93.6	69.2	55.7	159.7
1979	54.9	58.6	131.1	92.7	186.1	169.3	466.0	273.2	179.9	120.8	87.2	71.1	157.6
1980	53.5	53.1	97.2	95.1	288.8	402.0	255.3	198.9	129.3	92.2	67.2	55.2	149.0
1981	64.4	65.0	67.6	82.7	162.8	211.4	337.3	189.6	123.6	82.5	56.6	45.6	124.1
1982	54.9	53.5	61.2	58.4	90.4	216.0	222.7	227.4	135.4	94.2	71.3	57.0	111.9
1983	46.6	94.8	73.1	113.0	117.1	168.8	256.9	112.2	87.0	61.9	45.9	38.9	101.4
1984	51.5	49.8	50.7	51.8	56.8	66.3	146.4	99.2	91.2	76.0	61.9	54.7	71.4
1985	36.5	49.0	55.1	86.9	205.2	113.1	107.4	64.7	83.0	79.5	54.8	52.2	82.3
1986	59.6	76.7	105.0	149.4	278.5	304.0	315.0	233.2	155.4	104.3	78.4	62.5	160.2
1987	51.8	59.3	284.9	197.4	135.4	342.6	244.0	190.0	128.3	91.1	66.5	55.0	153.9
1988	59.3	63.7	57.2	109.7	148.2	433.3	181.6	132.1	98.6	63.9	56.1	45.1	120.7
1989	46.4	51.4	54.1	65.0	61.1	183.8	191.0	141.8	107.5	85.4	66.1	54.0	92.3
1990	38.4	77.8	259.7	132.7	218.5	203.0	275.6	143.0	95.9	66.2	50.8	43.3	133.7
1991	47.9	47.1	47.5	65.4	167.2	277.1	456.0	407.0	218.0	144.0	106.0	72.7	171.3
1992	56.2	45.9	284.0	188.0	151.0	401.0	464.0	386.0	248.0	167.0	125.0	96.5	217.7
1993	61.3	63.7	94.2	244.0	284.0	682.0	106.6	86.6	62.2	46.3	39.2	33.1	150.3
1994	82.8	77.3	71.4	62.7	76.0	89.9	236.9	195.2	148.5	111.2	77.2	59.3	107.4
1995	33.2	122.2	334.5	189.9	322.6	228.0	405.5	271.8	159.9	108.3	77.7	61.2	192.9
1996	54.8	55.9	59.5	79.4	125.9	317.2							-
Avg	46.5	54.0	84.9	94.1	140.1	204.8	232.2	172.2	118.0	84.4	63.3	49.8	112.5
Max	82.8	123.8	334.5	505.3	487.1	682.0	526.6	407.0	251.9	179.2	150.0	96.5	217.7
Min	24.8	23.8	25.9	27.5	30.5	44.9	48.9	64.7	54.3	36.4	27.9	24.9	45.5



Table C-2-8(3) Monthly Discharge at Representative Stations

Lordejan Station

UNIT : CMS

YEAR	10	11	12	1	2	3	4	5	6	7	8	9	Avg
1963							1.7	2.2	2.1	1.9	2.0	1.9	-
1964	1.5	2.0	2.0	1.9	2.3	1.9	2.0	2.4	2.3	2.2	2.3	2.1	2.1
1965	1.5	2.0	2.0	1.9	2.1	2.0	1.7	2.3	2.2	2.0	2.1	2.0	2.0
1966	1.7	2.0	2.0	1.9	2.1	1.9	1.8	2.4	2.3	2.2	2.2	2.0	2.0
1967	1.7	2.0	2.0	1.9	2.2	2.0	2.3	2.4	2.4	2.3	2.3	2.1	2.1
1968	1.8	2.0	2.0	1.9	2.2	2.0	2.9	2.5	2.5	2.6	2.5	2.3	2.3
1969	1.8	1.9	2.0	1.9	1.9	2.1	1.5	2.2	2.1	2.0	2.1	2.0	2.0
1970	2.1	1.9	2.0	1.9	2.2	1.9	1.4	2.3	2.2	2.0	2.1	2.0	2.0
1971	1.7	2.0	2.0	1.9	2.2	1.8	3.4	2.6	2.7	2.7	2.7	2.4	2.3
1972	1.7	1.9	2.0	1.9	2.2	2.0	1.8	2.3	2.2	2.0	2.1	1.9	2.0
1973	2.1	1.9	2.0	1.9	2.2	2.0	2.5	2.4	2.4	2.3	2.3	2.1	2.2
1974	1.7	2.0	2.0	1.9	2.2	2.2	2.3	2.5	2.5	2.5	2.4	2.3	2.2
1975	1.9	1.9	2.0	2.0	2.1	2.1	3.3	2.7	2.9	3.2	3.1	2.7	2.5
1976	2.0	1.9	2.0	2.0	1.9	2.4	1.9	2.3	2.3	2.2	2.3	2.2	2.1
1977	2.5	1.9	2.0	1.9	2.1	2.0	8.2	3.1	1.4	0.9	0.9	0.5	2.3
1978	0.1	0.5	1.2	2.7	4.8	7.0	1.8	2.4	2.4	2.4	2.4	2.3	2.5
1979	2.1	1.9	1.9	1.9	2.0	2.0	3.0	2.6	2.3	2.3	2.2	2.2	2.2
1980	2.1	1.9	1.8	1.7	2.2	2.6	2.9	3.0	2.8	2.6	3.6	2.6	2.5
1981	2.2	2.3	2.3	2.4	2.5	2.6	2.5	2.5	2.3	2.3	2.6	2.3	2.4
1982	2.4	2.0	2.1	2.3	2.3	2.3	2.4	2.3	2.4	2.3	2.2	2.0	2.2
1983	2.0	1.9	2.0	2.1	2.2	2.5	2.7	2.3	2.2	2.2	2.0	2.0	2.2
1984	1.6	1.6	1.8	1.8	2.1	2.2	1.9	2.0	2.0	2.0	1.6	1.8	1.9
1985	1.8	1.5	1.7	1.6	1.8	1.8	1.5	2.4	2.6	2.4	2.2	2.3	2.0
1986	1.8	1.3	1.1	1.2	1.4	1.2	2.9	2.8	2.5	2.5	2.5	2.5	2.0
1987	2.1	1.7	1.8	2.0	2.2	2.7	2.0	2.0	2.4	2.3	2.2	2.1	2.1
1988	2.5	2.0	1.7	1.7	1.9	2.0	2.1	2.2	2.2	2.1	2.1	2.0	2.0
1989	2.2	2.0	2.0	2.2	2.1	1.9	2.2	2.6	2.4	2.4	2.2	2.2	2.2
1990	1.6	1.6	1.8	2.0	1.9	2.0	2.3	2.5	2.5	2.4	2.4	2.3	2.1
1991	2.2	2.2	2.1	1.9	1.9	1.9	2.8	2.6	2.4	2.6	2.7	2.7	2.3
1992	2.1	1.9	1.7	1.9	2.2	2.5	3.6	2.7	3.4	3.5	3.0	2.7	2.6
1993	2.4	2.7	3.0	2.7	2.7	3.6	2.4	2.5	2.6	2.6	2.7	2.4	2.7
1994	2.7	2.3	2.6	2.4	2.2	2.3	3.2	3.2	3.0	3.0	2.8	2.9	2.7
1995	2.6	2.7	2.9	3.0	3.0	3.1	2.4	3.0	3.0	2.7	2.4	2.2	2.7
1996	3.0	2.4	2.4	2.2	2.6	2.5							
Avg	2.0	1.9	2.0	2.0	2.2	2.3	2.5	2.5	2.4	2.3	2.3	2.2	2.2
Max	3.0	2.7	3.0	3.0	4.8	7.0	8.2	3.2	3.4	3.5	3.6	2.9	2.7
Min	0.1	0.5	1.1	1.2	1.4	1.2	1.4	2.0	1.4	0.9	0.9	0.5	1.9

Table C-2-8(4) Monthly Discharge at Representative Stations

Table C-2-8(4) Monthly Discharge at Representative Stations										Armand Station		UNIT : CMS	
YEAR	10	11	12	1	2	3	4	5	6	7	8	9	Avg
1957							145.1	134.5	89.6	52.5	43.4	37.1	-
1958	50.8	61.2	67.6	66.2	80.3	104.6	328.3	167.5	101.7	75.7	53.6	44.7	100.2
1959	33.5	36.2	73.9	46.8	57.6	71.8	114.1	145.3	84.8	56.0	45.3	37.3	66.9
1960	39.8	40.4	45.0	51.9	51.5	54.9	127.6	279.7	131.6	81.3	56.2	47.2	83.9
1961	35.0	37.8	41.1	43.9	67.7	75.1	116.2	222.6	125.5	69.8	43.5	34.0	76.0
1962	27.9	27.7	46.3	69.8	147.9	86.2	95.3	132.8	105.7	68.1	38.4	30.3	73.0
1963	30.9	41.1	38.0	34.7	40.0	75.0	148.5	104.2	73.7	36.3	28.0	24.0	56.2
1964	27.7	27.8	30.3	30.7	33.0	73.1	167.3	173.1	125.5	68.1	38.4	30.3	68.8
1965	22.5	22.7	29.5	29.0	66.6	112.3	152.7	163.4	111.0	61.9	42.4	34.0	70.7
1966	29.5	53.4	41.4	34.5	95.9	121.8	110.0	131.1	97.5	52.0	36.2	29.9	69.4
1967	35.1	40.8	34.7	42.4	50.3	97.3	171.7	201.5	143.9	87.4	52.1	40.5	83.1
1968	26.7	31.9	42.1	39.2	40.3	94.4	453.3	371.7	215.1	148.1	105.3	71.8	136.7
1969	32.9	41.1	67.8	67.3	178.4	241.0	145.5	128.6	83.8	50.5	39.8	33.1	92.5
1970	53.2	67.8	53.5	57.9	64.8	87.9	156.4	216.2	110.2	58.9	45.0	38.3	84.2
1971	29.5	31.7	43.9	41.0	43.4	100.0	330.3	288.7	234.2	133.2	80.7	55.7	117.7
1972	35.4	40.1	51.5	48.3	50.2	111.7	187.1	157.6	105.6	68.5	53.4	42.8	79.4
1973	49.6	52.2	68.6	54.2	64.9	193.3	227.2	190.8	142.7	76.7	53.2	43.0	101.4
1974	37.8	38.5	39.7	39.7	42.8	165.7	222.3	256.3	155.7	94.0	61.3	48.7	100.2
1975	39.2	41.4	60.8	83.5	68.0	146.4	361.0	550.0	368.2	213.0	145.0	85.5	180.2
1976	45.4	50.2	62.5	63.3	230.0	180.0	161.0	147.8	100.7	63.7	45.5	36.6	98.9
1977	70.4	84.6	76.1	84.4	78.8	129.8	218.1	183.1	134.6	89.3	71.3	52.1	106.0
1978	34.6	122.3	100.2	155.0	111.6	158.5	224.3	151.6	112.4	66.3	48.7	43.3	110.7
1979	45.1	46.3	97.1	64.0	116.7	130.2	558.1	341.6	183.6	120.4	78.5	54.8	153.0
1980	38.0	40.1	60.1	58.3	101.0	213.8	248.6	247.1	160.2	95.4	64.3	48.9	114.7
1981	47.4	59.2	68.8	76.3	111.2	140.1	250.8	241.7	132.6	73.8	52.6	43.9	108.2
1982	44.4	46.9	62.5	57.6	64.7	107.3	198.0	304.2	173.2	97.0	60.8	47.2	105.3
1983	48.0	87.2	64.3	87.4	78.8	114.8	259.9	169.7	98.0	58.6	44.1	37.5	95.7
1984	45.3	48.0	51.7	52.5	57.9	73.5	178.9	107.1	80.6	55.0	42.2	36.1	69.1
1985	37.1	46.1	50.2	65.7	101.5	83.3	240.2	314.3	139.4	81.4	58.0	49.7	105.6
1986	34.5	36.9	45.0	54.9	51.6	76.8	276.8	337.7	150.4	88.3	67.4	51.9	106.0
1987	45.4	51.9	103.2	94.2	118.7	244.5	236.3	208.0	116.0	74.6	56.1	46.9	116.3
1988	52.2	99.8	63.7	125.6	104.9	318.7	185.8	183.5	108.7	65.6	47.6	40.3	116.4
1989	44.7	59.3	62.9	75.3	67.2	151.5	199.7	159.8	90.1	63.6	48.6	43.2	88.8
1990	37.3	62.6	116.1	83.0	98.8	184.9	253.3	130.2	76.0	51.5	42.2	39.6	97.9
1991	39.1	41.6	43.7	49.9	71.0	120.3	298.0	382.0	215.0	113.0	74.0	58.8	125.5
1992	43.5	41.9	135.0	86.9	74.0	182.0	356.0	480.0	284.0	149.0	105.0	78.6	168.0
1993	54.9	55.1	67.8	123.0	124.0	403.0	132.5	112.5	69.7	49.5	40.8	36.2	105.7
1994	67.8	82.0	83.1	84.4	108.5	97.7	153.3	166.2	120.9	68.7	52.9	43.3	94.1
1995	38.0	88.9	240.5	112.0	130.9	130.0	285.5	259.9	131.4	76.7	57.0	45.9	133.1
1996	43.1	45.5	47.9	49.9	74.5	152.5							
Avg	40.8	52.1	66.1	66.3	85.1	138.6	222.4	221.6	135.5	80.9	56.9	44.7	101.6
Max	70.4	122.3	240.5	155.0	230.0	403.0	558.1	550.0	368.2	213.0	145.0	85.5	180.2
Min	22.5	22.7	29.5	29.0	33.0	54.9	95.3	104.2	69.7	36.3	28.0	24.0	56.2

Table C-2-8(5) Monthly Discharge at Representative Stations

Poleshaloo Station UNIT : CMS

YEAR	10	11	12	1	2	3	4	5	6	7	8	9	Avg
1933							834.0	734.0	482.0	310.0	229.0	187.0	-
1934	178.0	213.0	330.0	354.0	469.0	579.0	689.0	606.0	400.0	259.0	193.0	158.0	369.0
1935	151.0	180.0	276.0	295.0	390.0	479.0	671.0	590.0	390.0	253.0	188.0	155.0	334.8
1936	148.0	176.0	269.0	288.0	300.0	467.0	625.0	550.0	364.0	237.0	177.0	146.0	312.3
1937	139.0	165.0	252.0	270.0	355.0	436.0	980.0	861.0	564.0	361.0	266.0	216.0	405.4
1938	206.0	247.0	385.0	413.0	549.0	678.0	853.0	750.0	492.0	316.0	234.0	191.0	442.8
1939	102.0	218.0	337.0	362.0	480.0	592.0	799.0	702.0	462.0	298.0	220.0	180.0	396.0
1940	172.0	205.0	317.0	340.0	450.0	594.0	506.0	446.0	296.0	194.0	145.0	120.0	315.4
1941	114.0	135.0	206.0	219.0	299.0	354.0	604.0	532.0	354.0	232.0	174.0	145.0	280.7
1942	138.0	163.0	246.0	263.0	345.0	422.0	798.0	702.0	462.0	298.0	222.0	182.0	353.4
1943	173.0	206.0	318.0	341.0	450.0	554.0	473.0	417.0	278.0	182.0	138.0	114.0	303.7
1944	110.0	129.0	194.0	206.0	270.0	331.0	646.0	570.0	377.0	246.0	184.0	151.0	284.5
1945	145.0	172.0	261.0	279.0	367.0	451.0	963.0	846.0	554.0	355.0	262.0	213.0	405.7
1946	203.0	243.0	378.0	406.0	540.0	667.0	434.0	383.0	256.0	170.0	129.0	108.0	326.4
1947	104.0	121.0	180.0	192.0	250.0	305.0	366.0	324.0	218.0	146.0	112.0	94.0	201.0
1948	91.0	153.0	154.0	164.0	213.0	259.0	1006.0	883.0	578.0	370.0	272.0	221.0	363.7
1949	211.0	253.0	394.0	424.0	563.0	696.0	805.0	708.0	465.0	300.0	222.0	182.0	435.3
1950	173.0	206.0	319.0	342.0	453.0	558.0	359.0	326.0	250.0	181.0	133.0	120.0	285.0
1951	152.0	146.0	193.0	253.0	284.0	408.0	453.0	571.0	343.0	222.0	157.0	133.0	276.3
1952	111.0	143.0	155.0	224.0	339.0	403.0	638.0	571.0	382.0	269.0	197.0	149.0	298.4
1953	123.0	124.0	142.0	399.0	382.0	761.0	1178.0	797.0	469.0	322.0	227.0	173.0	424.8
1954	129.0	172.0	497.0	386.0	327.0	622.0	581.0	538.0	377.0	256.0	187.0	147.0	351.6
1955	147.0	139.0	662.0	361.0	298.0	362.0	443.0	474.0	346.0	228.0	168.0	131.0	313.3
1956	132.0	116.0	161.0	174.0	220.0	586.0	611.0	776.0	526.0	316.0	228.0	165.0	334.3
1957	114.0	110.0	118.0	193.0	154.0	389.0	390.0	290.0	212.0	149.0	117.0	97.0	194.4
1958	142.0	165.0	232.0	183.0	201.0	332.0	600.4	378.4	248.3	180.2	125.5	98.3	240.5
1959	89.8	90.2	171.1	130.7	171.3	221.6	337.4	340.3	219.9	136.7	49.5	79.7	169.9
1960	90.1	86.0	90.0	114.8	123.5	161.3	409.0	490.0	310.0	197.0	132.0	100.0	192.0
1961	74.0	81.0	85.0	101.0	277.0	306.0	282.4	466.3	282.0	187.8	132.6	112.2	198.9
1962	90.1	87.0	132.7	147.0	277.4	276.5	266.7	354.8	272.2	181.7	121.7	100.2	192.3
1963	103.2	111.1	118.8	117.3	152.9	224.8	362.9	254.3	179.3	110.3	86.7	78.9	158.4
1964	84.9	80.1	89.3	85.7	102.9	244.9	451.2	415.0	293.8	174.4	120.1	96.0	186.5
1965	76.9	76.2	96.7	111.7	327.0	415.9	396.4	350.3	253.0	157.1	107.9	87.1	204.7
1966	89.6	145.0	104.7	101.9	271.0	349.7	350.0	410.5	275.8	174.6	118.2	98.4	207.5
1967	92.0	104.7	95.0	153.4	175.2	356.2	544.5	544.3	361.5	243.3	161.1	118.4	245.8
1968	88.6	98.4	180.5	133.0	147.0	397.3	1230.0	884.0	487.0	342.1	269.7	196.4	371.2
1969	103.5	126.7	200.4	195.0	1072.0	696.9	388.4	314.2	217.0	149.7	116.8	99.9	306.7
1970	161.3	176.0	155.3	172.8	199.8	278.3	457.1	447.2	273.7	169.2	119.2	99.7	225.8
1971	95.2	95.7	138.3	123.6	136.3	274.2	1140.0	773.4	555.9	351.9	252.7	162.0	341.6
1972	93.5	110.8	170.3	155.9	182.0	383.5	469.0	343.6	246.0	171.0	130.6	105.0	213.4
1973	149.0	160.0	182.5	150.9	192.0	539.0	661.0	474.4	335.2	230.7	150.5	127.4	279.4
1974	98.0	99.2	106.9	113.1	130.0	524.0	550.3	524.2	345.3	237.4	164.4	135.1	252.3
1975	115.2	110.8	186.6	284.9	213.9	469.1	1015.0	1135.0	818.0	495.0	354.0	237.0	452.9
1976	119.0	130.0	154.0	302.0	896.0	633.0	450.4	392.0	268.8	180.9	138.1	116.2	315.0
1977	192.5	237.6	196.5	230.7	232.6	404.5	615.6	481.1	342.4	239.3	171.7	123.9	289.0
1978	115.1	281.0	395.8	762.5	455.1	556.0	644.6	422.2	331.5	208.5	158.7	132.1	371.9
1979	129.6	142.2	359.1	249.7	444.0	410.7	1587.0	1005.0	576.0	389.0	277.0	194.0	480.3
1980	124.9	128.0	187.0	193.0	589.0	922.0	761.0	629.0	402.0	291.0	200.0	153.0	381.7
1981	163.5	172.0	193.0	275.0	439.0	543.0	890.0	652.4	391.7	227.1	166.2	130.8	353.6
1982	144.7	152.9	195.4	190.3	249.2	460.0	665.3	884.1	448.3	265.5	179.9	137.6	331.1
1983	144.2	287.7	216.8	302.6	302.4	424.7	757.3	390.9	251.8	157.9	118.2	100.8	287.9
1984	122.3	120.8	138.2	138.2	165.3	225.5	536.8	329.7	245.8	169.0	119.0	100.0	200.9
1985	94.2	154.4	174.5	236.5	438.9	299.9	828.0	975.0	479.0	276.0	196.0	160.0	359.4
1986	93.9	104.0	231.0	217.0	204.0	310.0	944.5	968.0	540.9	317.0	239.4	166.1	361.3
1987	135.4	181.0	584.0	392.0	384.1	951.0	730.0	618.0	376.0	252.0	202.0	168.0	414.5
1988	164.0	273.0	193.0	438.0	408.0	1102.0	657.0	570.0	358.0	224.0	181.0	138.0	392.2
1989	154.0	180.0	191.0	263.0	215.0	555.0	585.0	475.0	327.0	246.0	180.0	135.0	292.2
1990	128.0	226.0	568.0	334.0	452.0	579.0	882.0	452.0	275.0	185.0	138.0	121.0	361.7
1991	122.0	126.0	128.0	169.0	317.0	577.0	987.0	1078.0	659.0	391.0	269.0	203.0	418.8
1992	147.0	124.0	558.0	359.0	303.0	707.0	1232.0	1302.0	784.0	473.0	365.0	249.0	550.3
1993	182.0	177.0	261.0	566.0	602.0	1497.0	415.7	354.9	217.0	159.0	124.4	109.0	388.7
1994	206.7	259.3	242.3	260.1	345.2	340.4	550.7	573.8	409.3	259.1	174.1	158.6	315.0
1995	106.7	417.8	896.2	489.7	593.1	527.8	1015.6	838.1	509.6	301.0	207.1	156.4	504.9
1996	142.5	141.6	142.5	181.4	283.8	713.1							
Avg	130.7	161.2	245.8	258.3	340.0	494.3	672.3	591.1	382.0	247.2	179.4	142.3	319.6
Max	211.0	417.8	896.2	762.5	1072.0	1497.0	1587.0	1302.0	818.0	495.0	365.0	249.0	550.3
Min	74.0	76.2	85.0	85.7	102.9	161.3	266.7	254.3	179.3	110.3	49.5	78.9	158.4

Table C-2-8(6) Monthly Discharge at Representative Stations

Dazak Station													UNIT : CMS
YEAR	10	11	12	1	2	3	4	5	6	7	8	9	Avg
1984							23.2	14.0	14.9	10.3	5.7	3.4	-
1985	2.4	3.5	3.8	4.1	6.8	7.8	19.1	35.2	10.0	5.6	4.0	4.3	8.9
1986	2.6	2.5	4.0	3.1	3.2	4.4	28.9	73.8	16.9	6.3	4.7	4.7	12.9
1987	3.7	4.9	8.1	5.5	6.0	18.3	17.7	20.0	9.7	6.8	4.8	3.1	9.0
1988	4.9	27.3	6.2	12.8	6.7	20.0	13.8	21.4	8.5	5.7	3.8	2.4	11.1
1989	3.0	4.7	4.3	4.5	3.9	8.8	13.5	13.2	6.4	5.9	4.4	2.2	6.2
1990	2.7	6.8	7.4	3.9	3.6	12.5	17.3	9.7	4.8	3.2	2.6	1.9	6.4
1991	2.2	2.4	2.1	2.3	3.3	8.7	18.1	35.4	22.1	9.0	5.9	3.3	9.6
1992	2.0	2.2	10.2	5.3	3.2	6.6	27.7	45.0	26.0	21.1	8.3	4.7	13.5
1993	3.4	2.7	3.5	7.2	6.1	22.6	9.7	9.7	6.3	4.4	2.7	2.0	6.7
1994	3.7	6.4	5.0	5.0	8.3	6.9	11.3	13.0	9.1	5.2	3.3	2.5	6.6
1995	2.5	9.8	19.0	5.8	5.4	5.8	21.8	29.6	12.9	6.0	2.8	2.2	10.3
1996	2.5	2.8	2.1	2.0	3.4	9.4							-
Avg	3.0	6.3	6.3	5.1	5.0	11.0	18.5	26.7	12.3	7.5	4.4	3.0	9.2
Max	4.9	27.3	19.0	12.8	8.3	22.6	28.9	73.8	26.0	21.1	8.3	4.7	13.5
Min	2.0	2.2	2.1	2.0	3.2	4.4	9.7	9.7	4.8	3.2	2.6	1.9	6.2

Table C-2-8(7) Monthly Discharge at Representative Stations

Solegan Station													UNIT : CMS
YEAR	10	11	12	1	2	3	4	5	6	7	8	9	Avg
1963							16.9	4.4	2.0	1.6	0.3	0.6	-
1964	1.3	3.2	4.3	3.8	4.6	9.7	19.4	9.7	4.8	2.9	1.2	1.0	5.5
1965	0.9	2.5	4.2	3.5	9.8	16.0	17.4	8.9	4.0	2.6	1.5	1.2	6.1
1966	1.5	6.5	5.9	4.3	14.6	17.6	11.8	6.3	3.3	2.2	1.0	0.9	6.3
1967	2.2	4.9	5.0	5.5	7.3	13.5	20.0	12.3	5.8	3.6	2.3	1.8	7.0
1968	1.2	3.7	6.0	5.0	5.7	13.1	57.4	31.8	9.7	6.0	6.8	6.4	12.7
1969	1.9	4.9	9.7	9.3	28.4	38.8	16.5	6.1	2.5	2.2	1.3	1.2	10.2
1970	5.2	8.5	7.7	7.8	9.6	12.0	17.9	13.7	4.0	2.5	1.7	1.6	7.7
1971	1.5	3.7	6.3	5.3	6.2	14.0	41.0	21.5	10.8	5.5	4.7	3.6	10.3
1972	2.2	4.8	7.4	6.4	7.3	15.9	22.0	8.4	3.7	2.9	2.4	2.1	7.1
1973	4.5	6.4	9.8	7.3	9.6	30.0	27.3	11.3	5.8	3.2	2.4	2.1	10.0
1974	2.6	4.6	5.7	5.1	6.1	25.1	26.7	17.9	6.5	3.9	3.1	2.7	9.1
1975	2.8	4.9	8.7	11.9	10.1	21.8	45.1	58.4	18.1	8.6	10.1	9.3	17.5
1976	3.8	6.1	8.9	8.7	37.4	27.6	18.5	7.6	3.5	2.7	1.8	1.5	10.7
1977	9.4	10.9	10.9	12.0	11.8	18.9	26.1	10.6	5.3	3.7	3.9	3.2	10.6
1978	2.1	16.3	14.3	24.1	17.2	23.9	26.7	13.0	5.0	2.6	2.6	3.0	12.6
1979	3.9	6.8	12.5	9.4	16.6	18.7	68.5	29.1	9.2	6.0	5.5	5.6	16.0
1980	3.7	5.8	8.6	8.3	22.2	58.9	26.2	16.6	4.4	3.1	3.1	3.0	13.7
1981	5.2	8.1	9.6	11.4	17.7	17.6	27.5	12.7	5.5	2.8	2.3	2.4	10.2
1982	3.9	6.2	9.7	7.7	10.4	17.7	31.7	24.0	6.2	3.5	3.0	3.1	10.6
1983	5.5	13.9	9.1	14.6	11.9	20.8	33.9	10.1	3.2	2.2	2.0	2.1	10.8
1984	4.2	6.3	7.9	7.3	9.3	9.4	10.8	2.9	1.6	0.9	0.9	0.9	5.2
1985	2.7	5.8	6.6	8.4	13.4	9.6	32.8	38.6	6.4	3.3	2.6	2.5	11.1
1986	1.5	3.3	6.2	6.2	5.8	8.6	35.5	19.0	6.0	4.1	4.9	4.0	8.7
1987	3.0	5.1	14.0	13.4	16.9	34.3	22.8	11.1	3.5	2.5	2.4	2.4	10.9
1988	4.7	10.2	9.2	13.0	14.4	43.6	19.8	11.3	3.1	1.9	1.6	1.4	11.2
1989	3.0	7.4	10.2	10.0	9.2	22.6	28.7	9.6	3.9	2.1	2.0	1.6	9.2
1990	2.1	8.3	20.6	13.2	16.3	27.4	29.9	6.6	2.9	1.8	1.3	1.5	11.0
1991	3.1	4.9	6.2	7.0	13.7	18.6	41.1	38.9	11.1	4.9	3.4	3.1	13.0
1992	3.2	4.4	17.4	9.9	9.9	28.3	48.1	38.1	13.3	6.5	6.2	6.2	16.0
1993	4.2	6.0	9.1	27.4	17.7	64.3	10.7	4.5	1.4	0.7	1.0	0.8	12.3
1994	7.3	10.7	11.6	12.2	16.1	13.1	17.8	11.2	5.7	1.4	1.1	0.8	9.1
1995	2.2	9.4	39.2	14.2	17.4	22.8	30.1	17.2	4.5	3.4	2.3	2.2	13.7
1996	2.5	4.7	5.7	7.1	18.6	21.9	12.4	5.7	1.6	0.9	0.6	0.4	6.8
1997	4.0	4.9	6.6	6.3	6.2	6.5	47.7	12.9	4.5	3.0	2.6	2.5	9.0
1998	1.2	3.1	4.4	5.8	17.6	25.7							-
Avg	3.3	6.5	9.7	9.5	13.3	22.5	28.2	16.1	5.5	3.2	2.7	2.5	10.3
Max	9.4	16.3	39.2	27.4	37.4	64.3	68.5	58.4	18.1	8.6	10.1	9.3	17.5
Min	0.9	2.5	4.2	3.5	4.6	6.5	10.7	2.9	1.4	0.7	0.3	0.4	5.2

Table C-2-8(8) Monthly Discharge at Representative Stations

Beheshtabad Station UNIT : CMS

YEAR	10	11	12	1	2	3	4	5	6	7	8	9	Avg
1963							32.2	17.6	7.3	2.3	0.8	1.5	-
1964	1.2	2.3	5.1	3.9	6.6	19.2	38.9	34.4	16.9	6.1	2.8	2.5	11.7
1965	0.2	1.1	4.9	3.3	15.4	32.0	33.7	32.0	13.9	5.3	3.5	3.0	12.4
1966	1.6	8.6	8.3	5.1	23.9	35.1	18.5	24.2	11.4	4.0	2.4	2.4	12.1
1967	2.6	5.5	6.4	7.6	11.0	27.1	40.5	41.3	20.9	9.0	5.3	4.1	15.1
1968	1.0	3.3	8.4	6.6	8.4	26.1	141.0	82.7	39.3	20.7	15.1	9.1	30.1
1969	2.2	5.6	15.7	15.5	50.4	74.1	31.2	23.6	9.0	3.8	3.0	2.9	19.7
1970	6.1	12.1	11.7	12.5	14.9	24.0	35.0	44.9	13.8	4.9	4.0	3.7	15.6
1971	1.6	3.3	9.0	7.1	9.2	28.0	97.1	62.5	44.9	17.5	10.6	6.5	24.8
1972	2.7	5.4	11.1	9.5	11.0	31.8	46.0	30.6	12.9	6.2	5.5	4.4	14.7
1973	5.4	8.3	15.9	11.3	14.9	58.5	60.3	38.7	20.7	7.4	5.5	4.5	20.9
1974	3.1	5.0	7.8	6.7	9.0	49.5	58.6	54.6	23.7	10.1	7.0	5.4	20.0
1975	3.4	5.7	13.7	20.6	15.8	43.1	108.0	126.0	91.0	36.7	22.4	11.2	41.5
1976	4.6	7.8	14.2	14.2	68.5	54.1	36.7	28.2	12.0	5.5	4.1	3.5	21.1
1977	9.3	16.3	18.0	20.9	18.8	37.7	57.1	36.8	18.9	9.3	8.8	5.9	21.5
1978	2.5	25.5	24.8	43.3	28.7	47.1	59.3	29.2	14.2	5.9	4.7	4.5	24.1
1979	4.5	6.9	23.9	14.4	30.2	37.8	178.4	75.4	30.6	15.0	10.1	6.4	36.1
1980	3.2	5.4	13.5	12.6	25.4	65.2	67.9	52.4	24.8	10.4	7.5	5.4	24.5
1981	5.0	10.0	15.9	18.3	28.5	41.1	68.7	51.1	18.4	6.9	5.4	4.6	22.8
1982	4.4	7.0	14.2	12.4	14.9	30.4	55.0	60.2	20.8	7.9	6.4	5.3	19.9
1983	5.1	18.5	13.5	22.2	18.0	34.2	65.1	29.3	11.1	6.0	4.6	3.8	19.3
1984	5.0	7.0	10.2	12.1	15.6	20.1	34.6	15.5	6.0	2.8	2.3	2.6	11.1
1985	3.5	6.8	11.4	14.4	20.7	18.9	58.5	67.2	19.4	7.6	6.1	4.6	19.9
1986	2.0	3.3	10.8	11.6	11.0	18.8	83.6	77.8	25.2	12.5	8.8	6.4	22.6
1987	3.9	7.8	26.3	23.3	36.0	82.1	68.2	48.3	14.9	6.5	5.2	5.0	27.3
1988	5.6	18.0	13.8	34.7	28.3	94.1	52.1	42.8	24.4	8.3	5.8	5.1	27.7
1989	5.0	12.6	14.3	17.0	13.9	46.4	50.5	31.2	10.1	5.5	4.6	4.5	18.0
1990	3.0	10.9	29.2	20.5	24.7	55.7	69.6	24.0	7.7	3.9	3.5	3.9	21.4
1991	3.4	5.7	8.9	10.0	16.6	34.6	85.6	85.2	39.2	13.5	9.3	7.0	26.6
1992	4.2	5.8	34.5	21.7	17.5	54.8	106.3	109.0	60.6	20.9	15.0	10.1	38.4
1993	6.4	9.0	15.7	33.1	32.5	127.0							-
Avg	3.7	8.3	14.4	15.5	21.3	44.9	64.6	49.2	22.8	9.4	6.7	5.0	22.1
Max	9.3	25.5	34.5	43.3	68.5	127.0	178.4	126.0	91.0	36.7	22.4	11.2	41.5
Min	0.2	1.1	4.9	3.3	6.6	18.8	18.5	15.5	6.0	2.3	0.8	1.5	11.1

Table C-2-8(9) Monthly Discharge at Representative Stations

Morghak Station UNIT : CMS

YEAR	10	11	12	1	2	3	4	5	6	7	8	9	Avg
1963							103.6	51.6	33.1	17.0	16.0	14.8	-
1964	14.8	9.1	13.6	17.7	22.7	57.1	122.2	92.2	59.0	30.9	21.5	17.3	39.8
1965	13.6	8.0	15.5	22.7	64.5	101.4	110.7	75.9	49.8	27.2	19.5	16.0	43.7
1966	15.5	26.4	17.6	20.8	54.1	84.2	100.9	91.1	54.9	31.0	21.2	17.6	44.6
1967	15.8	15.7	15.1	30.6	36.2	85.9	133.9	126.0	81.1	47.3	28.7	21.7	53.2
1968	14.8	19.6	45.8	29.4	39.8	111.6	334.3	179.0	99.6	60.7	40.8	28.5	83.7
1969	17.3	25.4	57.9	59.2	168.1	199.9	120.3	80.0	48.3	32.4	25.2	21.6	71.3
1970	22.4	22.5	18.5	27.9	39.5	83.6	144.9	109.2	53.5	34.6	23.4	19.5	50.0
1971	14.8	14.1	23.6	20.5	21.4	74.6	286.2	190.4	123.0	71.9	43.2	28.7	76.0
1972	15.7	27.8	58.2	32.9	40.7	102.4	136.8	83.0	51.0	33.1	23.9	19.1	52.1
1973	22.5	25.3	33.3	24.7	59.8	172.9	223.2	146.6	82.9	46.3	29.6	22.4	74.1
1974	17.3	16.4	18.2	20.9	25.3	143.0	140.0	127.0	74.6	43.2	27.8	23.2	56.4
1975	19.8	17.1	38.0	61.4	37.7	117.0	262.0	283.0	192.0	110.0	66.0	41.0	103.8
1976	18.9	17.6	33.9	87.5	221.0	104.0	91.5	73.7	47.6	30.2	22.7	19.8	64.0
1977	37.1	34.7	28.5	37.8	47.8	98.8	120.6	96.4	65.0	42.7	28.2	21.1	54.9
1978	27.3	84.2	93.3	89.9	85.1	156.7	106.9	77.5	57.3	40.3	28.4	20.3	72.3
1979	19.2	20.6	90.6	37.8	74.9	68.3	318.1	183.1	95.8	55.6	39.5	28.1	86.0
1980	20.9	18.4	28.6	33.5	111.3	173.3	166.2	105.4	67.8	44.7	30.2	23.1	68.6
1981	24.3	26.9	33.6	60.9	85.6	123.0	277.6	185.7	80.9	40.2	28.4	23.3	82.5
1982	22.2	26.5	32.6	28.3	49.6	119.5	159.8	194.3	91.3	47.3	28.3	25.1	68.7
1983	24.2	60.7	31.8	50.6	44.8	77.1	160.8	67.8	44.2	29.8	21.8	18.3	52.6
1984	21.0	18.8	23.7	23.7	39.4	55.0	152.1	82.5	52.2	32.0	23.2	18.2	45.1
1985	16.3	36.5	36.2	42.2	83.9	77.8	211.1	262.7	116.9	53.7	39.3	31.1	84.0
1986	16.2	22.4	76.7	46.1	56.1	89.6	226.3	231.7	114.8	61.9	41.2	27.7	84.2
1987	22.4	36.0	144.4	76.2	75.2	240.3	181.0	143.4	77.6	47.8	35.0	28.0	92.3
1988	26.8	60.6	41.0	85.0	79.6	279.5	165.3	129.8	75.2	43.6	30.7	23.7	86.7
1989	27.3	41.0	34.4	51.8	43.4	129.3	128.4	106.4	68.9	40.3	26.8	17.3	59.6
1990	21.5	54.1	136.9	54.6	76.0	151.2	225.1	98.9	55.5	34.1	25.5	19.8	79.4
1991	18.6	17.9	16.0	27.7	48.0	130.4	242.0	280.0	144.0	82.3	48.4	28.0	90.3
1992	27.1	18.2	130.7	50.8	48.5	149.0	252.0	336.0	164.0	108.0	65.1	45.3	116.2
1993	26.0	32.0	83.9	200.6	137.0	194.0	117.2	85.1	54.8	34.0	26.9	22.6	84.5
1994	34.6	59.3	53.5	66.3	92.0	100.7	141.2	142.0	84.3	50.5	38.0	40.0	75.2
1995	19.8	145.3	280.1	89.7	100.0	109.8	261.0	189.3	94.9	51.0	33.9	24.2	116.6
1996	23.0	21.3	21.0	28.8	57.1	161.1							-
Avg	21.2	32.7	54.7	49.6	68.7	124.9	179.5	142.6	80.5	47.1	31.8	24.1	72.3
Max	37.1	145.3	280.1	200.6	221.0	279.5	334.3	336.0	192.0	110.0	66.0	45.3	116.6
Min	13.6	8.0	13.6	17.7	21.4	55.0	91.5	51.6	33.1	17.0	16.0	14.8	39.8

Table C-2-8(10) Monthly Discharge at Representative Stations

YEAR	Kata Station										UNIT : CMS		
	10	11	12	1	2	3	4	5	6	7	8	9	Avg
1963							66.5	44.6	38.4	24.4	18.4	13.6	-
1964	13.7	14.8	22.0	22.2	18.2	40.3	56.1	58.7	48.4	32.1	23.1	19.3	30.7
1965	14.8	15.5	22.3	23.5	29.1	51.8	30.3	35.9	33.0	20.2	14.4	10.9	25.1
1966	15.9	16.7	22.4	22.6	23.7	37.5	44.2	74.8	55.1	38.7	25.2	20.2	33.1
1967	14.1	15.2	21.9	24.4	22.3	46.7	67.5	50.7	49.8	36.7	24.3	18.4	32.7
1968	15.4	16.3	24.2	24.1	22.4	33.2	127.7	78.0	57.3	48.1	37.3	26.7	42.6
1969	16.1	15.9	22.8	24.8	97.8	80.6	25.7	33.1	32.1	17.5	14.4	11.4	32.7
1970	18.4	18.0	22.6	23.8	23.8	36.7	35.4	49.5	39.6	21.0	15.1	12.0	26.3
1971	13.8	14.8	22.9	22.8	17.2	34.5	136.5	89.5	75.5	58.6	37.5	24.7	45.7
1972	12.9	13.5	15.8	15.2	18.2	37.0	43.6	34.4	35.7	25.8	18.8	14.3	23.8
1973	19.3	18.1	20.3	18.8	20.2	44.6	60.1	52.4	50.9	35.6	26.3	24.6	32.6
1974	12.8	12.9	14.1	14.4	14.9	53.3	63.3	67.6	56.9	46.7	30.8	20.0	34.0
1975	22.9	16.0	19.8	27.3	21.2	45.8	126.5	108.8	83.3	73.2	53.2	31.1	52.4
1976	15.6	17.5	20.0	34.4	96.1	88.7	42.5	44.8	40.5	30.6	19.5	14.0	38.7
1977	24.0	28.4	24.4	24.6	23.8	35.5	66.8	59.3	55.2	46.1	29.8	21.3	36.6
1978	9.8	33.3	36.0	86.6	51.5	58.8	67.8	48.9	48.6	33.5	21.2	15.7	42.6
1979	18.8	19.4	31.1	24.8	40.0	46.7	183.5	119.0	86.8	51.4	30.3	18.9	55.9
1980	16.8	12.8	20.8	15.6	51.9	92.1	83.9	64.4	55.3	40.8	25.4	16.5	41.3
1981	13.1	12.7	15.1	15.8	35.6	50.1	76.5	73.2	48.0	15.3	15.3	14.9	32.1
1982	15.1	11.2	13.1	18.1	21.9	41.7	56.0	70.0	57.9	41.4	29.0	18.0	32.8
1983	20.2	37.6	25.5	32.8	32.9	39.1	76.9	37.1	32.8	20.7	14.1	11.8	31.8
1984	13.4	13.1	16.4	17.5	17.9	18.1	47.4	30.9	35.0	27.8	15.1	9.1	21.8
1985	10.4	12.2	15.8	26.3	36.2	32.2	85.4	90.1	54.6	48.0	27.6	18.2	38.1
1986	10.6	10.6	20.9	18.9	15.2	19.0	89.3	87.8	69.7	48.6	28.0	21.2	36.7
1987	13.9	18.2	79.2	53.7	41.9	87.2	64.2	64.9	52.5	37.0	19.1	14.6	45.5
1988	18.1	27.9	24.5	29.2	42.3	94.8	44.8	49.8	43.6	22.7	15.9	12.2	35.5
1989	15.7	18.8	23.4	23.3	20.3	38.7	52.4	51.3	31.5	28.0	21.9	16.2	28.4
1990	12.2	27.6	57.9	32.6	41.1	50.5	79.7	56.2	45.3	29.0	17.9	14.7	38.7
1991	16.2	15.8	18.6	20.0	36.4	51.2	82.9	135.0	87.4	62.3	41.5	24.8	49.3
1992	19.5	15.5	71.6	41.9	31.6	73.9	132.8	156.7	91.9	67.2	54.0	42.2	66.6
1993	20.5	22.3	25.4	55.6	57.4	171.0	44.8	36.4	27.8	22.4	15.5	14.6	42.8
1994	25.1	26.3	23.7	26.3	27.6	36.7	66.3	62.0	63.3	53.1	32.6	20.2	38.6
1995	15.5	99.4	91.1	48.8	70.1	63.3	91.5	76.8	57.2	44.9	29.1	17.1	58.7
1996	17.0	17.6	19.8	21.0	35.8	62.1							
Avg	16.1	20.8	28.0	28.2	35.0	54.3	73.3	66.4	52.7	37.8	25.5	18.3	38.3
Max	25.1	99.4	91.1	86.6	97.8	171.0	183.5	156.7	91.9	73.2	54.0	42.2	66.6
Min	9.8	10.6	13.1	14.4	14.9	18.1	25.7	30.9	27.8	15.3	14.1	9.1	21.8

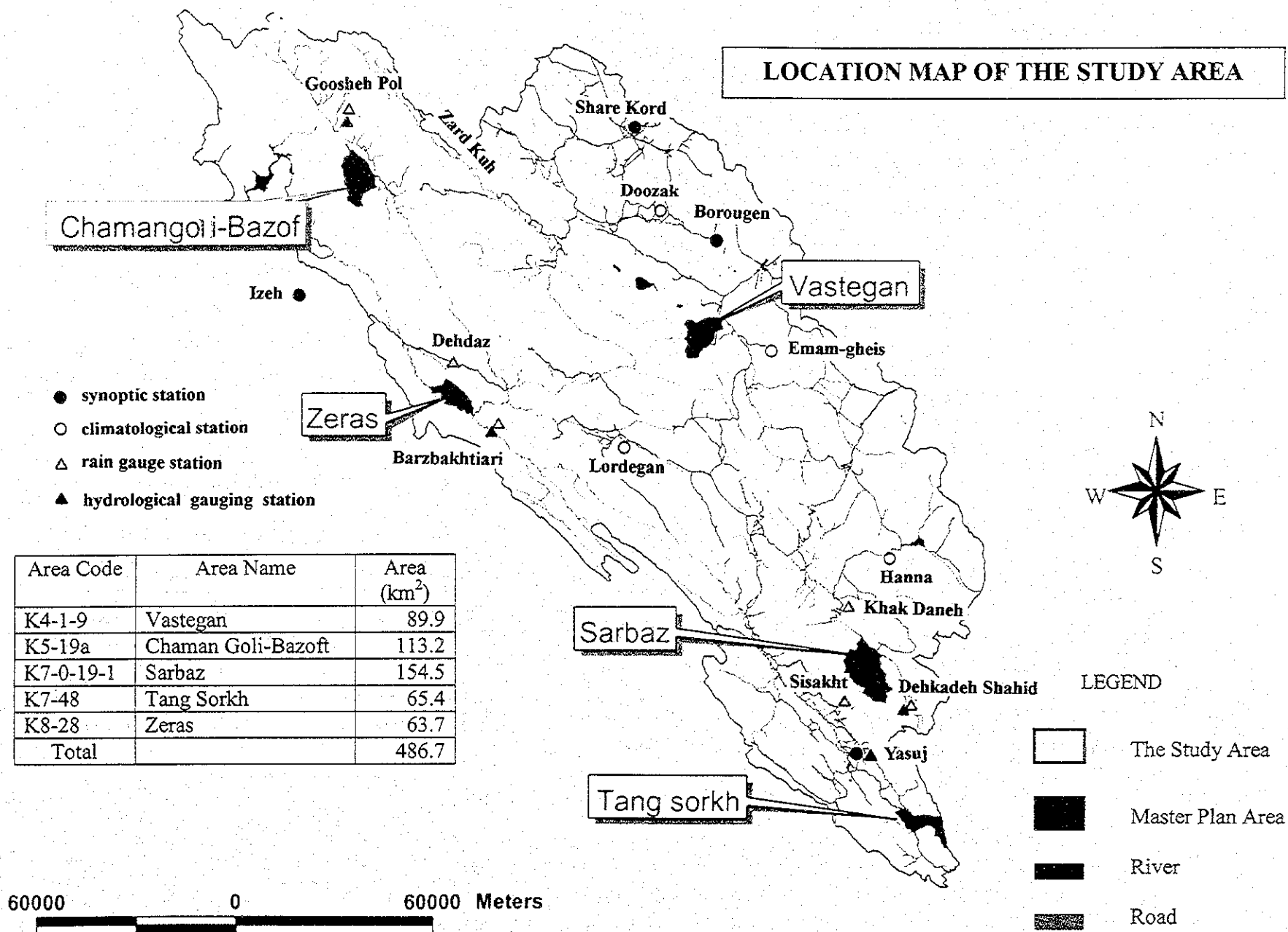


Figure C-2-1 Meteorological and Hydrological Gauging Stations around Master Plan area



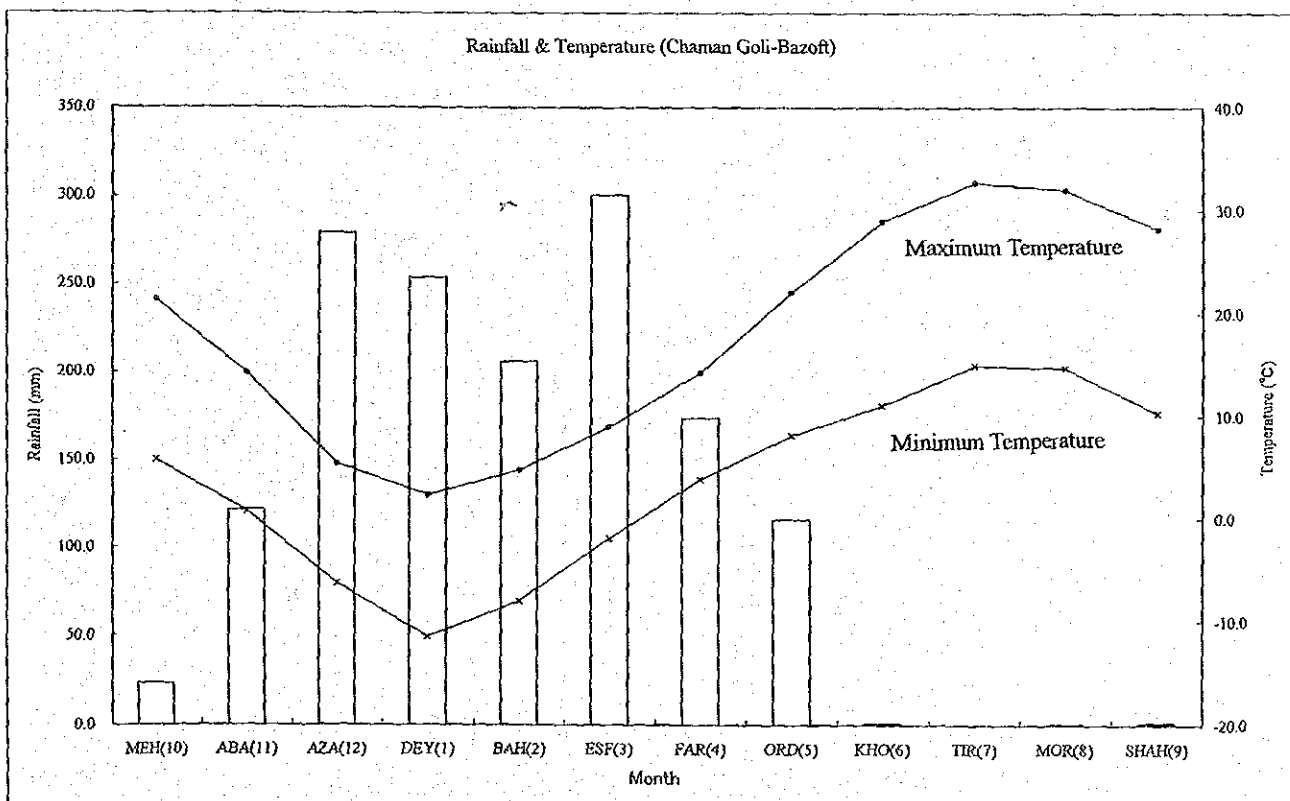
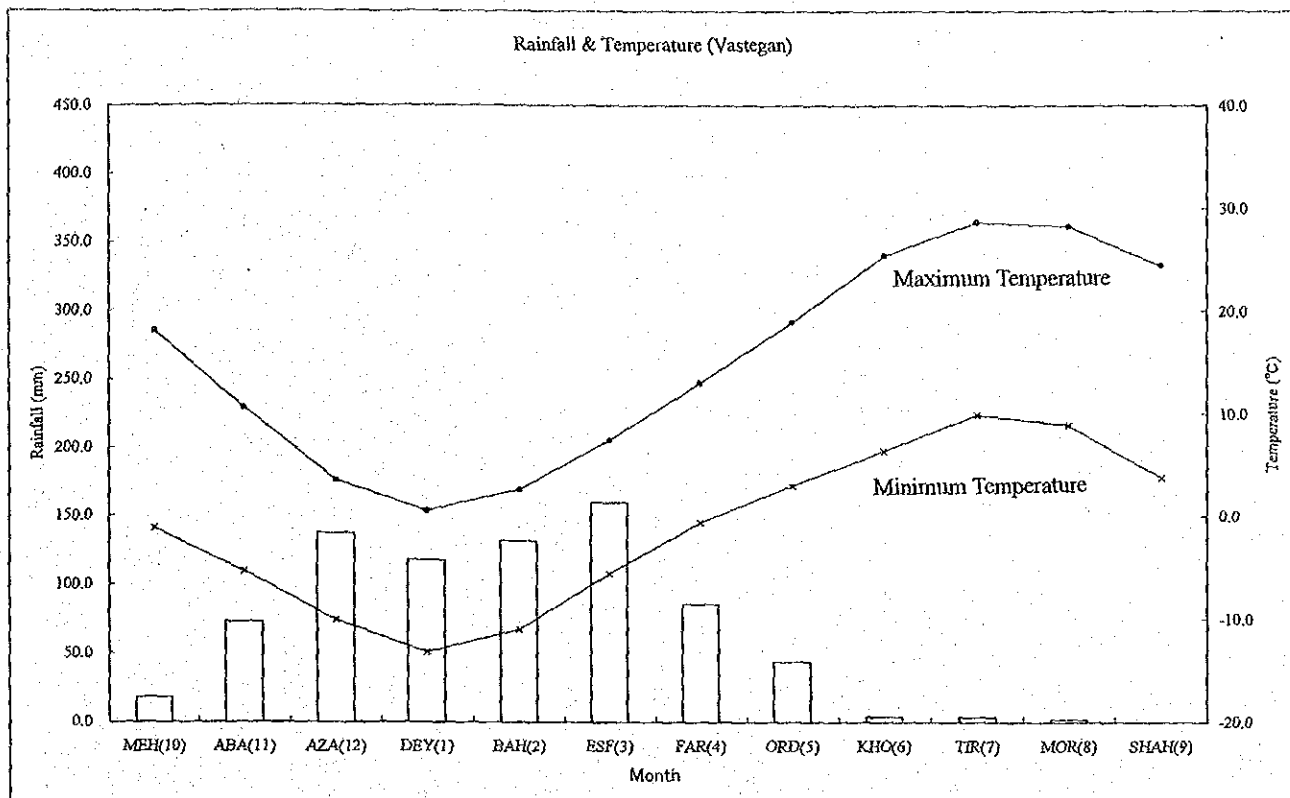


Figure C-2-2 General Feature of Climate in Master Plan area (1)

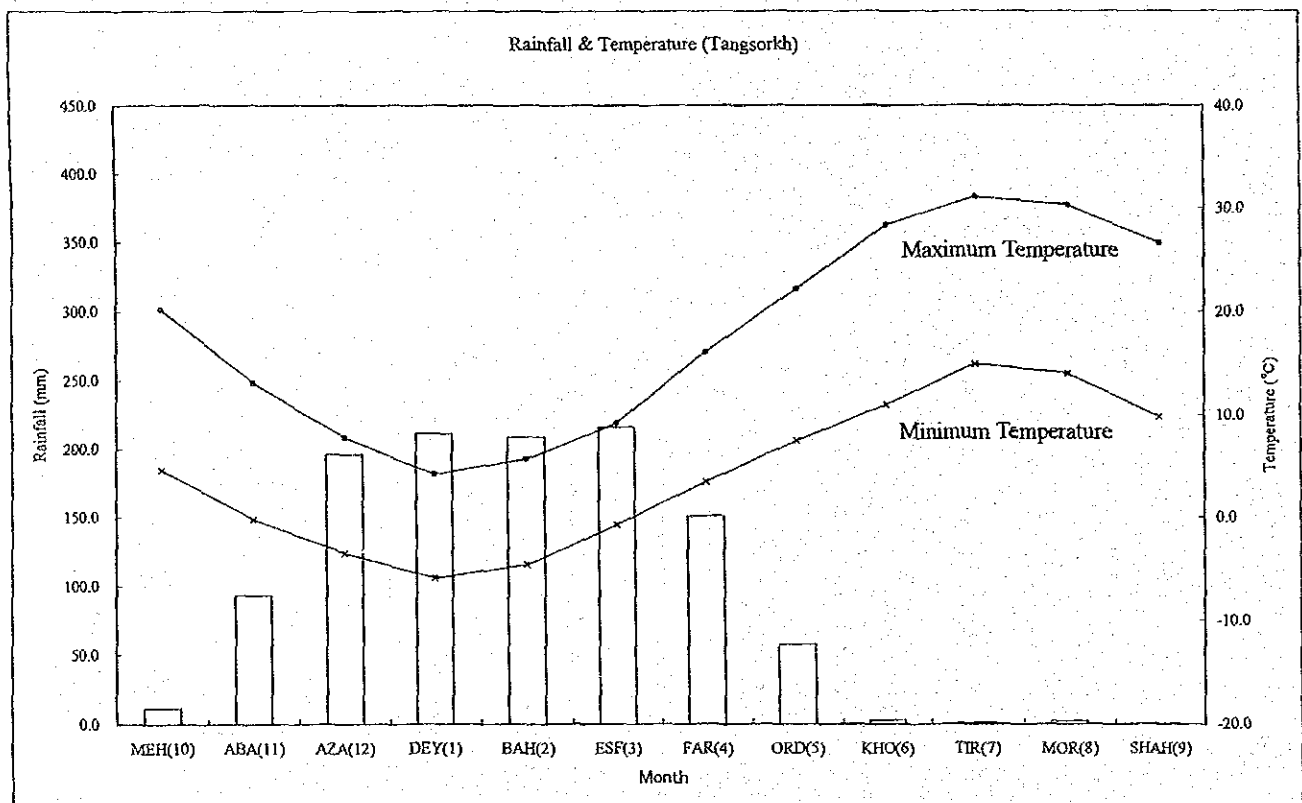
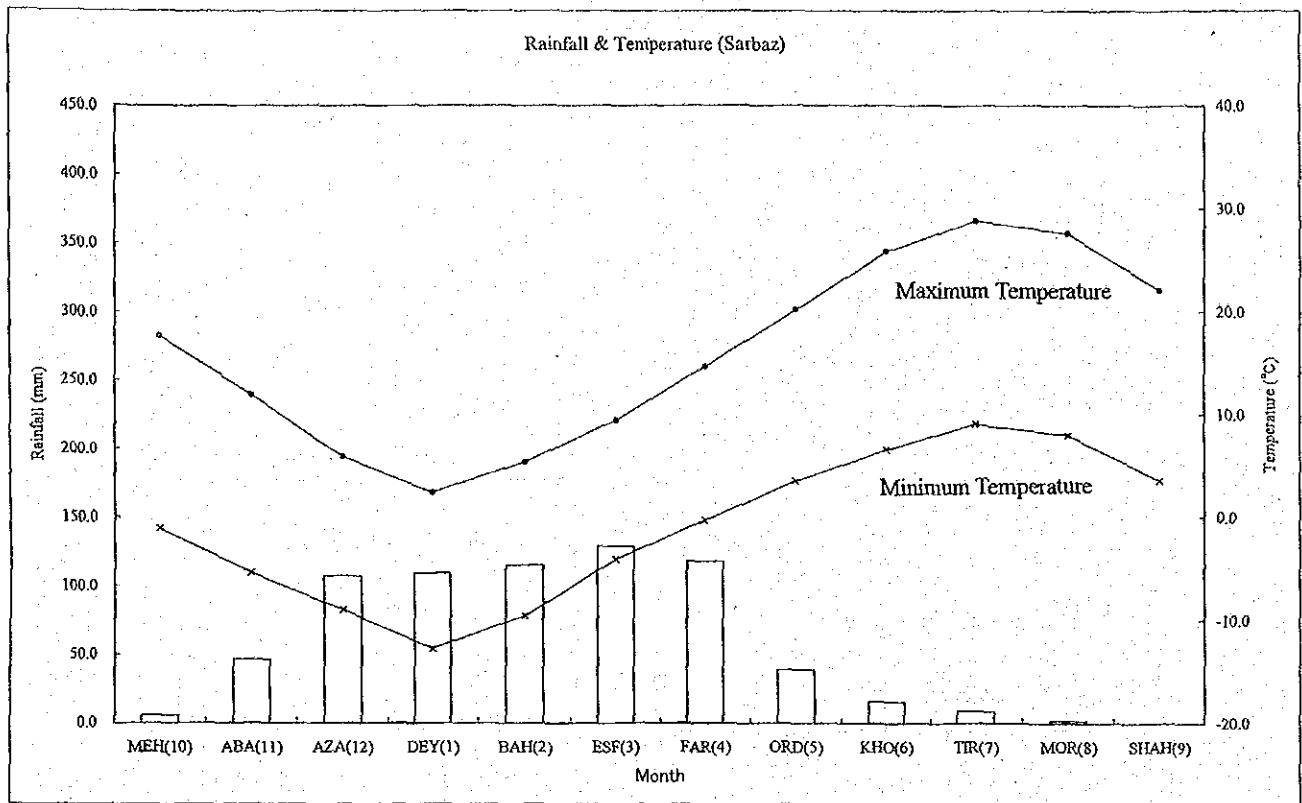


Figure C-2-2 General Feature of Climate in Master Plan area (2)

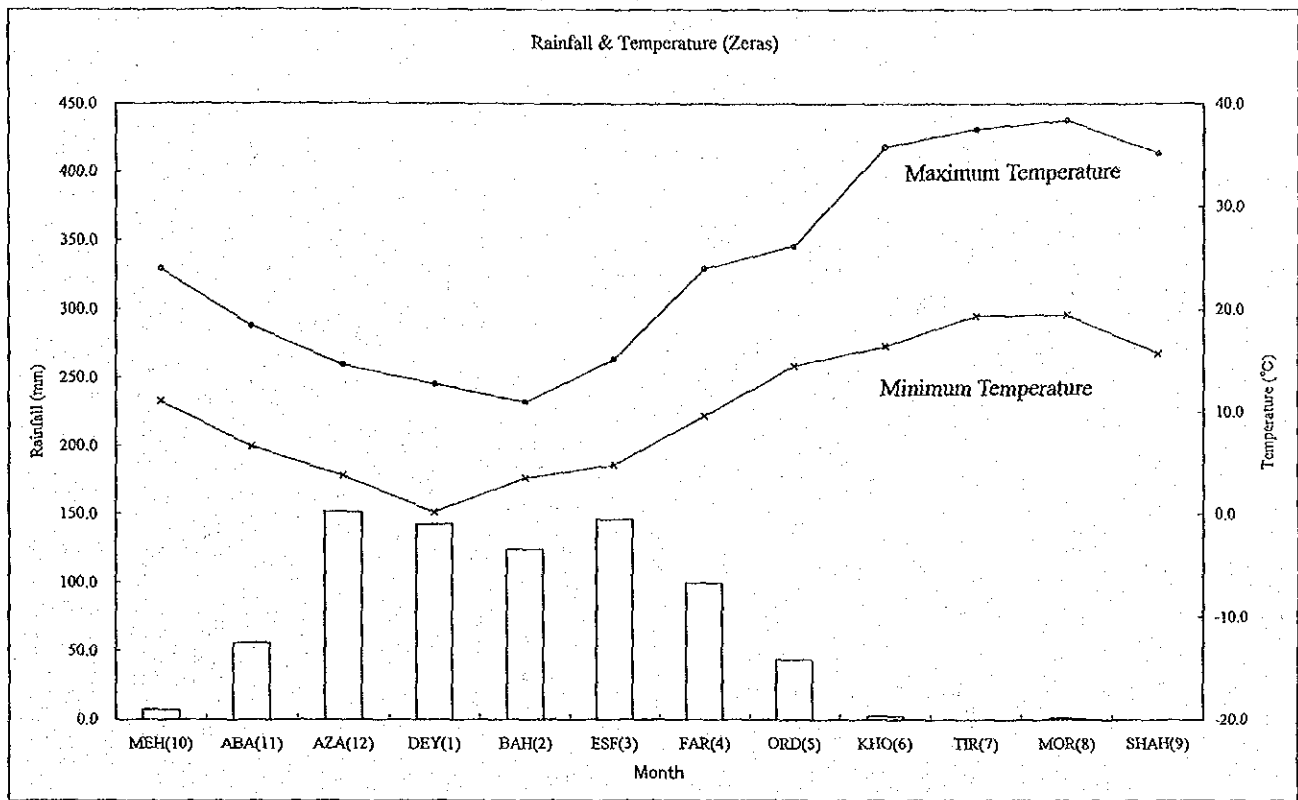


Figure C-2-2 General Feature of Climate in Master Plan area (3)

Table C-2-9 Rainfall Intensity near Master Plan area

## Rainfall Intensity (Emam Gheis)

Return Period	Intensity (mm/hr) of Duration of:									
	15 min.	30 min.	45 min.	60 min.	90 min.	120 min.	180 min.	240 min.	300 min.	360 min.
2	22.6	16.1	13.2	11.5	9.4	8.2	6.7	5.8	5.2	4.8
5	42.5	29.5	23.9	20.5	16.2	13.7	10.8	9.1	7.9	7.2
10	57.0	38.7	31.9	25.6	20.0	16.4	12.6	10.4	8.9	7.9
25	73.9	50.9	41.0	33.0	24.5	19.6	14.6	11.7	10.0	8.7
50	86.7	59.4	47.7	38.3	28.1	22.5	16.6	13.2	11.1	9.8
100	101.3	67.0	54.8	44.0	32.3	25.7	18.5	14.8	12.4	10.8

Source : Khajeh Nassir al Deen Toosi University of Technology and Department of Water Engineering Research

## Rainfall Intensity (Pol-e-shalu)

Return Period	Intensity (mm/hr) of Duration of:									
	15 min.	30 min.	45 min.	60 min.	90 min.	120 min.	180 min.	240 min.	300 min.	360 min.
2	31.1	20.8	16.0	13.9	10.1	9.8	8.1	7.8	7.1	6.5
5	41.6	27.8	21.5	18.7	12.6	13.3	10.6	10.6	9.7	8.8
10	48.5	32.4	25.2	21.8	14.3	15.6	12.2	12.5	11.3	10.3
25	57.3	38.2	29.8	25.8	16.4	18.5	14.3	14.8	13.4	12.2
50	63.8	42.6	33.2	28.8	17.9	20.7	15.9	16.6	15.0	13.6
100	70.2	46.9	36.6	31.7	26.5	22.8	17.4	18.3	16.6	15.0

Source : Khajeh Nassir al Deen Toosi University of Technology and Department of Water Engineering Research

## Rainfall Intensity (Yasuj)

Return Period	Intensity (mm/hr) of Duration of:									
	15 min.	30 min.	45 min.	60 min.	90 min.	120 min.	180 min.	240 min.	300 min.	360 min.
2	21.8	14.5	11.8	9.9	8.6	7.9	6.7	6.0	5.4	5.1
5	31.1	19.7	16.0	14.0	11.8	10.8	9.0	7.9	7.2	6.7
10	37.3	23.2	18.7	16.6	14.0	12.8	10.5	9.2	8.3	7.8
25	45.1	27.6	22.2	20.0	16.8	15.2	12.4	10.8	9.8	9.2
50	50.9	30.8	24.8	22.5	18.8	17.0	13.9	12.0	10.9	10.2
100	56.6	34.1	27.4	24.9	20.8	18.8	15.3	13.2	12.0	11.2

Source : Khajeh Nassir al Deen Toosi University of Technology and Department of Water Engineering Research

## Rainfall Intensity (Izeh)

Return Period	Intensity (mm/hr) of Duration of:									
	15 min.	30 min.	45 min.	60 min.	90 min.	120 min.	180 min.	240 min.	300 min.	360 min.
2	45.9	28.0	21.1	18.1	14.3	11.8	8.9	7.5	6.5	5.9
5	67.6	44.1	33.2	28.3	22.2	18.2	13.3	11.2	9.9	9.1
10	82.0	54.9	41.2	35.1	27.4	22.4	16.2	13.6	12.2	11.2
25	100.1	68.4	51.3	43.7	34.0	27.8	19.9	16.7	15.0	13.8
50	113.6	78.4	58.8	50.0	39.0	31.7	22.6	19.0	17.1	15.8
100	127.0	88.4	66.2	56.3	43.8	35.7	25.3	21.2	19.2	17.7

Source : Khajeh Nassir al Deen Toosi University of Technology and Department of Water Engineering Research

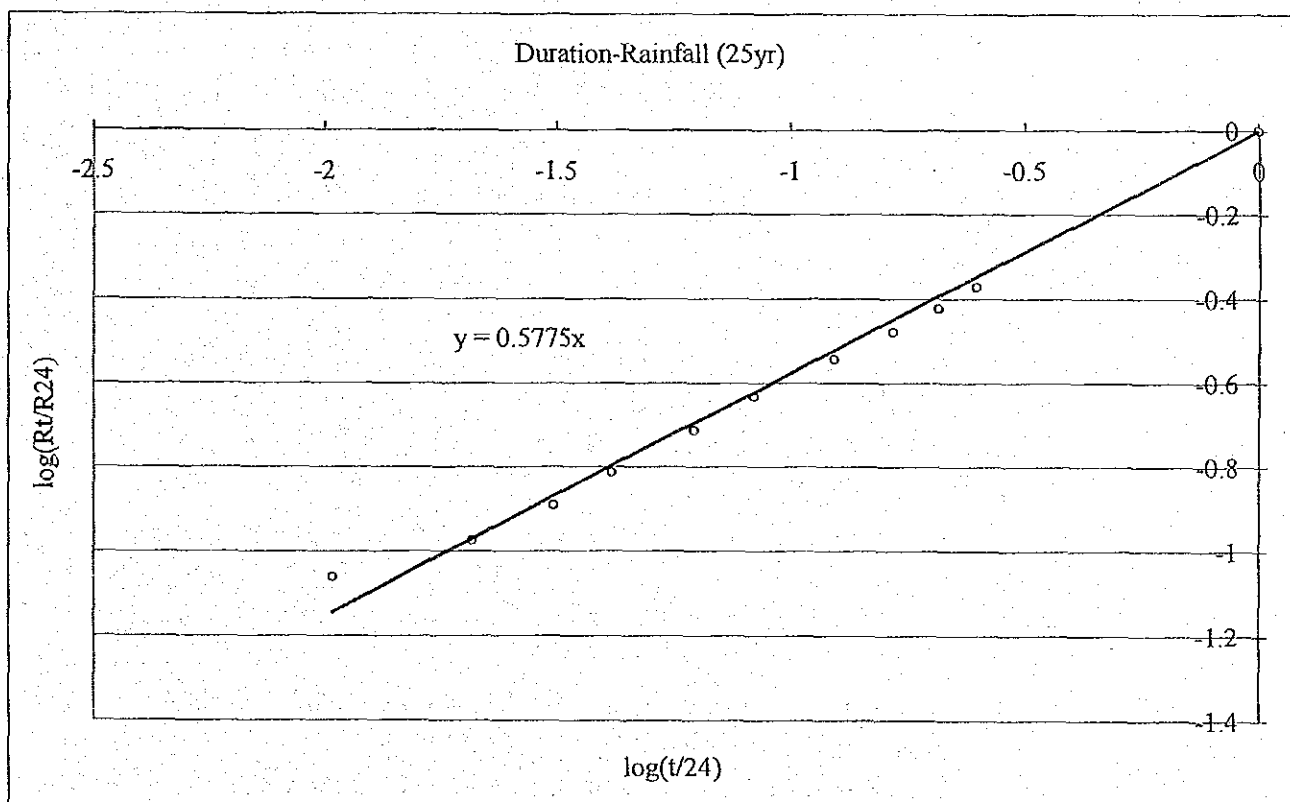
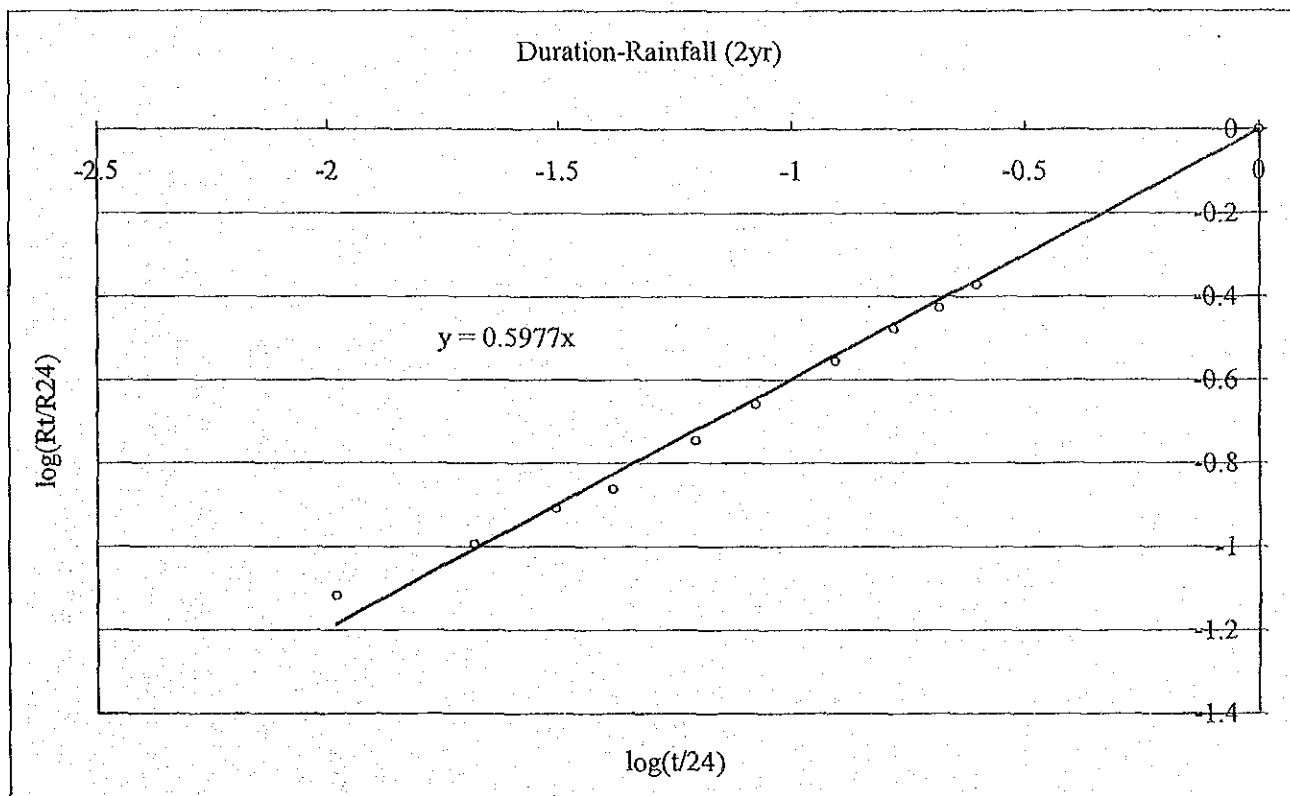


Figure C-2-3 Rainfall Intensity at Yasouj Station

Table C-2-10 Peak Flood Estimation by Rational Formula

Area Name	Site	Catchment Area (km <sup>2</sup> )	Time of Concentration (min.)	Rainfall Intensity (mm/hr)	Runoff Coefficient	Runoff (m <sup>3</sup> /s)	Baseflow (m <sup>3</sup> /s)	Total Runoff (m <sup>3</sup> /s)
Vastegan	V1	15.48	42	52.32	0.39	87.733	-	87.733
	V2	24.36	44	50.53	0.39	133.345	-	133.345
	V3	38.09	65	38.48	0.39	158.787	0.014	158.800
	V4	8.88	36	57.95	0.39	55.745	0.006	55.751
	V5	11.15	35	58.76	0.38	69.155	0.008	69.162
Chaman	B1-1	18.11	44	54.71	0.40	110.084	0.196	110.280
Goli-Bazoft	B1-2	35.11	62	46.65	0.38	172.881	0.381	173.261
	B1-3	46.09	69	44.43	0.37	210.476	0.500	210.976
	B1-4	6.64	30	65.51	0.40	48.330	0.072	48.402
	B1-5	8.35	39	57.96	0.37	49.738	0.091	49.829
	B2-1	5.32	22	76.78	0.36	40.846	0.058	40.904
	B2-2	27.48	45	54.54	0.37	154.033	0.298	154.331
	B2-3	60.53	66	45.25	0.37	281.484	0.656	282.140
	B2-4	10.57	33	63.16	0.39	72.320	0.115	72.435
	B2-5	14.09	40	57.59	0.40	90.164	0.153	90.317
	B3	3.03	20	79.90	0.34	22.864	-	22.864
Sarbaz	S1-1	25.64	43	36.67	0.40	104.474	1.090	105.564
	S1-2	49.87	61	31.04	0.38	163.389	2.119	165.508
	S1-3	88.21	83	26.91	0.37	243.936	3.749	247.685
	S1-4	113.28	97	24.94	0.36	282.522	4.814	287.337
	S1-5	5.71	29	44.54	0.40	28.260	0.243	28.503
	S1-6	25.54	59	31.54	0.39	87.267	1.085	88.353
	S1-7	19.63	38	39.06	0.33	70.279	0.834	71.113
	S2-1	6.83	25	47.50	0.36	32.442	-	32.442
	S2-2	20.13	50	34.09	0.35	66.712	-	66.712
	S2-3	3.04	20	52.87	0.38	16.964	-	16.964
	S3	4.06	24	48.88	0.39	21.500	-	21.500
Tangsorkh	T1-1	20.16	72	24.84	0.37	51.474	0.058	51.532
	T1-2	34.91	83	23.23	0.37	83.351	0.100	83.451
	T1-3	43.09	99	21.40	0.37	94.758	0.123	94.881
	T1-4	10.99	42	32.26	0.37	36.435	0.031	36.467
	T1-5	5.69	20	46.01	0.37	26.910	0.016	26.926
	T2	1.82	15	52.74	0.34	9.065	-	9.065
	T3	5.02	25	40.93	0.38	21.688	-	21.688
Zeras	Z1	4.2	23	95.50	0.32	35.652	-	35.652
	Z2	12.91	31	77.66	0.33	91.906	-	91.906
	Z3	2.52	19	106.56	0.31	23.124	-	23.124
	Z4-1	7.38	27	84.97	0.33	57.481	-	57.481
	Z4-2	13.12	32	76.60	0.33	92.120	-	92.120
	Z4-3	4.38	24	93.03	0.32	36.219	-	36.219
	Z5	15.38	32	77.03	0.34	111.896	-	111.896
	Z6	2.33	15	127.84	0.35	28.958	-	28.958

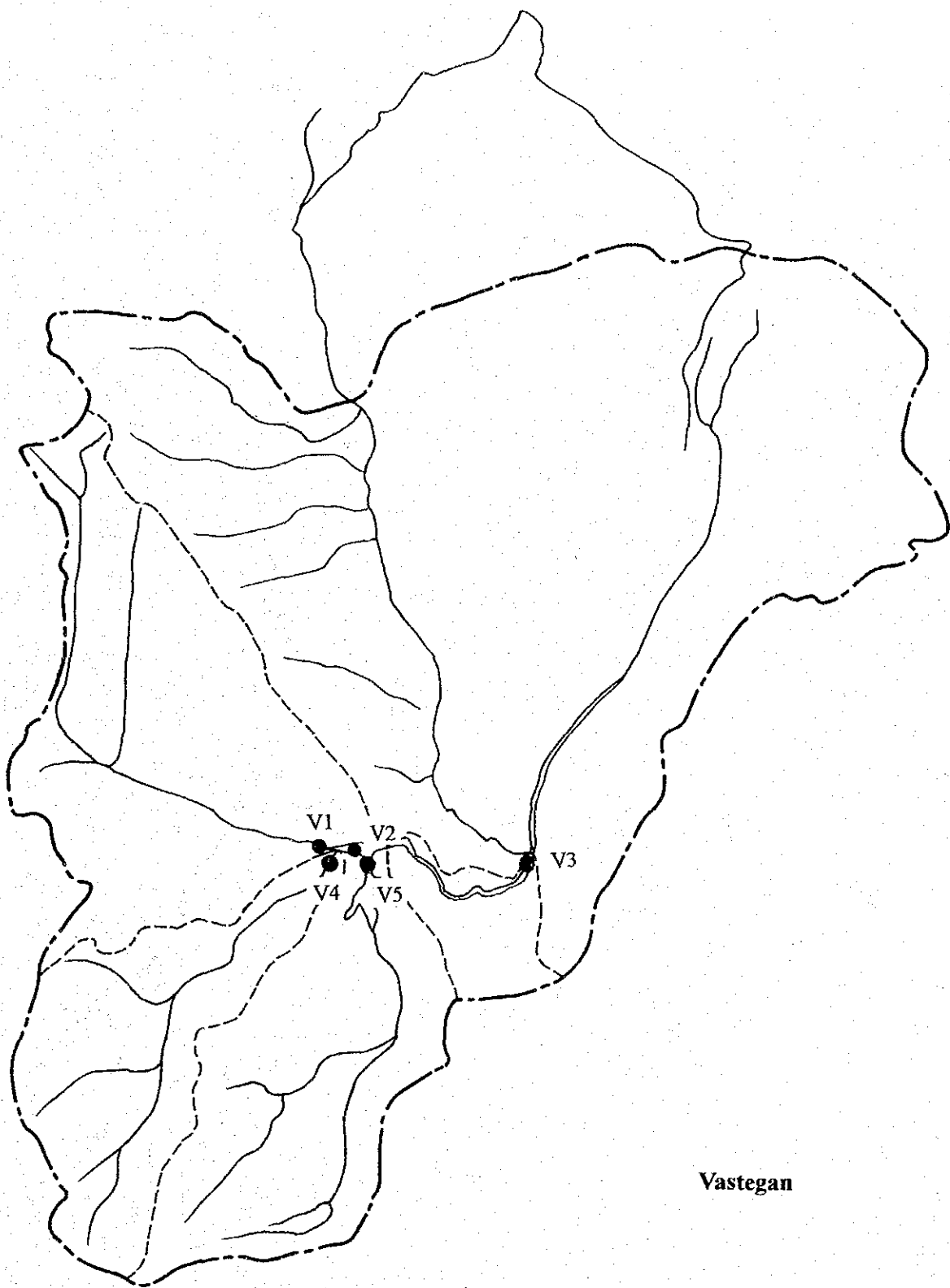


Figure C-2-4 Hydrological Division of sub-tributaries in Master Plan Area (1)

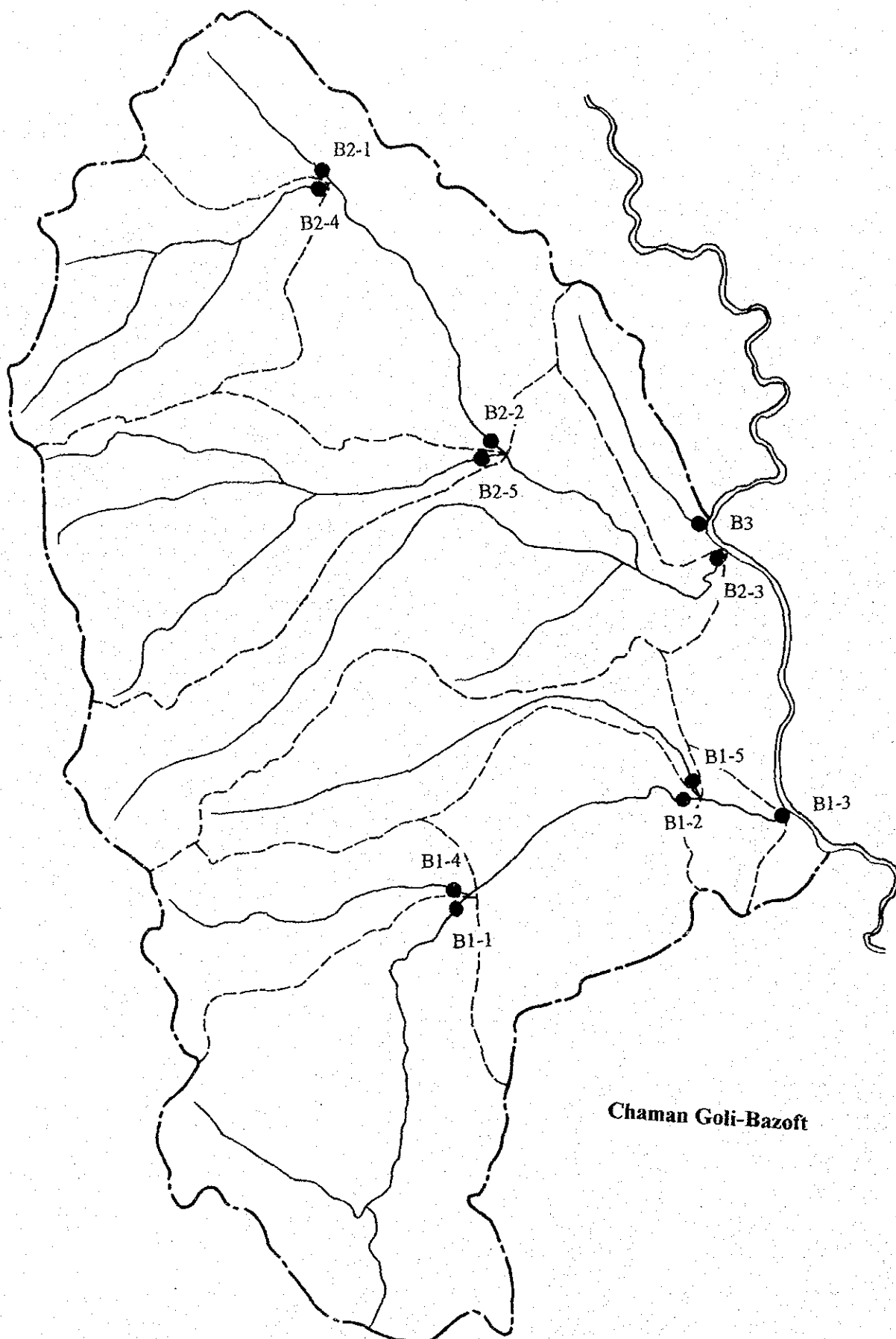


Figure C-2-4 Hydrological Division of sub-tributaries in Master Plan Area (2)



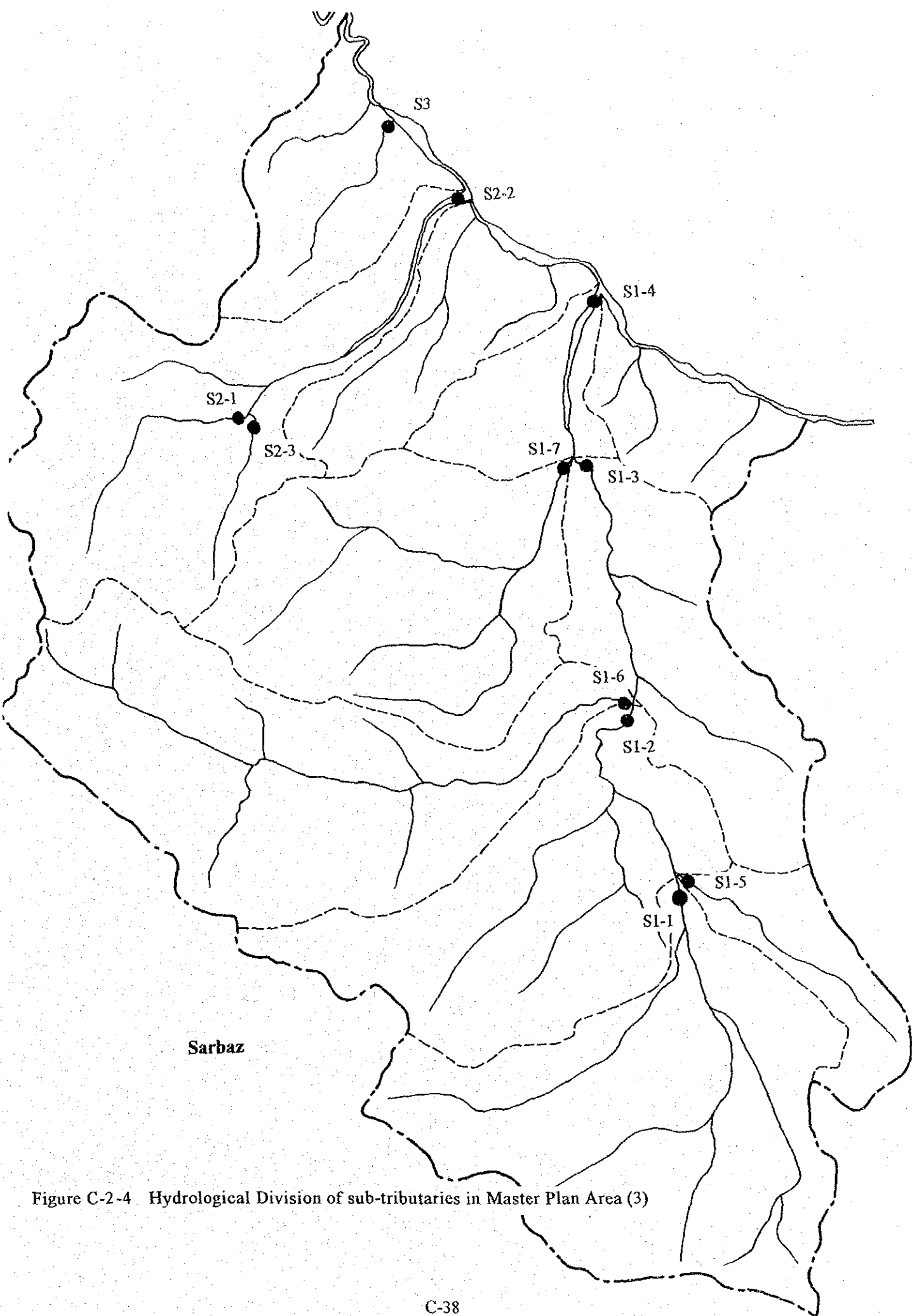


Figure C-2-4 Hydrological Division of sub-tributaries in Master Plan Area (3)

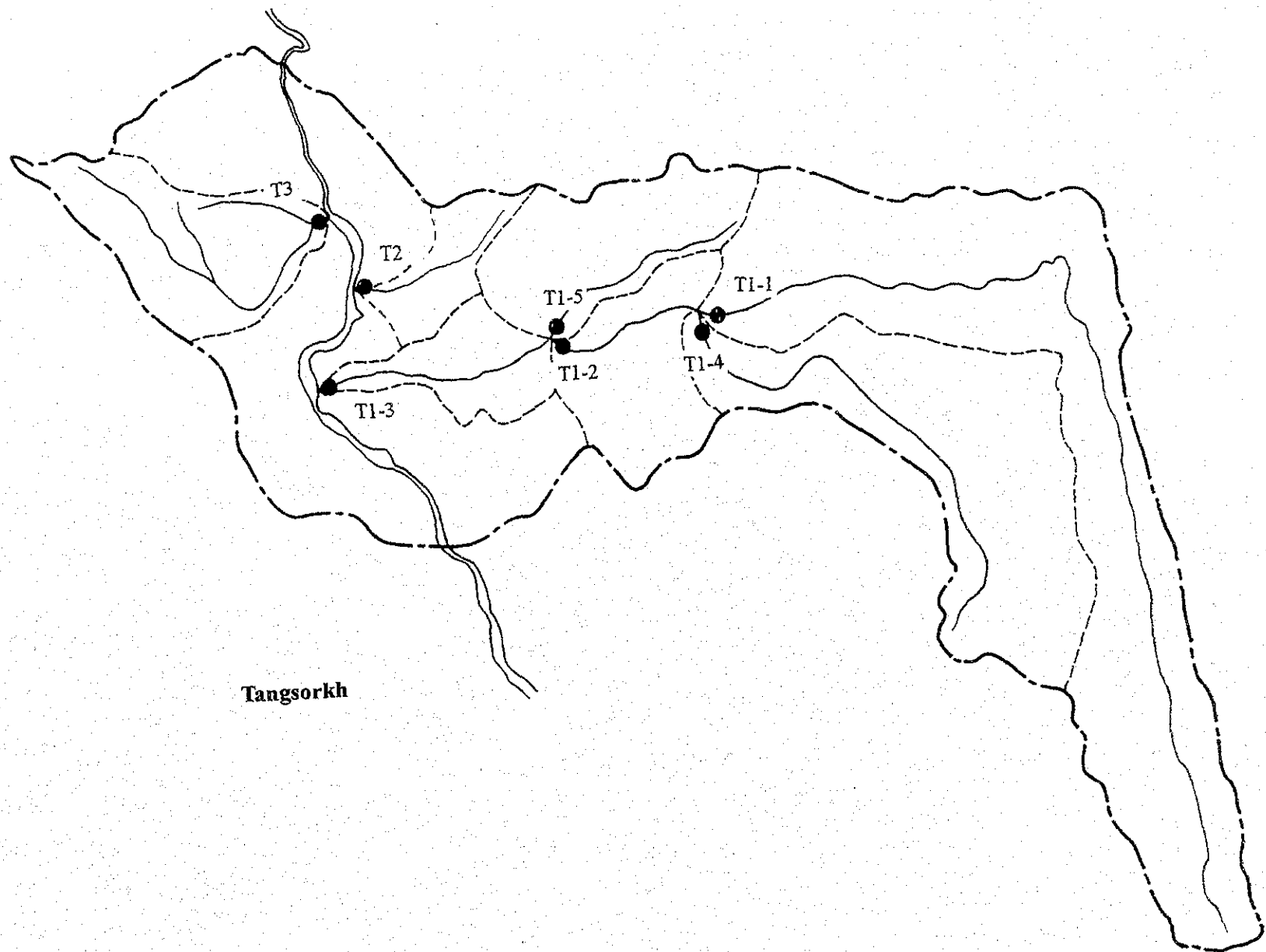


Figure C-2-4 Hydrological Division of sub-tributaries in Master Plan Area (4)

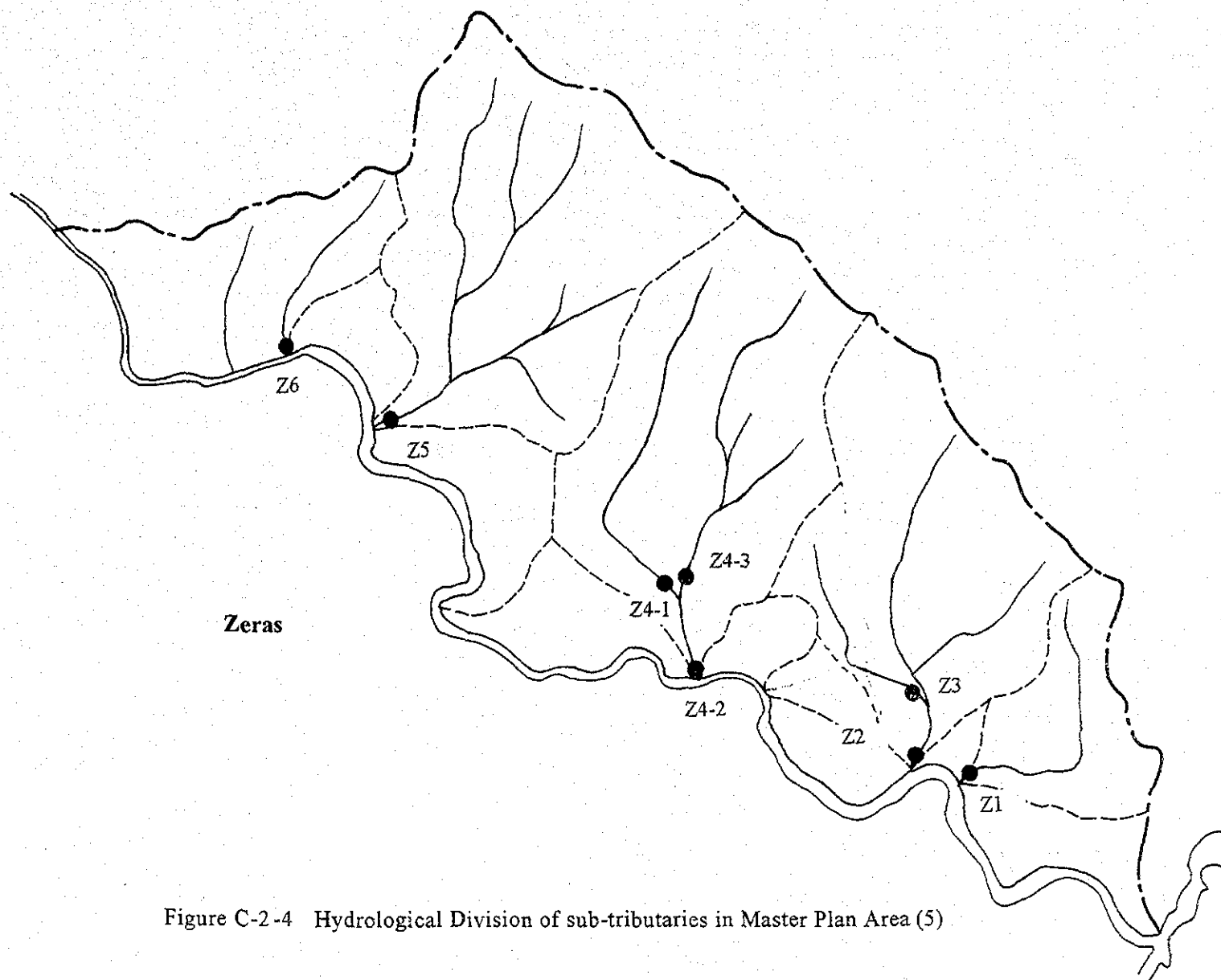


Figure C-2-4 Hydrological Division of sub-tributaries in Master Plan Area (5)

Table C-3-1 Water Consumption in Rural Area

Plain Name	Plain Code	Population	Per Capita Demand (litres/day/head)			Volume of Water TCM <sup>(1)</sup>	Source of water (%)		Wastewater coefficient	Wastewater volume TCM <sup>(1)</sup>	Wastewater disposal	
			Existing	Recommended	Usual		Surface water	Groundwater			Surface water	Groundwater
YASOJ-SEECAKHT	34101	44665	91	122	131	1484	10	90	0.77	1142	20	80
KAHARDAN	34102	98051	106	122	131	3794	10	90	0.77	2921	20	80
GHABRKIKHA	34103	0	106	122	131	0	10	90	0.77	0	20	80
HANA	34104	6428	112	122	131	263	10	90	0.77	202	20	80
SAMIROM	34105	366	109	119	128	15	10	90	0.72	10	20	80
MAL-KHALIFEH	34106	18913	112	122	131	773	10	90	0.77	595	20	80
DASHTROOM	34107	6992	106	122	131	271	10	90	0.77	208	20	80
MEHRGERD	34201	8500	105	114	122	326	0	100	0.76	248	20	80
IMAMGHIIS-DORAHAN	34202	11427	105	114	122	438	0	100	0.76	333	20	80
BROJEN-SEPIDASHT	34203	8784	119	130	140	382	0	100	0.7	267	20	80
GANDOMAN-BELDAJI	34204	20010	105	114	122	767	0	100	0.76	583	20	80
SHALAMZAR	34205	28224	112	122	131	1154	0	100	0.76	877	20	80
ARDEL	34206	8394	118	128	138	362	0	100	0.77	278	20	80
KYAR	34207	9256	105	114	122	355	0	100	0.76	270	20	80
SHAHREKURD	34208	45366	107	116	125	1772	0	100	0.7	1240	20	80
-HAFESHJAN												
SORSHEJAN-VANAN	34209	17390	103	112	121	654	0	100	0.77	503	20	80
FARSAN-JONEGHAN	34210	45867	112	122	131	1875	0	100	0.79	1481	20	80
CHENDAR-KOLONCHI	34211	1629	105	114	122	62	0	100	0.76	47	20	80
DASHTAK	34212	21739	105	114	122	833	0	100	0.76	633	20	80
CHESHMEH-SOLEIMAN	34213	6160	105	114	122	236	0	100	0.76	179	20	80
JAVANMARDI	34214	25372	105	114	122	972	0	100	0.76	739	20	80
CHENARMAHMODI	34215	9416	105	114	122	361	0	100	0.76	274	20	80
BARDBAR	34216	4988	105	114	122	191	0	100	0.76	145	20	80
LORDEKAN	34217	19532	120	131	141	856	0	100	0.7	599	20	80
DARREHBAZOFTKHERSAN	34218	72498	105	114	122	2778	0	100	0.76	2112	20	80
BARANGARD	34301	13133	96	139	149	460	50	50	0.65	299	50	50
IZEH-CHENARESTAN	34302	32115	92	133	142	1078	50	50	0.73	787	50	50
PION	34303	7765	96	139	149	272	50	50	0.65	177	50	50
DEHSHEIKH	34304	21016	96	139	149	736	50	50	0.65	479	50	50
CHEGARMAN	34305	27356	96	139	149	959	50	50	0.65	623	50	50
LALI	34306	14366	96	139	149	503	50	50	0.65	327	50	50

Note ) (1) TCM means Thousand cubic meters.

Table C-3-2 Irrigation Water Demand

Plain Name	Plain Code	Irrigated Area (ha)	Unit Water Requirement (m3/ha)	System Efficiency (%)	Unit Water Use (m3/ha)	Surface Water Use (1000m3)	Ground Water Use (1000m3)	Total
YASOJ-SECAKHT	34101	18,285	3,936	35	11,245	184,183	21,424	205,607
KAHARDAN	34102	6,310	3,161	30	10,535	66,479	0	66,479
GHABRIKHA	34103	1,824	4,139	36	11,497	20,970	0	20,970
HANA	34104	8,489	3,769	32	11,777	99,971	0	99,971
SAMIROM	34105	10,426	3,528	32	11,025	109,476	5,472	114,948
MAL-KHALIFEH	34106	5,153	4,191	32	13,096	57,408	10,075	67,483
DASHTROOM	34107	6,000	3,124	32	9,762	55,068	3,503	58,571
MEHRGERD	34201	4,234	4,504	36	12,512	27,976	24,999	52,975
IMAMGHIS-DORAHAN	34202	3,534	3,617	34	10,638	26,095	11,501	37,596
BROJEN-SEPIDASHT	34203	11,386	4,030	34	11,854	34,999	99,976	134,975
GANDOMAN-BELDAJI	34204	11,790	3,351	34	9,855	57,191	59,004	116,195
SHALAMZAR	34205	4,038	3,670	33	11,121	29,597	15,308	44,905
ARDEL	34206	3,084	3,834	34	11,276	30,559	4,215	34,774
KYAR	34207	4,440	3,891	36	10,809	12,996	34,995	47,991
SHAHREKURD-HAFESH	34208	20,618	3,697	38	9,730	0	200,621	200,621
SORSHEJAN-VANAN	34209	3,162	4,018	35	11,480	6,298	30,001	36,299
FARSAN-JONEGHAN	34210	6,869	3,407	32	10,648	60,145	12,997	73,142
CHENDAR-KOLONCHI	34211	2,344	2,646	31	8,537	20,011	0	20,011
DASHTAK	34212	2,501	3,654	31	11,786	29,477	0	29,477
CHESHMEH-SOLEIMAN	34213	1,213	4,387	31	14,153	17,167	0	17,167
JAVANMARDI	34214	10,507	3,018	35	8,624	0	90,609	90,609
CHENARMAHMODI	34215	2,134	3,325	35	9,500	9,604	10,670	20,274
BARDBAR	34216	714	4,539	32	14,183	8,528	1,599	10,127
LORDEKAN	34217	5,033	4,705	32	14,702	61,995	12,002	73,997
DAREHBAZOFT-KHERSAN	34218	3,571	4,970	31	16,033	57,255	0	57,255
DEHSHEIKH	34304	602	9,044	32	28,262	17,014	0	17,014
CHEGARMAN	34305	129	3,798	34	11,171	961	480	1,441
Total		158,390			11,054	1,101,423	649,451	1,750,874

Table C-3-3 Water Quality of Surface Water

Station	Code	River	TDS (mg/lit.)	EC ( $\mu$ mhos/cm)	PH	CO <sub>3</sub> (mg/lit.)	HCO <sub>3</sub> (mg/lit.)	CL (mg/lit.)	SO <sub>4</sub> (mg/lit.)	CA (mg/lit.)	MG (mg/lit.)	NA (mg/lit.)	K (mg/lit.)	SAR (mg/lit.)
Dehkadeshahid	34110	Marboreh	205.94	315.44	7.80	0.12	2.35	0.46	0.42	1.88	0.87	0.47	0.03	0.43
Polichoghodar	34112	Hana	362.91	562.08	7.72	0.00	3.33	1.56	0.79	2.66	1.67	1.29	0.08	0.88
Yasooj	34114	Boshar	257.92	397.10	7.91	0.00	2.92	0.70	0.42	2.57	0.92	0.58	0.03	0.42
Shahunoktar	34115	Boshar	220.31	335.31	7.87	0.11	2.88	0.31	0.17	2.46	0.83	0.21	0.02	0.16
Darshahi	34117	Boshar	248.44	402.35	7.88	0.60	3.02	0.70	0.49	2.49	1.07	0.60	0.03	0.44
Botari	34118	Kabkian	278.00	440.10	7.82	0.08	3.27	0.68	0.57	2.75	1.24	0.52	0.02	0.37
Barzbakhtiari	34121	Kersan	265.64	408.37	7.80	0.04	2.95	0.60	0.81	2.39	1.28	0.66	0.03	0.50
Lordejan	34210	Lordejan	279.58	431.13	7.80	0.40	3.10	0.90	0.56	2.32	1.44	0.78	0.03	0.56
Tangzardalou	34211	Kasgan	289.25	443.74	7.74	0.00	3.67	0.55	0.50	2.63	1.53	0.56	0.02	0.39
Godarkabk	34212	Aghbolagh	281.61	433.71	7.83	0.10	3.97	0.30	0.58	2.63	1.79	0.40	0.03	0.27
Sharekord	34214	Kharrood	293.40	452.15	7.79	0.30	3.96	0.34	0.71	2.65	1.82	0.49	0.02	0.33
Babahyeidar	34215	Sarab	229.79	355.75	7.87	0.13	3.00	0.21	0.29	2.51	0.87	0.21	0.01	0.16
Kouhrang Dam	34217	Abe Kohrang	144.50	222.50	8.32	0.05	1.80	0.13	0.14	1.33	0.63	0.18	0.00	0.18
Marborn	34218	Marboreh	126.75	195.31	7.96	0.24	1.66	0.21	0.26	1.36	0.60	0.22	0.01	0.23
Armand	34219	Karoon	333.00	511.76	7.88	0.07	2.91	1.64	0.67	2.32	1.30	1.62	0.03	1.21
Ghoshehpul	34220	Abe Turkey	182.66	281.20	7.95	0.05	2.43	0.19	0.24	1.92	0.82	0.14	0.01	0.12
Poleshaloo	34222	Karoon	354.68	575.02	7.97	0.00	2.78	2.08	0.93	2.42	1.31	1.98	0.04	1.44
Polemari	34224	Chaghakhor	279.58	429.43	8.00	0.17	3.58	0.26	0.39	2.21	1.90	0.23	0.03	0.17
Kohesokhteh	34226	Kiar	311.45	479.35	7.93	0.12	3.78	0.51	0.50	2.58	1.71	0.58	0.03	0.40
Dazak	34227	Birgan	200.06	308.05	7.95	0.07	2.70	0.19	0.22	2.11	0.88	0.17	0.01	0.14
Zarinderakht	34228	Khanmirza	449.89	692.01	7.97	0.13	4.06	1.90	0.94	2.49	2.49	1.92	0.03	1.21
Outsadekaro	34310	Karoon	352.31	564.11	7.97	0.00	2.81	1.85	1.07	2.64	1.23	1.74	0.03	1.24
Polekarchbas	34230	Ab Vanak	233.50	359.88	8.20	0.08	2.70	0.30	0.32	1.84	1.39	0.29	0.02	0.23
Gerdbisheh	34237	Gerdbisheh	265.08	407.19	8.15	0.08	3.21	0.40	0.31	2.48	1.17	0.34	0.02	0.25
Polbardegan	34241	Gharahghach	248.75	383.50	7.73	0.00	3.08	0.31	0.44	2.67	0.96	0.21	0.02	0.15
Tangekharaii	34223	Ab Jahanbin	183.02	281.67	8.00	0.06	2.23	0.27	0.24	1.80	0.77	0.27	0.01	0.22
Kerik	34116	Kerik	363.60	611.25	7.90	-	2.97	2.42	0.69	2.47	1.26	2.25	0.02	1.66
Palaveh	34120	Garmrood	385.13	605.56	7.85	0.05	3.09	2.01	1.07	2.97	1.28	1.89	0.03	1.02
Solegan	34213	Solegan	273.27	421.37	7.89	0.10	3.54	0.38	0.47	2.43	1.57	0.42	0.03	0.30
Beheshtabad	34216	Beheshtabad	334.27	513.37	7.89	0.11	3.22	1.33	0.47	2.49	1.43	1.14	0.07	0.81
Morghak	34221	Bazoft	450.00	691.06	7.81	0.09	2.84	3.42	0.74	2.36	1.20	3.45	0.03	2.58
Tangedarkesh	34225	Chonghan	277.77	427.77	7.95	0.14	3.20	0.51	0.51	2.67	1.17	0.43	0.03	0.31
Siahkalk	34242	Garmab	289.05	445.32	7.69	0.00	3.99	0.38	0.46	2.79	1.69	0.32	0.03	0.21
Khakdaneh	34111	Marboreh	194.62	299.42	7.91	0.27	2.55	0.32	0.31	2.01	0.89	0.24	0.02	0.20
Kata	34113	Marboreh	268.14	410.47	7.87	0.04	2.98	0.77	0.44	2.44	1.19	0.61	0.04	0.45
Average			277.54	431.25	7.90	0.11	3.04	0.83	0.52	2.36	1.26	0.78	0.03	0.56

Table C-3-4 Spring Numbers and Discharge

Plain Name	Plain Code	Year	Springs											
			Hard Formation in Mountain				in Hard Formation near Alluvial				Alluvial			
			No. of Springs	Ave. Discharge (lit/sec)	Max. Discharge (lit/sec)	Total Discharge (MCM/year)	No. of Springs	Ave. Discharge (lit/sec)	Max. Discharge (lit/sec)	Total Discharge (MCM/year)	No. of Springs	Ave. Discharge (lit/sec)	Max. Discharge (lit/sec)	Total Discharge (MCM/year)
YASOJ-SEECAKHT	34101	1374	9	374	4000	106	12	60	700	23	15	8	120	3.8
HANA	34104	1373	3	32		3								
SAMIROM	34105	1373	12	103		39								
MAL-KHALIFEH	34106	1372	71	68	3530	152.2	5	14.5	41	1.33	1	0.5	1	0.02
DASHTROOM	34107	1374					25	37	500	29.17	15	5	8.5	2.36
MEHRGERD	34201	1373	257	9.3	150	75.5								
IMAMGHIS-DORAHAN	34202	1373	52	92		151								
BROJEN-SEPIDASHT	34203	1369	3	3	5	0.06	6	22.8	146	4.31	7	4.8	22	1.05
GANDOMAN-BELDAJI	34204	1373	39	83		102.4								
SHALAMZAR	34205	1372	41	77	1236	99.77								
ARDEL	34206	1372	198	19.6	222	122.25								
KYAR	34207	1372	17	46.5	100	24.9								
SHAHREKURD-HAFESHJAN	34208	1372	48	11.45	274	17.3								
SORSHEJAN-VANAN	34209	1372	83	4	27	10.38								
FARSAN-JONEGHAN	34210	1372	100	16	400	50.91								
JAVANMARDI	34214	1369	29	2.7	10	2.43	11	20	137	7	10	18	61	5.7
CHENARMAHMODI	34215	1369	8	3.3	12	0.84	6	41	305	7.77	6	2	3	0.4
BARDBAR	34216	1369	14	7.3	14	3.25	6	32	106	6.07				
LORDEKAN	34217	1369	4	114	544	14.36	4	771	2165	97.32	6	21		4

Table C-3-5 Numbers and Discharge of Wells and Qanaat

Plain Name	Plain Code	Year	WELLS					Qanat			
			No. of Wells	Discharge (lit/sec)		Operation (Hours/year)	Total Extraction (MCM/Year)	No. of Qanats	Discharge (lit/sec)		Total Extraction (MCM/Year)
				Average	Max.				Average	Max.	
YASOJ-SEECAKHT	34101	1995	258	11	90	2880	29.7				
HANA	34104	1994						1	12		0.4
SAMIROM	34105	1994	75	11		1490	4.5	4	31.7		4
MAL-KHALIFEH	34106	1993	64	23	43	2286	8.96	12	7.2	21	2.74
DASHTROOM	34107	1995	14	49	90	3820	9.53				
MEHRGERD	34201	1994	42	12		2000	3.3	75	13		30.4
IMAMGHIS-DORAHAN	34202	1994	31	16	30	5433	9.74	6	15		2.8
BROJEN-SEPIDASHT	34203	1990	449	15	43	4324	85.49	60	9.5	58	18.02
GANDOMAN-BELDAJI	34204	1994	300	12	43	3360	43.55	18	48	156	27.54
SHALAMZAR	34205	1993	134	5.2	25	2258	5.63	24	18.9	46	14.29
ARDEL	34206	1993	14	7.7	16	2278	1	20	9.7	45	6.2
KYAR	34207	1993	129	14.8	64	3070	21.05	22	29.7	135	20.63
SHAHREKURD-HAFESHJAN	34208	1993	696	23.2	73	2538	147.5	125	37.6	223	148.38
SORSHEJAN-VANAN	34209	1993	43	2.2	23	1479	0.5	80	19.8		49.74
FARSAN-JONEGHAN	34210	1993	212	6.3	53	1791	8.58	7	52.5		11.6
JAVANMARDI	34214	1990	537	15	47	3042	88.2	14	9	30	4
CHENARMAHMODI	34215	1990	74	13.8	28	3346	10.3	2	7	10	0.44
BARDBAR	34216	1990	4	17	27	2070	0.5	8	5.7	15	1.5
LORDEKAN	34217	1990	53	14.7	31	3697	10.4	3	3.4	7	0.32

Table C-3-6 Water Quality of Groundwater

unit : mg/liter

Name	Plain Code	Na	Mg	Ca	SO4	Cl	HCO3	ph	EC	TDS
SAMIROM	34105	5.97	2.04	3.70	5.10	1.84	3.11	7.93	970.00	639.00
BROJEN-SEPIDASHT	34203	1.02	1.82	1.34	1.32	1.06	1.54	9.00	453.00	297.00
GANDOMAN-BELDAJI	34204	0.55	1.64	1.41	0.48	0.41	2.43	8.97	374.00	244.00
SHAIHREKURD-HAFESHJAN	34208	0.80	1.69	1.84	1.02	0.63	2.31	8.89	448.00	290.00
FARSAN-JONEGHAN	34210	0.30	1.22	1.28	0.53	0.38	0.53	1.72	291.00	193.00
LORDEKAN	34217	0.93	2.51	1.21	0.92	1.06	2.11	9.16	493.00	325.00
Average		1.60	1.82	1.80	1.56	0.90	2.01	7.61	504.83	331.33